

AIP

annual report

1963

This review of activities of the past year has been prepared by the director of the American Institute of Physics and accepted by the AIP Governing Board as the Institute's annual report to its member organizations.

By Elmer Hutchisson

Introduction

The year 1963 saw many exciting advances in physics, including such exotic items as gravitational collapse, anti- Ξ particles, bootstrap dynamics, to say nothing of the extraordinary fertility of new ideas in the fields of lasers and plasmas. More appropriate, however, for discussion in an AIP report are recent striking developments in what one might more properly call the sociology of physics.

The first of these is the deep sense of responsibility which physicists are beginning to assume over the increasing financial requirements of physics research. Over the past several years the funds available for basic research in physics have increased between 15 and 20 percent per year. These increases are reflected in similar increases in the number of pages in the AIP family of journals. As a matter of interest, the average cost of doing the research reported on a typical page in an AIP journal has been increasing slowly, but still remains in the neighborhood of \$10 000. The problem facing physicists and other scientists is that the annual percentage increases in expenditures for basic research are three or four times greater than those in the gross national product. Furthermore, recommendations have been made that expenditures in certain fields alone, such as high-energy physics, should, over the next few years, increase as much as 25 percent per year. When basic research expenditures were small, such increases caused little concern, but as total expenditures

reach appreciable fractions of a billion dollars, the public, as represented by the Congress and the Administration, begins to raise questions. It has become very clear that unless physicists and other scientists themselves analyze critically the needs of various areas of basic research, a competition for funds will develop which will be settled not by scientists but by others who may not see as clearly as scientists do the long-range implications of the research. The National Academy of Sciences has already taken steps to meet this problem, and the Institute stands ready to help in any way it can.

The very pertinent public interest in advances in basic physics points up critically another sociological development which should be mentioned here. The recent US Office of Education figures on high-school enrollment in physics courses (charted in Section 3) show that physics has fared badly in comparison with biology, chemistry, or general science. Enrollments in other sciences have more than doubled in the last decade, but in physics courses per se (as contrasted with physics as a part of general science), the increase is almost negligible and, in fact, the percentage of all pupils in high school taking physics courses has decreased. Competent physics teachers, long in short supply, are rapidly disappearing from the national scene. Thus, in spite of sputnik and the extraordinary impact of new developments in physics upon our culture and economy, we have made very little or no headway in bringing to the typical high-school

student the power, grandeur, and versatility of physics as an intellectual discipline.

A somewhat similar, unhappy situation seems to loom ahead in the colleges and universities as evidenced by the number of students who are majoring in physics. In spite of the almost insatiable demand for physicists in industry, in teaching, and in government, preliminary figures show that the number of third- and fourth-year undergraduate majors reported in 1963 may be somewhat smaller than that of 1962. These apparent reductions—if verified by the current survey—are especially significant since the total number of students in college has risen approximately 5 percent in the past year. Apparently in this case we are not making physics sufficiently attractive to freshmen and sophomores as a career or as undergraduate preparation for careers in related fields.

The principal question that concerns us here is what action can or should the Institute or the member societies take in view of the pessimistic picture these figures provide. The problems are many and complicated. It is clear that during the coming year concerted efforts will need to be made by those interested in high-school and college physics enrollments if solutions are to be found. Consideration of how the Institute can aid in solving these problems has a high priority in the Education and Manpower Department.

A third sociological development that seems worthy of mention is the growing trend toward grouping or organizing scientists by broad projects rather than by traditional disciplines. Industrial organizations have followed this practice to some extent for many years because of the nature and magnitude of the problems which they have had to solve. Only recently, however, has this practice become a significant factor in universities where there are now building up centers for space research, for materials research, for communications research, and for other broad areas. These centers bring together groups of scientists who have had extensive training in physics, chemistry, biology, and engineering, but whose work cuts across so many fields they hardly think of themselves as physicists, chemists, biologists, or engineers. Instead they are space scientists, materials scientists, communications engineers, or other types of scientists or engineers. The groups often include also economists or men trained in other social sciences. This tendency to regroup scientists in this fashion may have long-range implications for organizations like the American Institute of Physics, which are based upon traditional disciplines. As a possible example of these implications, the needs of research workers

in these centers for scientific literature may not be well enough met by the existing division of subject matter in our journals. Thus, a worker in materials science may wish only certain solid-state papers from *The Physical Review*, or certain ones on elasticity from the *Journal of Applied Physics*, or on plastic flow from the *Physics of Fluids*. The same situation, of course, holds true for many physicists, but, if this trend toward new groupings continues, a different mix from that now provided may be justified to serve the need of these new scientists. Somewhat different mixes may be required for those in other broad areas. Should we try to adjust our publication activities to meet this new trend? What, if anything, can or should be done is one of the topics being actively pursued in our Documentation Research Project.

Similarly, selected parts of traditional disciplines are being regrouped in the courses being offered in many universities and in the areas in which graduate degrees are being awarded. Many features of this trend are to be applauded, but in some cases standards have not been maintained and none of the traditional discipline-oriented agencies feels a sufficient sense of responsibility to take corrective action. Here again we raise a question. Will the role of the traditional discipline-oriented agencies change, and is there any action that should be taken now? Illustrative also of the ferment now going on is the recent shift of the teaching of optics from the physics department to the engineering school in one institution, and the growing concern of many physicists that optics, acoustics, fluid dynamics, and other fields having close contact with neighboring disciplines seem to be disappearing from the undergraduate physics curricula.

So much for sociological trends. In the body of this report are described the activities of the Institute in (1) publications, (2) public information services, (3) education and manpower, and (4) service operations, including the important matter of subscription handling and dues collection. I am glad to report that the new data-processing equipment mentioned in last year's annual report is now installed and functioning. As a result, fewer journals are being lost in the mails, and new subscriptions and address changes are being processed more quickly; as experience is gained, it is expected that unit costs will show a downward trend.

Further financial information is given in Section 6 of this report. It has been a good year; much has been accomplished and, as was mentioned as a hope last year, a very substantial reduction in the

accumulated deficit has occurred. The balance sheet on the last page shows that the net worth of the Institute is now well over a million dollars.

1. Publishing Activities

Physicists will not be surprised to learn that the written record of research in physics for 1963 broke a new record. As is apparent in Fig. 1, the total number of pages published in the AIP family of journals during the year again increased; this time by 8 percent over 1962. The fact that a very large part of all physics research in the United States is reported in the journals published by or through the Institute puts the Institute in a unique position to carry on studies aimed at increasing the accessibility of the new results published with minimum time lag and minimum expense. Because of the importance of these studies, not only in advancing physics but in stimulating similar studies in other fields, the National Science Foundation has financed a Documentation Research Project at the Institute for some time. In 1963, special attention was given to such matters as improving existing indexing and abstracting services, development of a current-awareness journal, and a citation index.

With the eventual objective of creating an adequate reference-retrieval system for research physicists, the Documentation Research Project studied reference-retrieval systems in various other areas and collected and analyzed requests which research physicists have stated they would make to an ideal reference-retrieval system—if such a system now existed. Based on these analyses, it became apparent that aid from the author in isolating the systems, properties, and methods in his paper could be useful to indexers of research papers. Being tested now is the technique of obtaining and using the author's analysis of his research paper through the execution of an "Aid-to-Indexing" form.

