Alfred P. Sloan Foundation

ANNUAL REPORTS

ALFRED P. SLOAN, JR.
Founder and Chairman

ALFRED P. SLOAN FOUNDATION

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Report for 1961-1962

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[1]Elected June 19, 1962
[2]Elected January 18, 1962

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—CONTINUED—

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[1]Since Mr. Whitney's death occurred on July 22, 1963, after this book had gone to press, a statement concerning his services as Trustee will appear in the next *Report* of the Foundation.

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* * *

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Foreword

PUBLISHED BY DIRECTION OF THE TRUSTEES, this biennial *Report* of the Alfred P. Sloan Foundation is a comprehensive record of the grants authorized, and of the payments made on these and earlier commitments, by the Foundation during 1961 and 1962. It also records the continued growth in capital assets and annual income that has supported the rising scale of new commitments. Thus it constitutes for this period a public accounting of the ways in which the Trustees and Officers of the Foundation have discharged a dual responsibility.

For the student of American institutions, the *Report* is essentially a case study in the private administration of a public trust. What are the policies, as determined by the Trustees, which now govern the care and disposition of the funds comprising this trust? What has been the outcome of these policies as administered by officers and staff? For what kinds of non-profit enterprise has the Foundation provided venture capital in significant amounts? Why were these grants made in preference to others?

By and large it is well to let the answers to such questions be sought in the record itself. Not everyone who turns these pages, however, may have either the time or the inclination to review the *Report* as a whole. Thus, it may be in order to direct attention to a few of the salient facts regarding this Foundation's policies and program, which are either explicit or implicit in the record.

One important question confronting the trustees of any foundation concerns investment policy. Should the Foundation's funds be invested, for example, with an eye single to high returns for present use, or should emphasis be put on growth stocks with an eye to future needs? As indicated in the financial data included in these pages, equities strongly predominate in this Foundation's current portfolio; but if there has been a healthy rise over the past two years in the total value of capital assets, there has also been a corresponding rise in income. In balancing such considerations, moreover,

the Trustees of the Alfred P. Sloan Foundation are very much aware that commitments need not be limited to income but may, at their discretion, invade capital. Thus, despite a rise in income for the biennium to the record figure of almost $16 million, commitments for the period exceeded this figure by some $4 million, and the cumulative deficit in income account had risen, by December 31, 1962, to $21,426,719.

Another perennial problem confronting foundation trustees is whether the public interest is best served by grants that are highly diversified or highly concentrated. For the Alfred P. Sloan Foundation, this issue has been resolved in favor of devoting the bulk of its resources to the support of institutions and programs of exceptional promise, within rather clearly defined fields. Thus, for the period under review, its major grants were devoted, on

EVERETT CASE, *President*

the one hand, to the continuing support of such established programs as that of the Sloan-Kettering Institute for Cancer Research, fellowships for basic research in the physical sciences, fellowships in engineering and industrial management at the Massachusetts Institute of Technology and a few other leading institutions, and the Alfred P. Sloan national scholarships; and, on the other hand, to such new ventures as the provision of facilities and operating funds approximating $2.75 million for the Courant Institute of Mathematics at New York University, and grants of $1 million each to six institutions with strong faculties of arts and science for the development of their engineering resources. (The $5 million grant to the Massachusetts Institute of Technology for the establishment of a Center for Advanced Engineering Study, announced this spring, does not fall within the purview of this *Report,* even though it was the object of intensive study during the fall of 1962.)

Convinced that the diffusion of its funds over too broad a field could easily involve the dissipation rather than the productive use of its resources, the Foundation's Trustees have, nevertheless, sought to retain a degree of flexibility in policies and program alike. This has enabled the officers and staff to make a number of small and relatively diversified grants, the greater part of which are recorded in the *Report* under the heading "Staff Grants." While these cannot pretend to match the significance or promise of the Foundation's major grants, they do enable it to respond to key situations in which even a modest grant—and the recognition that accompanies it—can spell the difference between frustration and the encouragement to proceed.

* * *

I cannot conclude these observations without a word of tribute to the continuing concern of the Chairman and Founder for the wise and imaginative use, in the public interest, of the funds which he has so generously given to the Foundation that bears his name. Although Mr. Sloan resigned as President and Chief Executive Officer on July 1, 1962, his unabated and creative interest remains an inspiration to Trustees, officers, and staff—and not least to his successor in this office.