As to the development of a current-awareness journal, an experimental issue was prepared and distributed in April to a limited group of people for comment. This journal, *Current Physics Articles*, Vol. 0, No. 0, included the contents of most of the journals published by AIP and its member societies during the month of June 1962. The experimental issue was composed of two parts: (1) the tables of contents of the journals covered; (2) a classified index of papers, using a very limited number of headings, listing each paper, ordinarily only once, with a full citation (title, authors, journal, volume, date, and page). A significant feature of the experimental issue was the addition to

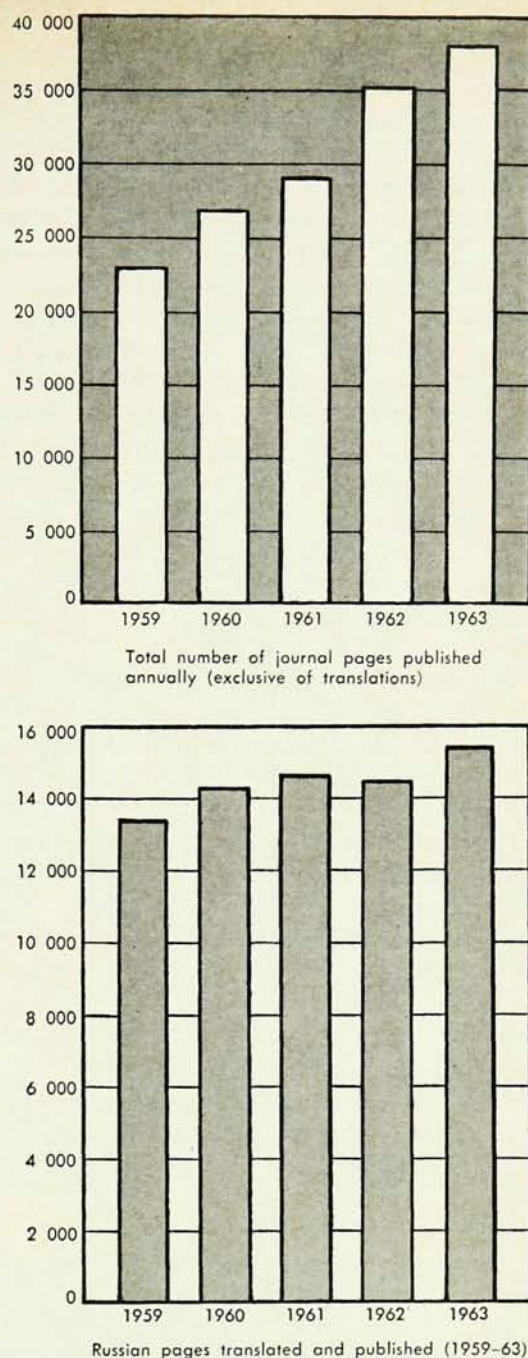


Fig. 1

every listed paper of a symbol to designate the major orientation of the paper: experimental, theoretical, review, etc. A mechanism which can produce such a current-awareness journal rapidly and also provide copy for journal indexes has been tested and proven successful. If a current-awareness journal is published, it should appear at about the same time as most of the journals whose tables of contents are included, since proof copies of the tables are available in advance of journal publication. A proposal was submitted to the National Science Foundation at the end of January 1964 for

support to establish *Current Physics Articles* as a regular monthly publication.

Citation indexes are proving to be useful in other fields and may also be useful to physicists as a supplemental reference aid. An experimental version of such an index has been prepared, and its usefulness is being tested. A citation index is a device which reveals the identities of later publications which have cited a given earlier publication. The experimental index listed references to *The Physical Review* and the *Journal of Applied Physics* appearing in four of the Soviet physics journals which are translated and published by AIP. It was distributed to physicists in a test area in February 1964. The evaluation of the usefulness of the index will be based on the hypothesis that the Soviet journals included in the sample are not currently being used as much in this country as their technical content would justify. Statistics are being gathered and analyzed to determine whether the controlled distribution of the experimental citation index leads to increased usage of these journals.

These and other investigations under way, such as a comprehensive study of *Physics Abstracts*, are undertaken to aid in the ever-growing problems of retrieving information and keeping abreast of the literature of physics. Journal publication remains the principal task of the Institute. Most physicists will be pleased to know that no new journals were initiated in 1963 by AIP. However, *Applied Physics Letters* appeared semimonthly in its first full year of publication. Also, the *Journal of Mathematical Physics* was published monthly

rather than bimonthly. Figure 2 shows how the entire field of fundamental and applied physics is covered by the various journals in the AIP family. The total number of periodicals handled remained at 26: ten for the member societies, seven (including *Physics Today*) in its own name, and nine journals translated from the Russian, the latter with support from the National Science Foundation. Publication of *Sound—Its Uses & Control* ceased with the November-December, 1963 issue, as a result of a decision of the Executive Council of the Acoustical Society of America.

There were four special issues or supplements to journals published in 1963. Three of these were proceedings of conferences, and the fourth was the "Outline of a Course in Plasma Physics", prepared by the Plasma Physics Study Group of the Commission on College Physics, which appeared as Part 2 of the August *American Journal of Physics*.

The total number of pages published in 1963 by the Institute, exclusive of the translated journals was 38 704. The total number of Russian text pages published in translation was 15 488. Page growth in each case over the past five years is shown in Fig. 1.

Seven of the journals in the AIP family (including *Physics Today*) carry advertising. As will be seen in Section 6, 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 1963 increased by approximately 6 per cent over the number carried in 1962. Comparative figures for the past five years are given below:

Nature	Fields	NUCLEAR PHYSICS	SOLID STATE	CHEMICAL PHYSICS	FLUID PHYSICS	OPTICS	ACOUSTICS
FUNDAMENTAL RESEARCH		Physical Review and Phys. Rev. Letters		Journal of Chemical Physics	Physics of Fluids	Journal of the Optical Society of Amer.	Journal of the Acoustical Society of Amer.
APPLIED RESEARCH		Journal of Applied Physics and Applied Physics Letters				Applied Optics	
PHYSICS TOOLS		Journal of Mathematical Physics and Review of Scientific Instruments					
TEACHING AND GENERAL		Reviews of Modern Physics (research physicists) American Journal of Physics (college teachers) The Physics Teacher (high-school teachers) Physics Today (all physicists)					

Fig. 2. AIP family of physics journals.

Year	No. of pages of advertising
1959	1921
1960	2008
1961	2151
1962	2275
1963	2413

In 1963, the advertising department handled advertising in *The Physics Teacher*, a new publication of the American Association of Physics Teachers.

In June, 1963, the second edition of the *American Institute of Physics Handbook* was published by McGraw-Hill Book Company. Sponsored by AIP, the new edition was offered to members of member and associate member societies at a special member rate in an initial sale, and an excellent reception has been reported.

2. Public Information Services

A major effort of the Institute is directed toward the development of a greater understanding and appreciation on the part of the public of progress in physics. In 1963, a new emphasis was added—that of interpreting physics journal articles to the press. Under a grant from the National Science Foundation, an experimental project was undertaken to bring to the attention of the press, by means of frequent press releases, significant and newsworthy papers appearing in the journals published by AIP and its member societies. With the advent of journals with very short publishing schedules, such as the “letters” journals, many new advances are announced first in journals, rather than at scientific meetings. This development

makes this project especially timely and useful.

In carrying out the journal interpretation project, papers are selected with the aid of journal editors and members of the project's panel of scientific advisers. Papers are selected on the basis that they make an important or interesting contribution to a reader's understanding of the material world; or that they report significant, basic contributions to technology; or have good educational, social, historical, and human-interest angles. With the assistance of the authors, popular versions of the papers are then prepared. Releases from such papers are mailed to a list of over 600 science writers and editors on newspapers, wire services, general news magazines, popular and scientific magazines, and radio and television stations. Public relations officers in authors' institutions also are often asked to cooperate in the effort.

In 1963, forty-five such releases were issued. Typical among the important stories reported which received wide coverage in newspapers and magazines were: observations of an x-ray source in our galaxy, indicating that x-ray astronomy may become important for the study of gravitational collapse, from the *Physical Review Letters*; a photographic system which uses the object's diffraction pattern to reproduce its image, reported in *The Journal of the Optical Society of America*; and an *Astronomical Journal* paper describing a comet whose tail wags. The project also cooperated with Brookhaven and Yale in the announcement of the discovery of the anti- Ξ particle.