EVERETT CASE
President

General Review of Operations, 1961 and 1962

DURING THE TWO YEARS under review, the Foundation substantially expanded its support of engineering and mathematics. As set forth more fully in subsequent sections of this *Report*, new commitments authorized in these two areas exceeded $9 million. Nevertheless, other major concerns of the Foundation—basic research in the physical sciences, inquiry into the causes and cure of cancer, research and education in economics and industrial management and, of course, the Alfred P. Sloan National Scholarship Program—received undiminished support. The total of new commitments authorized between January 1, 1961 and December 31, 1962 (including administrative expenses) was $20.5 million.* The comparable figure for the previous two-year period was $19.6 million.

The Foundation was organized in 1934 with an initial donation of $500,000. In the beginning its operations were relatively modest. For its first 27 years—1934 through 1960—total commitments (including administrative expenses) amounted to $69.7 million. The additional commitments and expenses incurred during the biennium under review bring the grand total of authorized grants and related expenses to $89.8 million; and it can confidently be predicted that 1963 will bring this figure to at least $100 million.

Payments made on existing obligations during the period 1961-1962 totaled $16.85 million. Obligations thus liquidated resulted from commitments made in previous years as well as new commitments. Certain experimental projects, a new program of awards for cancer research, and the Founda-

*These and similar figures on this page are approximate. Exact totals are given in the Financial Review section of this *Report*, p. 115.

tion's own administrative expenses during the biennium brought the total of the two-year cash outlay to about $18.1 million. Unpaid obligations of the Foundation at December 31, 1962, that is, forward commitments growing out of grants authorized between January 1, 1961 and December 31, 1962 or earlier, but not yet payable, amounted to $18.6 million.

Portfolio income of the Foundation, that is, dividends and interest on invested funds, amounted to $7.7 million in the calendar year 1961, and $8.3 million during the calendar year 1962—a total for the biennium of $16 million. This means, of course, that grants and related expenses substantially exceeded the Foundation's current income, necessitating some invasion of capital. The cumulative deficit thus incurred, that is, the excess of expenditure and forward commitments over income since the creation of the Foundation, stood at $21.4 million on December 31, 1962.

In the pages of this *Report* identified as the Financial Review, it is indicated that the market value of the Foundation's portfolio at December 31, 1962, was approximately $222.7 million. At December 31, 1961, the portfolio of the Foundation was valued at $241.8 million. A year earlier, that is, at December 31, 1960, the market value of the Foundation's portfolio was $200.2 million. Some 14.2 per cent of the total value of the portfolio, as of December 31, 1962, or some $31.5 million consisted of fixed-income securities. The remainder of the portfolio, or some $190.6 million (which excludes cash and miscellaneous assets amounting to $533,749) was invested in the common stock of 89 corporations. In no case does the value of the Foundation's investment in any one corporation approximate as much as one per cent of the value of the outstanding common stock of that corporation, nor does the value of the Foundation's investment in the stock of any corporation exceed 37 per cent of the total value of the Foundation's equity investment.

By far the largest portion of the assets of the Foundation are maintained for internal purposes in its so-called "General Fund." Since 1949, however, there has also been a special fund known as the General Motors Dealers Appreciation Fund. This grew out of a gift made in that year in honor of Alfred P. Sloan, Jr. by General Motors dealers throughout the United States. The gift was made in appreciation of Mr. Sloan's long and distinguished service as chief executive officer of the General Motors Corporation. When contributed to the Foundation, this fund was valued at about $1.5 million.

It has shared in the general appreciation of the Foundation portfolio and the market value of this fund, as of December 31, 1962, was $8.75 million. Both the principal and income of this special fund may be used for cancer or medical research. Most of its income has gone for the support of research projects at the Sloan-Kettering Institute for Cancer Research.

During the biennium the Foundation received additional gifts from Mr. Sloan, the proceeds of which were designated by him as additions to the capital of the Foundation. At the time of their receipt by the Foundation, these gifts were valued at $1.74 million.

CHANGES IN STAFF AND BOARD OF TRUSTEES

On June 19, 1962, Alfred P. Sloan, Jr., the creator of the Foundation, resigned as its president and was succeeded in that post by Everett Case. For the two decades preceding his election, Dr. Case had served as President of Colgate University. He had also served (1957-1961) as an alumni trustee of Princeton University, and as Chairman (1951-1952) of the American Council on Education. Currently he is a Class C, or public director of the

Appointed Vice President of Foundation, April 19, 1962.
Photograph by Conway Studios.

FRANK A. HOWARD

Federal Reserve Bank of New York, and Chairman of the Board of Trustees of the Millbrook School in Millbrook, New York. Dr. Case began his service with the Foundation on July 1, 1962. He had previously been elected a member of its Board of Trustees and of its Executive and Investment Committees.

Mr. Sloan continues as a member of the Board of Trustees, of which he was elected Chairman in 1962 in succession to Albert Bradley, who had held that post for some ten years. Mr. Bradley continues as a Trustee and Chairman of the Foundation's Investment Committee.

Other changes were made by the Board in April 1962. James F. Kenney, who has been the Secretary and Treasurer of the Foundation since 1938, was made Vice President for Financial Affairs. Frank A. Howard, a Trustee of the Foundation and Chairman of the Board of the Sloan-Kettering Institute, was elected a Vice President with primary responsibility for the Foundation's interest in cancer research.

Left: *James F. Kenney, elected Vice President of Foundation, April 19, 1962.* Photograph by Ira L. Hill. Right: *Dr. Larkin H. Farinholt, elected Vice President of Foundation, January 18, 1962.* Photograph by A. F. Sozio.

JAMES F. KENNEY

DR. LARKIN H. FARINHOLT

Earlier, on January 18, 1962, Dr. Larkin H. Farinholt, who became Administrator of the Foundation's Basic Science Program on August 8, 1960, was also elected a Vice President of the Foundation and made a member of its Board of Trustees and of the Executive Committee.

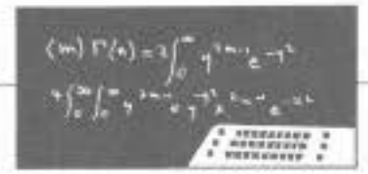
On April 1, 1962, Joseph Allen, who had been Administrator of the Foundation's National Scholarship Program since 1954, resigned from that position. A few months later, Robert N. Kreidler was appointed Director of Educational Affairs of the Foundation, with responsibilities that include administration of the Scholarship Program. Mr. Kreidler, a graduate of Dartmouth College, comes to the Foundation from various assignments which he has fulfilled in Washington since 1954. There he was assistant to the President's first Science Adviser, Dr. James R. Killian, Jr., and he had continued with Dr. Killian's successors in that position.

Some reorganization was also effected in the various committees of the Board of Trustees. Except for the election of Dr. Case to the Executive and Investment Committees and the accession of Mr. Sloan to the chairmanship of the Executive Committee (which he has now relinquished to Dr. Case), these two units remain relatively unchanged. Their membership is given on page ix of this volume. On April 19, 1962, the Board of Trustees also established committees of its members for each of three major areas of the Foundation's current activities. These are Educational Affairs, Scientific Affairs, and Cancer Affairs. Members of these committees are also identified on page x of this volume.

A more comprehensive review of the various areas in which the Foundation has been active and descriptions of specific grants made during 1961-1962 follow this summary. This review also contains a detailed financial report and a list of all Foundation grantees and funds made available to each of them during the biennium.

Grants and Commitments 1961 and 1962

A. Mathematics, the Physical Sciences, and Engineering



New York University—Courant Institute

In recent years, the Foundation has developed considerable interest in the role of mathematics as an academic and scientific discipline. World War II, and the spectacular scientific and technological developments which have occurred since the war, combined to give great impetus to research in mathematics. There is, accordingly, a greatly increased demand for persons with advanced training in mathematics, and a special need for individuals who, broadly and deeply trained in pure mathematics, are interested in applying this powerful discipline to a wide array of problems in engineering, physical science, biology, medicine, and other fields as well.