As may be noted from Fig. 3, popularizing of journal articles is but one of several ways in which

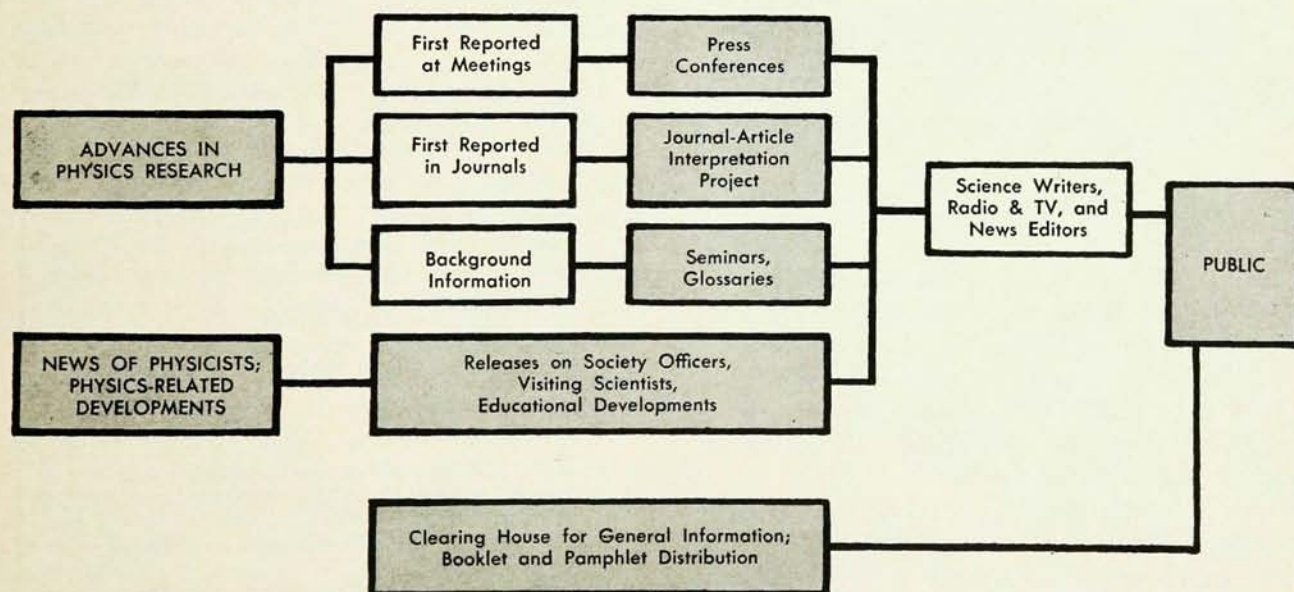


Fig. 3. Chart of physics information services



This AIP-organized press conference (on the Cambridge Electron Accelerator) was held during the APS-AAPT meeting in New York in January. Present to explain matters to science writers were Richard Wilson of Harvard (left), R. Weinstein of Northeastern, and Norman F. Ramsey of Harvard.

the AIP brings advances in physics to the attention of the public through the media of mass communications. As in prior years, press rooms at society meetings were maintained and some eighty lay language versions of papers presented at the meetings were made available to the press. Another continuing activity was the holding of seminars for science writers. The two held in 1963 dealt with space physics and biophysics; glossaries covering both subjects were widely distributed among science writers. As in the past, the seminars were jointly sponsored by AIP and the National Association of Science Writers and were supported by the National Science Foundation.

In more direct contact with the public, the Institute continued to maintain a public information center to answer questions and disseminate career and other literature relating to physics. Some 50 000 pieces were distributed in 1963.

3. Education and Manpower

The Institute's task in education is two-fold: (1) to assist those in secondary schools and colleges engaged in teaching physics to students as a part of their general education and to nonphysics majors; (2) to encourage and assist in the training of physicists in adequate numbers and depth of understanding to meet the needs of the highly scientific age in which we are living.

In establishing appropriate programs to carry out these objectives, it is clear that we need detailed manpower statistics which will make evident the human resources available and help us gauge

the magnitude of the effort required to produce significant results in a reasonable time. Continuing manpower statistics also are clearly necessary to follow the progress we are making and to assess the relative effectiveness of various approaches to the problems involved. Thus our educational activities and those related to manpower are very closely allied, and vigorous effort is needed in both areas.

Figure 4 illustrates the magnitude of the educational task in terms of the numbers of people at various levels. The Institute by itself and jointly with the American Association of Physics Teachers has several activities under way at present, many with support from the National Science Foundation, which are aimed at influencing this flow pattern so that it may more nearly meet the needs of society as seen by our advisory committees. The major projects are listed below.

A. High School

1. Career booklets and special publications.
2. AAPT-AIP Visiting Scientists Program under which physicists visit high schools to stimulate student interest.
3. AAPT-AIP Regional Counselor Program, with counselors acting as consultants, cooperating at the local level to better physics teaching in the high school.

B. Undergraduates

1. Career booklets and special publications.
2. Student Sections in which undergraduate students of physics are encouraged to carry on special projects, attend especially-arranged lectures at society meetings, etc.
3. AAPT-AIP Center for Educational Apparatus in Physics, which stimulates the development of new

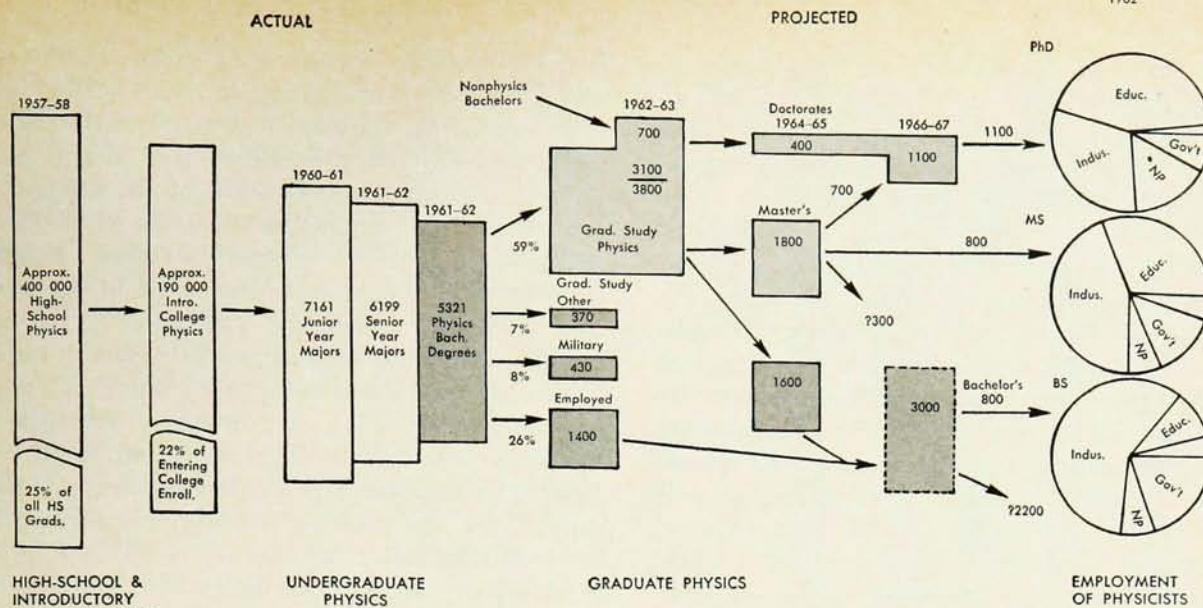


Fig. 4. Physics education flow chart adopted from 1964 Manpower Handbook.

apparatus for teaching physics and provides information on available apparatus.

4. AAPT-AIP Committee on Physics Faculties in Colleges studying problems of smaller physics departments in building their faculties and programs in physics.
5. AAPT-AIP Visiting Scientists Program—College and Foreign.

C. Graduate and Employment

1. Career booklets and special publications. Since new editions of most of the latter, relating to graduate study, appeared in 1963, they are listed here:
Lists of Colleges and Universities Offering Physics Majors. April 1963. Pub. R-124.1.
Graduate Physics Research Specialties in American Educational Institutions. 1962-63. Pub. R-125.
Graduate Assistantships and Fellowships in Physics in Academic Institutions for 1964-65. Pub. R-126.1.
2. Statistical studies and surveys of enrollments and degrees in physics.
3. Maintenance of the Physics Register.
4. Placement Service to match people and jobs.