As evidence of the Foundation's interest, grants of some magnitude were made in 1958 to the California Institute of Technology and in 1959 to Dartmouth College. To the first of these institutions, the Foundation made two grants totaling somewhat more than $1.2 million, the proceeds of which were used to renovate and largely rebuild an older structure on the Institute's campus. Academic activities of the Institute's Department of Mathematics, most of its research activities in mathematics, and all of the administrative offices having to do with mathematics, are now located in this reconstructed building which is known as the Sloan Laboratory of Mathematics and Physics. Basement and sub-basement areas house a 12-million volt electrostatic accelerator, a gift of the Office of Naval Research, and also the Institute's low-temperature research program in physics. The Dartmouth grant, amounting to $500,000, was used to finance part of the new facility for the mathematics department at that institution which is known as the Albert Bradley Center for Mathematics.

Montage of photographs relating to grant for Courant Institute, New York University, and ground breaking ceremonies for Warren Weaver Hall, headquarters of Institute. Photographs courtesy of New York University.

Early in 1959, the Foundation extended its interest in mathematics to include the program of the Institute of Applied Mathematics at New York University. This had been founded by Professor Richard Courant in 1938. Prior to his association with the University, Professor Courant had been a member of the faculty of the University of Göttingen, Germany. There he had acquired an enviable international reputation for his many contributions to the mathematical sciences. The identification of the new Institute at New York University with a scholar of such stature provided the best guarantee that, in time, it would become a major educational and research center.

Two decades later, when the Foundation became interested in the Institute's support, this promise had clearly been redeemed. Professor Courant's creation had become one of the most distinguished as well as one of the largest centers in the nation concerned with teaching and research in applied mathematics; that is, in mathematics intimately concerned with areas of science and technology. Testimony to this effect was offered the Foundation by scholars from all parts of the United States and by some of the most distinguished mathematicians and physicists in Europe. In the interim, moreover, Professor Courant had associated with himself, at the New York University center, a distinguished mathematics faculty, and during World War II he and they had been able to render immensely valuable services to the American military effort and to American industry.

Late in 1960, New York University sought from the Foundation half of an estimated $4 million required for the construction of a new building, expected to provide 124,000 square feet of space, to house the Institute's various activities. The remainder was to be secured from other sources, or contributed directly by the University, which agreed to provide the site for the new structure. In addition to the building fund, the University requested a grant toward the operating budget of the Institute and for certain of its related activities.

Following extensive investigation and consultation with scholars in the various mathematical disciplines and with industrial leaders, the Foundation's Trustees, on October 19, 1961, authorized a grant of $2.75 million to New York University for the development and support of the Institute. Of the total, $2 million was to be used for the proposed new structure. The remaining $750,000, payable at a rate of $150,000 per annum, was to be devoted

primarily to predoctoral or postdoctoral fellowships and to certain programs in statistics and mathematical physics. Proceeds of this part of the Foundation's grant, matched by similar contributions from the University and other sources, were also to be used to maintain a special revolving research fund. At the time the Foundation's grant was made, the University took the occasion to honor the founder of the Institute by naming it after him. Henceforth it is to be known as the Courant Institute of Mathematical Sciences.

A supplemental contribution of $1 million was made toward the Institute's construction fund by the Ford Foundation in 1962, and ground-breaking ceremonies for the new building were held on November 20, 1962. This 13-story structure has been designed by Warner, Burns, Toan, and Lunde. When completed, it will be known as Warren Weaver Hall in honor of Dr. Warren Weaver, Vice President of the Foundation and formerly Vice President for the Natural and Medical Sciences of The Rockefeller Foundation. The University's decision to honor Dr. Weaver in this fashion will provide appropriate recognition of his service to the United States during World War II when he was Chairman of the Mathematics Panel of the Office of Research and Development, and also for the service he has rendered to science and mathematics generally. Dr. Courant, who had been closely associated with Dr. Weaver during the war, declared that "no other man in his generation has been more dedicated to the vital task of strengthening the scientific potential of this country than Dr. Weaver."

Upon Dr. Courant's retirement from active direction of the Institute in 1960, Professor James J. Stoker, Head of the All-University Department of Mathematics, succeeded Dr. Courant. The Institute is organized in four major divisions, the titles of which illustrate the Institute's basic concept, namely, that mathematics is an organic part of science. These divisions are: AEC Computing and Applied Mathematics Center, Division of Electromagnetic Research, Magneto-Fluid Dynamics Division, and the Division of Mathematics and Mechanics.