In addition to the foregoing, another project of interest to the entire physics community, being carried on under the AIP Education and Manpower Department, with support from NSF, is that on the History of Recent Physics in the United States. Under this project some 750 detailed biographies and bibliographies of active American physicists have been collected. Sixty of these are full-length autobiographies. Approximately 1200 photographs of historical interest are also on hand. Other historical material preserved elsewhere may be found through a locator file. In addition, recordings have been made of interviews with physicists associated with significant discoveries made in the United States. An important phase of the work is encouragement of the preservation of records and apparatus of historical interest.

Some details on a few of the newer projects under way in 1963 illustrate the variety of the activity. Operation of the AAPT-AIP Educational Center for Apparatus in Physics, located at the AIP Headquarters and supported by a grant from the National Science Foundation, began in June. The Center has three principal objectives: (1) the stimulation of the development of new apparatus for teaching physics, (2) the provision of information to apparatus manufacturers about interesting new prototype equipment and about the extent of interest among physics teachers in such apparatus, and (3) the provision of information to physics teachers about apparatus, components, and materials for teaching physics and about ways in which these things can be used to improve the teaching of physics. A comprehensive collection of catalogues of commercially available materials of use in teaching physics is available for reference in assisting teachers. Information is being channeled to academic physicists through the Apparatus Notes Section in the *American Journal of Physics*, and special reports will go to the apparatus industry.

In the effort to produce better physicists, attention has been given to the problems of smaller colleges. Studying these is the AAPT-AIP Committee on Physics Faculties in Colleges (COPFIC). Under an NSF grant, the committee has been studying the problems of the smaller physics departments in attracting physicists to their faculties and in carrying on a vigorous and high-quality program in physics. Much information has been compiled in the past year through visits by committee members to 26 colleges, and statistical and

case studies of the characteristics of these colleges have been made. Recommendations have been directed toward making faculty positions in small departments more attractive to young physicists and toward assisting physicists already on these faculties in maintaining their competence in physics. Among the recommendations made to groups in a position to implement them have been: (1) expansion of the AAPT-AIP Visiting Scientists Program in Physics-Colleges; (2) a pilot program designed to develop physics faculties through encouragement of the young physicist just finishing his PhD to request a grant which would enable him to continue his research after joining a small college faculty; (3) modification of criteria for research grants to colleges; (4) short-term summer fellowships for college teachers; (5) a clearing house for summer jobs for college physics faculty members, etc. The findings and recommendations of the committee will be presented at length in forthcoming articles to physicists and to others concerned with these problems.*

The need to attract students to physics at the high-school level and to improve physics teaching in the schools, led to the concept of the AAPT-AIP Regional Counselor Program. During 1963, forty-eight regional counselors (see Appendix I for

* One such article, a report by COPFIC on college physics teaching, appears in this issue (page 36).

list) representing 46 states, the District of Columbia and Puerto Rico continued to work at the local level toward the improvement of physics teaching, particularly at the pre-college level. Efforts were related to the individual needs of the states, but counselors have maintained liaison with official curriculum committees, have assisted teacher-training institutions, and have aided in the selection of textbooks, in the utilization by physics teachers of federal surplus property, in the organization of local clubs for physics teachers, etc. A first national meeting of counselors was held at Washington University in St. Louis on March 8-9, 1963. The General Electric Foundation provided support for the meeting. In addition to hearing brief statements by the counselors on local problems, reports on national programs covered such areas as preparation of teachers of science and mathematics, the teacher recognition program, and course content improvement. "Regional Counselor Reports" summarizing interesting local educational developments in physics as reported by the counselors were distributed regularly to the counselors, as was other material of interest to them. A *Handbook for Regional Counselors* is in preparation. Additional financial support for an extension of the program is being sought.

Previously, emphasis was placed on the need for comprehensive manpower studies. With the aid of

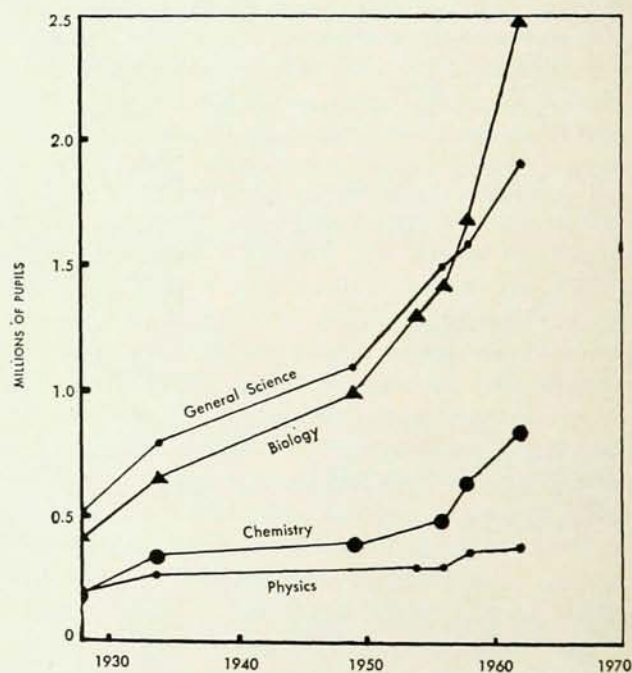
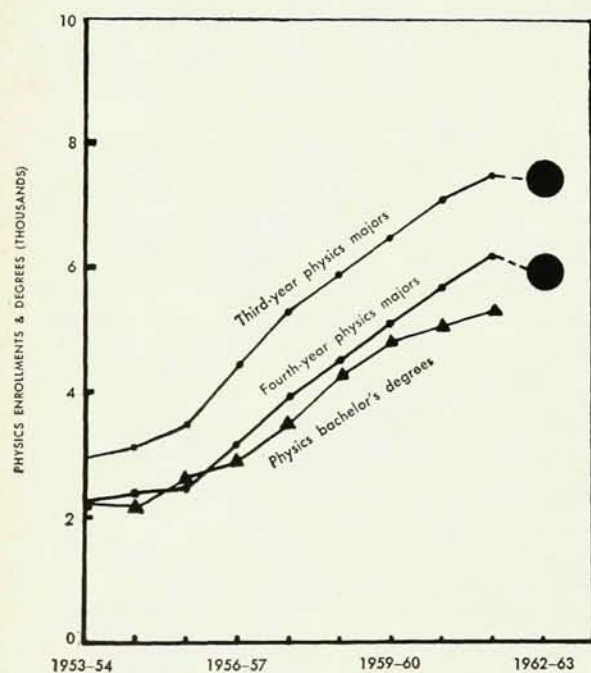


Fig. 5. Two charts from projected Manpower Handbook: (at left) trends in number of college majors in physics; (right) high-school enrollment in science

an NSF grant, much valuable information is being collected as part of an over-all two-year program of analysis of educational and manpower data. The purpose of the program is to provide a current, accurate, and reasonably complete picture of physics manpower production, utilization, and support. A sampling of some of the data collected is shown in Fig. 5. The first year's collection of statistics was published under the title of *Physics Manpower and Educational Statistics—1962* (Pub. R-146). During the second year, a number of physics manpower problems were investigated in depth to determine patterns and relationships. Among the areas receiving particular attention were the "flow pattern" of physics students as they move through their education and employment, the balance of supply and demand in physics for the next few years, salary information as a function of highest degree and field, the geographic mobility and concentration of physics students and physicists, and the sources of financial support for physics. Data on these and related topics form the content of the projected second yearbook entitled *Physics: Education, Employment, and Financial Support—A Statistical Handbook, 1964* (Pub. R-161).

4. Service Operations

In 1963, there was a marked improvement in subscription-fulfillment and dues-collection operations. While member/subscriber correspondence and complaints were high in the early months of 1963, there was a noticeable decrease as the year progressed. The 1963 year-end experience augurs well for efficient operations in 1964. The size of the AIP subscription-fulfillment operation for the past five years is shown in the two charts forming Fig. 6. Twenty-eight different publications are involved. Because of delays in cutting off subscriptions, the circulation reported in 1962 was in excess of the actual paid subscriptions. An estimated true figure is shown on the chart by the shading. With the improvement of the fulfillment operations, it has become possible to terminate all unpaid subscriptions promptly and thus report a true paid circulation at the end of 1963. A negative change was caused by the shift of *Applied Physics Letters* from a controlled, free-circulation basis (approximately 10 000) to a regular subscription basis. Besides subscription records, detailed, up-to-date records were kept for approximately 35 000 members of member societies. During 1963, approximately 13 500 member/subscriber change of address requests were processed.

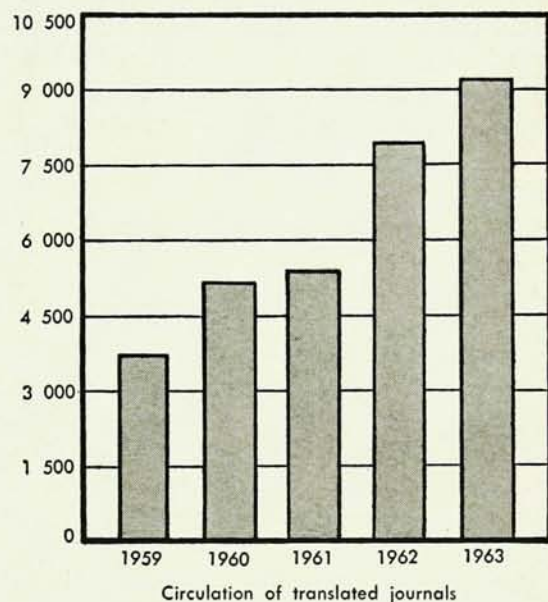
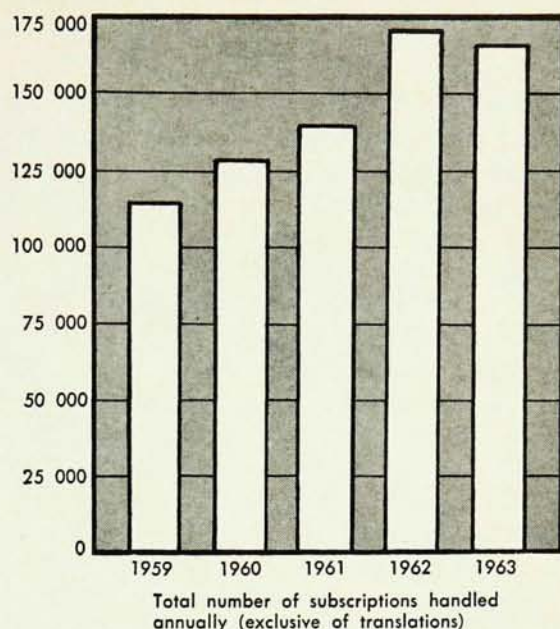


Fig. 6

Data processing and subscription changes in 1963 included the installation of a UNIVAC 1004 card processor and high-speed printing and computing machine to replace the previously used Scriptomatic addressing equipment. The new machine produces a printed label, making for greater legibility over the prior hectographic one. Another change made possible by the new equipment was the innovation of multiple journal and society lists. Heretofore, there has been a single master mailing stencil file, which because of its constant use in addressing, was virtually inaccessible for processing and corrections. This difficulty has been remedied by the multiple lists. Also, history cards

for each society member are being created from the returns of the 1964 billing. The cards will be maintained and are expected to facilitate the identification of members and the processing of member correspondence. In another phase of the operation, a Friden Add Punch was used for cash allocation. This permits the parallel handling of cash allocation and subscription fulfillment, thus reducing the time required to start subscriptions.

Joint dues and subscription-renewal bills for 1964 for members were mailed in October, while the mailing of 1964 renewal notices to nonmember subscribers occurred during September. The use of a renewal notice to nonmember subscribers instead of a renewal billing proved highly successful. Second notices were sent to members during late November and early December. Approximately 77 percent of the member renewal bills were paid by the year end, representing a 9 percent increase over similar figures for 1962.

Mechanization of accounting operations by the installation of an NCR accounting machine during 1963 enabled the Institute to make its own reports and those for the member societies more promptly and in greater detail. Also, the UNIVAC 1004 is used to prepare cash-allocation reports. A formal chart of accounts was adopted so that expenses can be classified and recorded by revenue-producing activity.

The AIP fiscal and service operations were reviewed at a meeting of the Committee of Society Secretaries and Treasurers held in October. At this meeting, suggestions for standardization and simplification of subscription and membership policies were presented by the AIP staff. Many of these have already been adopted. Service operations and distribution of costs among the societies and AIP, based on actual unit costs of the operations involved, were considered by the AIP Finance Committee which met in November. The Committee recommended adoption of a cost-accounting system for dues collection and subscription handling which the staff recommended. The new system will be put into effect in 1964 and generally will result in lower charges to member organizations for whom we provide full services. Charges for the two Associate Member Societies will be higher because we perform few services for them, but AIP has agreed to absorb the excess charges in 1964.

In addition to the handling of membership records and subscriptions, many other services are performed for the societies. Special mailings during the course of the year include announcements, programs, membership promotions, journal pro-

motions, and ballots for member societies. Other services included the counting of ballots, printing where needed in connection with mailings, and the supplying of membership information. The Institute handled space and administrative arrangements for the joint APS-AAPT meeting in New York, and assisted with other society meetings in New York. AIP also acted as fiscal agent in the administration of grants for various projects of several member societies.

5. Special Activities and Awards

In addition to the specific programs already described, there are a number of activities within the Director's Office or closely associated with it which aid in carrying out the purpose of the Institute. Liaison is provided with the member societies, and special services already mentioned are rendered to them. Liaison is also maintained with other national scientific organizations, both informally and through appointed representatives, and with international organizations such as UNESCO, the International Union of Pure and Applied Physics (IUPAP) and its Symbols, Units, Nomenclature (SUN) Commission, International Federation for Documentation (FID), etc. The Executive Committee and editors of the ICSU Abstracting Board held a meeting at AIP on 26 September 1963, at which AIP activities were described and a tour of the building was arranged.

International cooperation is also being furthered through the establishment at AIP of an Information Center on International Physics Activities. The Center was established in May, under an NSF grant, for the purpose of bringing together in one place a large amount of information with reference to people, places, organizations, publications, educational systems, and activities of physics in other countries. The material is arranged to facilitate individual contacts of visiting physicists with their foreign colleagues. The May 1963 revision of *Information Booklet on Physics Organizations Abroad*, (Publication R-133.1) was issued by the Center. The Institute also administered a fifth grant from the Asia Foundation in the amount of \$2500 to enable a limited number of Asian physicists to become society members, attend meetings, and subscribe to physics journals.

Another special activity relates to the development of the Niels Bohr Library of the History of Physics. The library was established in an effort to meet a pressing need to preserve historical material and to document the history of physics. Such material provides the resources that enable



The Institute's Bohr Library collection of books and other material concerning the history of physics is steadily growing larger with the help of the group known as the Friends of the Niels Bohr Library of the History of Physics.

scholars, historians, teachers of physics, students, and writers to understand better the nature and origin of developments and advances in physics. Such understanding is essential in linking the past with the future. A group known as the Friends of the Niels Bohr Library of the History of Physics comprises those who endorse the purposes of the library and who, through annual contributions, are helping to build the Niels Bohr Library into an outstanding library of the history of physics. Starting in September, a preliminary drive was undertaken to gain friends for the library among foundations and physicists, archivists, historians, and other individuals.