The Institute's immediate activities command the services of about 250 scientific and staff members and of 59 faculty members of the University's Department of Mathematics, both graduate and undergraduate. These regular faculty members participate in the various activities of the Institute and share responsibility for its actions. Within the Institute there are approxi-

mately 150 full-time graduate students who have the status of fellows or research assistants. The Institute also serves in part the needs of about 700 graduate students who are enrolled within the Mathematics Department of the University. Research contracts and grants to the Institute, from governmental and other sources external to the University, support a budget which approximates $2.5 million annually.

Since its origin, the Institute had enjoyed the support and counsel of an *ad hoc* committee of scientists. At the time of the Foundation's grant, the University decided to organize a more permanent agency and enlarge the scope of its services. To this end there was created a Governing Council of the Courant Institute to consist of some nine members. Besides Dr. Courant and Dr. Weaver, the charter members of the Governing Council include Dr. James B. Fisk, President of Bell Telephone Laboratories; Dr. Augustus B. Kinzel, Vice President—Research, Union Carbide Corporation; Dr. Emanuel R. Piore, Vice President for Research and Engineering, International Business Machines Corporation; Dr. George D. Stoddard, Chancellor and Executive Vice President of New York University; and Professor Stoker, the present Director of the Courant Institute. Dr. Edward J. McShane, Professor of Mathematics, University of Virginia, and William T. Golden, Chairman of the Board of Trustees, System Development Corporation, have also accepted the Institute's invitation to serve as Council members. Dr. Eleazer Bromberg, Professor of Mathematics of New York University and Assistant Director of the Courant Institute, is Secretary of the Governing Council. It is intended to invite other representatives of the scientific and mathematical communities to serve on this agency which will seek to review the progress of the Institute from time to time, counsel its director, and assist in promoting its general welfare.

Basic Research in the Physical Sciences

THE STATUS OF RESEARCH in pure science, especially in the physical sciences, has been a matter of major concern to this Foundation since the end of World War II, and even more so since the close of the Korean War. The extraordinary expansion of technology, both military and civilian, and the growing reliance of contemporary cultures upon science and technology were chiefly responsible for this attitude. Increasing public expenditures for research and development, in the early 1950's, augmented the Foundation's special interest in pure science, because analysis suggested that Government support was directed primarily to "development" rather than "research." To many observers, moveover, it appeared that most of the public funds for "research" were not being directed toward what is known as pure scientific research.

Thoughtful persons in the academic community felt a similar concern. They too expressed the opinion that, partly because of the availability of public funds, too much emphasis was being placed on applied research in the universities. Although they recognized the great importance of public funds, many prominent scientists and educators began to question the effect that contract and sponsored research might have on the universities and particularly on scientists endowed with the potential to do creative thinking. Some believed that in accepting support under conditions which required the submission of detailed research proposals to Government agencies for possible approval, the faculty member might be deliberately forfeiting his most cherished prerogative: the privilege of working in a climate of complete intellectual freedom. For the scholar this privilege also includes choosing at will the problems to be investigated and the right to modify or terminate his investigations.

Pursuing its interest in the status of pure research, the Foundation, during the postwar period, sought expert advice from specialists in the field. They suggested that the extraordinary demands of technology were creating a serious imbalance between technological applications, on the one hand, and basic knowledge, on the other. They stated, moreover, that unless deliberate efforts were made to stimulate pure scientific research, this imbalance would grow more serious. They pointed out that a contribution of considerable value toward the solution or mitigation of this problem might be made by a private foundation with relatively limited resources. This contribution, in the opinion of the advisers, could properly take the form of supporting the development of young academic scientists. Such a concept appealed to a group of consultants whom the Foundation had invited to develop a possible program of action. The Chairman of this Study Group was Professor Roger Adams, distinguished organic chemist and then Head of the Department of Chemistry and Chemical Engineering at the University of Illinois. Others who served with him were Dr. Mervin J. Kelly, then President of the Bell Telephone Laboratories, Inc., and a Foundation Trustee; Dr. Robert W. King, formerly Assistant to the President of Bell Telephone Laboratories, Inc.; Professor W. Albert Noyes, Jr., at the time Dean of the College of Arts and Sciences at the University of Rochester; and Dr. Julius A. Stratton, President of the Massachusetts Institute of Technology.