Among the meetings of the Institute in 1963 was the Sixth Annual Meeting of Corporate Associates. It was held in New York at The Rockefeller Institute on October 3, with 150 attending. Featured were reports on Institute activities, on frontiers in physics, and a talk on "Science and the Government" by Frederick Seitz.* The roster of Corporate Associates for 1963 numbered 185 corporations, laboratories, and institutions. The Corporate Associates meeting was held in conjunction with the Fifth Assembly of Society Officers which met at The Biltmore Hotel, in New York, October 2-4, to discuss AIP and member society programs, problems, and procedures. Another meeting, sponsored jointly with the American In-

stitute of Electrical Engineers, was the Ninth Conference on Magnetism and Magnetic Materials, Atlantic City, New Jersey, November 12-15, 1963.

The Dannie Heineman Prize for Mathematical Physics was awarded on April 24, 1963, in cooperation with The American Physical Society, to Keith A. Brueckner for "contributions to the theory of elementary particles, nuclei and condensed matter, especially his courage and persistence in deriving the properties of nuclear matter from nucleon-nucleon interactions."

Henry A. Barton, former Director of the American Institute of Physics, was named to receive the third Karl Taylor Compton Medal for Distinguished Service to Physics. The actual award was made at the New York APS-AAPT meeting, January 23, 1964.

6. Finances

It was stated in the Introduction to this report that 1963 was an entirely satisfactory year from a financial point of view. Our purpose in this section is to regroup the items included in the official audited financial statement published at the end of this report in such a way as to make the over-all financial picture more readily apparent and yet at the same time indicate the relative magnitude of the quite different operations involved. To do this we have grouped income items and expenditures into three broad, approximately

* *Physics Today*, December 1963, p. 28

I. Journal and Dues-Collecting Operations

	<i>Income</i>	<i>Expense</i>
<i>Operations for Societies Including Services</i>	\$2 120 064	\$2 120 064
<i>AIP Archives Journals</i>		
Review of Scientific Instruments (excluding advertising)	164 644	171 685
Journal of Chemical Physics	466 804	437 908
Journal of Applied Physics (excluding advertising)	352 549	334 391
Physics of Fluids	139 433	139 316
Journal of Mathematical Physics	124 703	120 198
Applied Physics Letters	49 333	49 333*
Soviet Translation Journals	340 129	340 129*
Style Manual	2 060	965
Advertising & Exhibits (Handling & Printing Cost)	278 413**	278 413
	<u>1 918 068</u>	<u>1 872 338</u>
<i>Total</i>	<u>\$4 038 132</u>	<u>\$3 992 402</u>

* Excluding expenses chargeable to grants.

** Includes only that part of income needed to balance expense.

II. Operations Supported by Grants

	<i>Income</i>	<i>Expense Including Overhead</i>
<i>Publishing</i>		
Soviet Translation Journals (grant underwriting)	\$ 137 093	\$ 137 093
APL (grant underwriting)	45 820	45 820
Documentation	84 774	84 774
Miscellaneous Publishing Activities	8 400	8 400
<i>Public Information</i>		
Seminars for Science Writers	9 216	9 216
Journal Article Interpretation	21 541	21 541
<i>Education and Manpower</i>		
Visiting Scientists Program	72 420	72 420
Committee on Physics Faculties in Small Colleges	15 672	15 672
Apparatus Center	24 923	24 923
Manpower Studies	30 240	30 240
Physics Register	23 820	23 820
Regional Counselor Program (grant portion)	6 500	6 500
Student Sections (grant portion)	2 000	2 000
History of Recent Physics in the United States	33 452	33 452
<i>Information Center on International Physics</i>	21 493	21 493
<i>Conferences</i>	4 077	4 077
<i>Member Society Grants Handling by AIP</i>	60 376	60 376
<i>Total</i>	<u>\$ 601 817</u>	<u>\$ 601 817</u>

III. General AIP Operations

<i>Items of Expense</i>	<i>Income</i>	<i>Expense</i>
<i>Physics Today</i>		\$ 195 638
Public Relations Administration		51 096
Education and Manpower Administration		71 358
Regional Counselor Program		11 309*
Student Sections		26 100*
Placement Service		18 455
Liaison and General Administration		
Not Covered by Overhead from Grants		<u>79 887</u>
		\$ 453 843

* Excluding expenses chargeable to grants.

<i>Sources of Income</i>	
Member and Associate Member Society Contributions	\$ 66 979
Corporate Associate Dues (Net)	117 929
Advertising and Exhibit (Net)	301 690
Physics Today Subscriptions	16 051
Placement-Service Book Sales	10 913
Miscellaneous Income	<u>14 008</u>
	\$ 527 570

Summary

	<i>Income</i>	<i>Expense</i>
I. Journal and Dues Collecting Operations	\$4 038 132	\$3 992 402
II. Operations Supported by Grants	601 817	601 817
III. General AIP Operations	527 570	453 843
	\$5 167 519	\$5 048 062
<i>Net Gain</i>	119 457	

self-balancing classifications: (I) Journal and Dues Collection Operations, (II) Operations Supported by Grants, and (III) General AIP Operations. It will be noted that the operations under the first category represent almost 80 percent of the total expenditures. The expenditures for societies are charged at cost and, therefore, are exactly balanced by income. The editing, printing, and distribution costs of the AIP archive journals are approximately balanced by subscription and back number income plus that from page charges. Last year there was a small loss, but in 1963, the income exceeded expenses by \$45 730.

The second category of operations, those covered by grants, should also be self-supporting if the overhead collected on grants actually covers the full overhead costs. Doubts have been expressed about this, and we plan, therefore, to make a thorough analysis of our overhead costs in the near future. Most of the grant support is from NSF, and we are deeply grateful for this assistance.

The third category of operations includes those supported by unrestricted income of the Institute which comes principally from a tithe of the member society dues, Corporate Associate dues, and net from advertising. This income supports the basic AIP public information, education, and manpower departments as well as the maintenance of the libraries and meeting rooms and general liaison activities of the principal administrative officers. Included also as a general activity is the publication of *Physics Today*, which serves as the principal communication link among all physicists. It now has a circulation of over 42 000. The total cost for 1963 was \$195 638, but since *Physics Today* carries advertising and has a substantial paid circulation, it contributes an unrestricted income to the Institute of \$221,408, or a net balance of \$25 770. Incidentally, it should be mentioned that of the total general administrative costs only 5 percent is charged to member society operations even though the expenditures under this heading constitute 41 percent of the total.

It will be noted that the unrestricted AIP income exceeded the general expenditures by

\$73 727, thus giving a net balance for the year from all categories of operations of \$119 457, which goes directly to offset the accumulated deficit of previous years. At the end of 1963 this accumulated deficit stood at \$70 401. This deficit plus the mortgage on the building are more than offset by specially designated reserves and by the book value of the land and AIP buildings, giving a net financial worth of the Institute of well over \$1 million.

7. Acknowledgments

In 1963 the Institute's total staff numbered 177. Their devoted efforts made possible the many undertakings reported here. To these tasks they brought a willingness and diligence that made it possible to complete a successful year. Special acknowledgment is due to Wallace Waterfall, the Institute's secretary and treasurer, 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. Added to this list should be Henry A. Barton, who, because of his long and valued service to the Institute, was given the title, in 1963, of director emeritus.

Sincere appreciation is also expressed to the large number of committee members listed in Appendix I whose help has done much to make the Institute's work effective.

Special gratitude is due to the following members of the Governing Board who retired early in 1964 after serving for the periods indicated:

John D. Ferry	1962–1964
N. S. Gingrich	1961–1964
W. V. Houston	1961–1964
David L. MacAdam	1961–1964
Leonard O. Olsen	1961–1964
C. G. Suits	1961–1964

The Institute takes pleasure in welcoming to the Board James T. Bergen, E. U. Condon, H. R. Crane, Seibert Q. Duntley, A. C. Helmholz, A. I. Mahan, and E. R. Piore.

APPENDIX I

American Institute of Physics Governing Board, Committees, and Appointed Representatives for 1963

Governing Board

Ralph A. Sawyer, *Chairman*
Stanley S. Ballard
Laurence Batchelder
Malcolm Correll
Herbert A. Erf
John D. Ferry
Newell S. Gingrich
S. A. Goudsmit
W. W. Havens, Jr.
James Hillier
W. V. Houston
R. Bruce Lindsay
Richard C. Lord
David L. MacAdam
John C. Miller
Leonard O. Olsen
Vincent E. Parker
S. L. Quimby
Paul M. Routly
Frederick Seitz
C. G. Suits
Horace M. Trent
Frank Verbrugge
Mary E. Warg
Elizabeth A. Wood

Executive Committee

Ralph A. Sawyer, *Chairman*
S. A. Goudsmit
W. W. Havens, Jr.
R. Bruce Lindsay
Vincent E. Parker
S. L. Quimby
Mary E. Warg

Publication Board

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

Ad Hoc Committee to Review Editorial Structure of AIP Journals

S. A. Goudsmit, *Chairman*
Walker Bleakney
R. A. Sproull

Advisory Board on Translations

Robert T. Beyer, *Chairman*
J. George Adashko
Freeman J. Dyson
Dwight E. Gray
Morton Hamermesh
David Harker
Paul M. Routly

Science Abstracts Committee (Joint APS-AIP)

F. G. Brickwedde, *Chairman*
Conyers Herring
Elmer Hutchisson
Dwight E. Gray
S. L. Quimby
Hugh C. Wolfe, *Secretary*

Advisory Committee on Documentation Research Program

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

Advisory Committee on Public Relations

Horace M. Trent, *Chairman*
Harry F. Arader
Robert F. Bacher
John J. Hastings
Lewis W. Hyde
Harold S. Renne
Walter Sullivan
Vincent E. Parker
William R. Willets

Advisory Panel on Journal Interpretation Project

Henry A. Boorse
Cyril Harris
W. W. Havens, Jr.
Alan Kolb
Benjamin Lax
Van Zandt Williams
Charles A. Whitney

Advisory Committee on AIP Education Program

Vincent E. Parker, *Chairman*
Samuel K. Allison
Stanley S. Ballard
Edward U. Condon
R. Bruce Lindsay
Arthur B. Metzner
Louis A. Turner

Advisory Committee on Manpower

John N. Shive, *Chairman*
Herman Branson
Lindsey R. Harmon
Thurston E. Manning
L. G. Parratt
Katherine Way
Marsh W. White
Van Zandt Williams
Thomas J. Mills, *Observer*

Advisory Committee on Student Sections

Leonard O. Olsen, *Chairman*
S. S. Ballard
W. W. Havens, Jr.
A. C. Helmholtz
Myron A. Jeppesen
Jere J. Lord
Walter J. Rhein, S.J.
Dan A. Thomas
Robert S. Shankland

Ad Hoc Panel of Judges for Student Section Awards

Myron A. Jeppesen
Walter J. Rhein
Robert S. Shankland

Committee on History and Philosophy of Physics

Gerald Holton, *Chairman*
Martin Klein
R. Bruce Lindsay
Henry Margenau
Norwood Russell Hanson
Raymond J. Seeger
G. E. Uhlenbeck
Elmer Hutchisson (*ex officio*)
W. C. Kelly (*ex officio*)

Advisory Committee for the Project on History of Recent Physics

Gerald Holton, *Chairman*
Sanborn C. Brown
Karl K. Darrow
Charles C. Gillispie
Erwin Hiebert
Thomas S. Kuhn
R. Bruce Lindsay
R. S. Shankland
Cyril Stanley Smith
G. E. Uhlenbeck

Ad Hoc Committee to Nominate Candidate for Third Karl Taylor Compton Award

Karl K. Darrow, *Chairman*
James G. Baker
R. S. Shankland

Advisory Committee on the Regional Counselor Program (AAPT)

Leonard O. Olsen, *Chairman*
E. U. Condon
Vincent E. Parker
Frank Verbrugge

Regional Counselors in Physics

Roland A. Jalbert, Alaska
Howard Carr, Alabama
Ulrich Bents, Arizona
John W. Robson, Arizona
Paul C. Sharrah, Arkansas
Donald H. Loughridge, California
Paul F. Bartunek, Colorado
Herbert I. Fushfeld, Connecticut
Robert H. Osborn, Delaware
Lewis Slack, District of Columbia
Stanley S. Ballard, Florida
James W. Simmons, Georgia
Iwao Miyake, Hawaii
C. J. Overbeck, Illinois
Robert L. Henry, Indiana
Edson R. Peck, Idaho
Grant O. Gale, Iowa
S. Winston Cram, Kansas
Donald M. Bennett, Kentucky
Bill J. Good, Louisiana
F. A. Benedetto, S.J., Louisiana
Clarence E. Bennett, Maine
G. R. Tatum, Maryland
Janet Guernsey, Massachusetts
W. W. McCormick, Michigan
Haym Kruglak, Michigan
Philip Youngner, Minnesota
James H. Wernitz, Minnesota
A. B. Lewis, Mississippi
Alexander Calandra, Missouri
C. R. Jeppesen, Montana
Walter R. French, Jr., Nebraska
George Barnes, Nevada
Allen L. King, New Hampshire
Peter Lindenfeld, New Jersey
Ralph Dressel, New Mexico
George Hazzard, New York
Sherwood Githens, Jr., North Carolina
J. Donald Henderson, North Dakota
Arthur L. Lutz, Ohio
H. E. Harrington, Oklahoma
James J. Brady, Oregon
Richard L. Brown, Pennsylvania
Jose Medina-Hernandez, Puerto Rico
John A. Dillon, Jr., Rhode Island
R. B. Lindsay, Rhode Island
Frederick H. Giles, Jr., South Carolina
V. R. Nelson, South Dakota
C. J. Craven, Tennessee
Robert Lagemann, Tennessee
J. G. Potter, Texas
Thomas J. Parmley, Utah
A. D. Crowell, Vermont
Nelson L. Walbridge, Vermont
S. M. Heflin, Virginia
G. L. Hollingsworth, Washington
Donald C. Martin, West Virginia
Richard G. Netzel, Wisconsin
Joseph R. Dillinger, Wisconsin
C. A. Cinnamon, Wyoming

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

Advisory Committee on Center for Educational Apparatus in Physics (AAPT)

Allan M. Sachs, *Chairman*
Walter R. French, Jr.
John G. King
Harry F. Meiners
H. V. Neher
Alan M. Portis
Howard P. Stabler
W. C. Kelly, *Secretary*

Advisory Committee on the Visiting Scientists Programs in Physics (AAPT)

Mark Zemansky, *Chairman*
Lyle Borst
Robert B. Brode
E. Creutz
Harald H. Nielsen
Fay Ajzenberg-Selove

Advisory Committee for Information Center on International Physics Activities

Laurence Batchelder, *Chairman*
Wallace R. Brode
Sanborn C. Brown
Karl K. Darrow
R. S. Rivlin
Hilliard Roderick

Committee to Administer Grant from Asia Foundation

Ralph Lefler, *Chairman*
H. A. Barton
Fred D. Boercker

AIP Members of Magnetics Conference Advisory Committee

Richard M. Bozorth
J. F. Dillon, Jr.
William D. Doyle
John A. Osborn
J. Samuel Smart
W. C. Koehler
Richard J. Prosen
George T. Rado
Werner P. Wolf
A. M. Clogston
Simon Foner
Israel S. Jacobs
Julius M. Hastings
Louis R. Maxwell

Advisory Committee on Corporate Associates Program

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

Committee of Society Secretaries and Treasurers

J. W. Buchta
Karl K. Darrow
Joseph R. Dillinger
Frank K. Edmondson
Herbert A. Erf
Henri A. Levy
A. I. Mahan
John C. Miller
S. L. Quimby
Paul M. Routly
Mary E. Waga
Wallace Waterfall
Ralph P. Winch

AIP Pension Committee

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

AIP Property Committee

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

Finance Committee

James T. Bergen, *Chairman*
J. W. Buchta
H. A. Erf
A. I. Mahan
P. M. Routly
S. L. Quimby
E. A. Wood

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

W. V. Houston, *Chairman*
C. Guy Suits
Laurence Batchelder

Committee to Survey Activities of the Institute and Select Candidates for Director

R. B. Lindsay, *Chairman*
W. W. Havens, Jr.
Vincent E. Parker
James T. Bergen
S. S. Ballard
Ralph A. Sawyer (*ex officio*)

Representatives

Division of Physical Sciences, National Research Council

Ralph A. Sawyer
Elmer Hutchisson

ASA Sectional Committee Y-10 Letter Symbols

David Biesel

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

USANC of IUPAP
Elmer Hutchisson

ASA Acoustical Standards Board
F. V. Hunt

American Council on Education
Robert B. Brode
W. C. Kelly
Leonard O. Olsen
Bancroft W. Sitterly
M. H. Trytten
Frank Verbrugge

AAAS Council
Mary E. Warga
Horace M. Trent

US National Commission for UNESCO
Elmer Hutchisson

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

Scientific Manpower Commission
Henry A. Barton
W. C. Kelly

Board of Acta Metallurgica
Robert L. Sproull (to 7/25/63)
R. Smoluchowski

Conference on Teacher Education and Professional Standards (National Education Association)
Richard L. Brown
Glenn W. Giddings
Sherwood Githens, Jr.
Robert L. Henry
Haym Kruglak

US National Committee of FID
Elmer Hutchisson

Steering Committee for 1963 Magnetism Conference
J. F. Dillon, Jr.
A. M. Clogston
J. A. Osborn
H. C. Wolfe

AAAS Science and Engineering Television Journal
W. Reeves Tilley

ASA Sectional Committee N6, Reactor Safety Standards
Harry Soodak

Organizing Committee for 1967 International Magnetism Congress
Wallace Waterfall
Hugh C. Wolfe

APPENDIX II

**American
Institute
of Physics
Incorporated**

**SUMMARY STATEMENT
OF OPERATIONS**

*Including Activities Carried on for Member Organizations
Year Ended December 31, 1963*

	Total	American Institute Of Physics	For Account Of Member Organizations
Income:			
Subscriptions	\$1 132 720.59	\$ 583 408.09	\$ 549 312.50
Publication Charges and Reprint Sales	1 402 422.62	683 925.32	718 597.30
Back Number Sales	142 278.37	46 184.20	95 994.17
Contracts for Publication	35 555.75	35 555.75	—
Advertising	604 589.39	535 118.00	69 471.39
Support from Mem- ber Organizations	66 978.98	66 978.98	—
Associate (Corpora- tion) Dues	117 929.00	117 929.00	—
Income from Investments	1 933.41	1 933.41	—
Income from Special Projects, Administrative Fees, Royalties, etc.	954 680.92	954 680.92	—
Miscellaneous Income	21 741.26	21 741.26	—
Receipts for Ac- counts of Member Organizations	686 688.93	—	686 688.93
Total	\$5 167 519.22	\$3 047 454.93	\$2 120 064.29
Expense:			
Printing, Engraving, and Mailing Journals	\$1 888 091.10	\$ 877 070.85	\$1 011 020.25
Printing and Mailing Reprints	131 143.95	71 106.16	60 037.79
Handling Publication Charges and Reprint Sales	30 312.46	15 404.42	14 908.04
Back Numbers Handling and Distribution	52 286.40	24 283.26	28 003.14
Reprinting Back Issues	32 841.82	23 576.76	9 265.06
Advertising—Printing, Distribution and Selling	286 915.30	249 060.92	37 854.38
Editorial and Edi- torial Mechanics	449 283.86	331 799.23	117 484.63
Circulation Promotion	12 766.19	12 766.19	—
Subscription Handling	310 351.82	128 018.42	182 333.40
Administrative and Organizational Services*	381 767.34	381 767.34	—
Special Projects	812 584.93	812 584.93	—
Investment Expense	559.18	559.18	—
Disbursements on Behalf of Mem- ber Organizations	114 501.42	—	114 501.42
Total	\$4 503 405.77	\$2 927 997.66	\$1 575 408.11
Net to Organizations to Balance Accounts	544 656.18	—	544 656.18
Net Profit Transferred to Accumulated Deficit	\$5 048 061.95	\$2 927 997.66	\$2 120 064.29
	\$ 119 457.27	\$ 119 457.27	

* Includes rebates to Organizations \$5745.24 for reprinting back issues.

BALANCE SHEET

December 31, 1963

Assets

Operating Fund:

Cash		\$ 466 436.74	
Savings Account— Bankers Trust Company	\$ 400 000.00		
Add: Accrued Interest thereon	38.88	400 038.88	
Investment in U.S. Government Securities	\$ 28 968.75		
Add: Accrued Interest thereon	138.60	29 107.35	
Due from Mem- ber Organizations: Acoustical Society of America	\$ 12 658.25		
American Associa- tion of Physics Teachers	18 051.42	30 709.67	
Accounts Receivable: Publication Charges	\$ 279 820.69		
Reprint Sales	27 599.51		
Advertising	63 728.83		
Miscellaneous	4 978.33	376 127.36	
Deposits		1 125.00	
Deferred Charges: Contribution to Re- tirement Plan Applicable to 1964	\$ 36 311.41		
Engraving Costs Applicable to 1964	25 246.05		
Printing Cost Applicable to 1964	9 300.55		
Prepaid Insurance	4 397.56		
Prepaid Group Life & Major Medical Insurance	5 803.05		
Other	7 508.57	88 567.19	\$1 392 112.19

Special Purpose Funds:

Karl Taylor Compton Fund:			
Cash	\$ 1 545.06		
Investments	11 003.94	\$ 12 549.00	
John T. Tate Memorial Fund—			
Cash		15 939.47	
Cash—Invest- ment Advisory Account—Net		1 373.28	
Investments	\$ 102 834.68		
Add: Accrued Interest Receivable thereon	282.97	103 117.65	
Due from Op- erating Fund		173 979.57	
Amounts due for Funds Expended for Special Proj- ects for Accounts of others		9 992.68	316 951.65

Building and Equipment Fund:

Land		\$ 266 535.36	
Building (Orig- inal) \$623 573.83			
Building Addi- tion	697 412.87	\$1 320 986.70	
Less: Accumu- lated Depreciation	205 178.27	1 115 808.43	
Furniture and Fixtures	\$ 162 661.83		
Less: Accumu- lated Depreciation	55 951.69	106 710.14	1 489 053.93
			<u>\$3 198 117.77</u>

Liabilities

Operating Fund:

Trade Accounts Payable		\$ 373 318.03	
Commissions Payable		21 022.06	
New York State Tax Withheld		6 207.70	
State Disability Insurance Withheld		679.41	
Accrued Interest Payable		3 174.31	
Abstract Charges Payable		10 650.00	
Due to Mem- ber Organizations:			
American Physical Society	\$ 87 530.08		
American Astro- nomical Society	2 371.15		
Optical Society of America	50 100.41		
Society of Rheology	10 205.12	150 206.76	
Sundry Creditors		28 708.48	
Unallocated Receipts		12 098.02	
Deferred Credits: Subscriptions Applicable to Future Years	\$ 563 663.75		
Associate (Corporate) Dues—Year 1964	71 362.00		
Dues—Student Section re 1964 Activities	6 105.60		
Sundry Receipts— re 1964 Activities	41 337.42	682 468.77	
Due to Special Purpose Funds		173 979.57	
Accumulated Deficit		(70 400.92)	1 392 112.19

Special Purpose Funds:

Karl Taylor Compton Fund	\$ 12 549.00		
John T. Tate Memorial Fund	15 939.47		
Special Gifts Fund	1 577.63		
Friends of the Niels Bohr Library	5 857.39		
Yetta Berns Memorial Fund	184.21		
Amounts Received for Special Projects (Net after Expendi- tures thereon)	280 843.95	316 951.65	

Building and Equipment Fund:

Mortgage Payable, 5½% due 11/1/77, Amortization Quarterly	\$ 334 667.66		
Building and Equipment Capital	1 154 386.27	1 489 053.93	
		<u>\$3 198 117.77</u>	