This group of advisers recommended supporting "young scientists of marked promise" in educational institutions "where the general climate favored research." They envisioned a program of special unencumbered grants to be administered by the institutions with which the recipients were associated as faculty members. It was suggested that these grants take the form of fellowships which would make provision for all expenditures that might properly arise out of the conduct of the scientist's research. The advisers stressed the desirability of allowing the scientist to identify and pursue research of his own choice and counseled against supporting what might be called "project research."

After considerable discussion of the report of these Foundation advisers, the Foundation's Trustees established "A Program for Basic Research in the Physical Sciences." This was substantially in accord with the group's major recommendations. From the very beginning of the program, the Foundation has sought to apply the idea of supporting "people instead of projects" and

has provided maximum freedom for the scientist in his research. Dr. Richard T. Arnold, then Head of the Department of Chemistry at the University of Minnesota, was appointed Program Administrator. Initial appropriations for the program were voted in 1954, and the first grants for the support of scholar-scientists were made in 1955. For the time being, it was decided to limit grants to chemistry, mathematics, and physics, and related interdisciplinary fields.

To assist in the selection of candidates, the Foundation's administrator established a Program Committee, consisting of some of the nation's outstanding scientists. This committee is in many ways the key to the success of the program. On the original committee were two chemists, two physicists, and one mathematician. A second mathematician was added to the group at a later date. One of the chemists, Professor Arthur C. Cope, Chairman of the Department of Chemistry at the Massachusetts Institute of Technology, became the first chairman of the Program Committee. Since then, because of a policy of rotation, which the committee itself inaugurated, there have been changes in its personnel. The present chairman is Professor Henry Taube who, at the time of his appointment, was at the University of Chicago and who is now Professor of Chemistry at Stanford University. Members serving on the committee are: Dr. Polykarp Kusch, Professor of Physics, and Chairman of the Department of Physics, Columbia University; Dr. Nelson Leonard, Professor of Chemistry, and Chairman of the Organic Division of the Department of Chemistry at the University of Illinois; Dr. Deane Montgomery, Professor of Mathematics at the Institute for Advanced Study (Princeton, New Jersey); Dr. Edward J. McShane, Professor of Mathematics at the University of Virginia; and Dr. Leonard I. Schiff, Professor of Physics, and Chairman of the Department of Physics at Stanford University.

Together with the Program Administrator, the members of the Program Committee seek nominations of candidates from the heads of university science departments and other scientists, evaluate the credentials of nominees, and make recommendations for fellowships to the Trustees' Committee on Scientific Affairs of the Foundation. The decisions made by the Program Committee are based on a thorough study of a great deal of detailed, confidential information and on evaluations concerning the nominees, obtained from a variety of sources. Since the main purpose of the program is to support basic research, the Program Committee, in considering candidates, tries not

to be concerned with either geographical distribution or with the type of institution with which the candidate is associated as a faculty member.

The recipient of an award under this program is designated as an Alfred P. Sloan Research Fellow.

Regular faculty members of recognized universities and colleges in the United States and Canada are eligible for consideration. A candidate for a fellowship does not apply but is nominated by his department chairman or some other established scientist who is well acquainted with his research and his potential as a creative scholar.

The Foundation does not require the submission of a research proposal by the nominee, nor does it require voluminous reports during or at the end of the fellowship. The Sloan Research Fellow is expected to provide a very brief scientific progress report annually, or in lieu of such a report, he may submit reprints of published scientific articles based on research supported by the grant.

Since the program is restricted to the physical sciences, most of the scholars selected are identified as physicists, chemists, or mathematicians. However, the Foundation is anxious not to overlook physical scientists who are interested in interdisciplinary fields. Included among the Sloan Research Fellows are astronomers, geophysicists, and geochemists, an applied mathematics-physicist, an astrophysicist, a biochemist, and a radio-astronomer.

The Program Committee continues to emphasize youth and to select young scientists at an early period in their academic careers before they have become very well established in their respective fields. When the new Sloan Research Fellows for the academic year 1962-1963 were chosen, their average age was 29, the range being from 24 to 34 years. This emphasis on youth, however, does not constitute a rigid policy, and under special circumstances, somewhat older persons may be selected.

As indicated earlier, flexibility is the rule in the operation of the program. The funds are administered by the grantee institutions in accordance with

Photographs (top and bottom) illustrate activities in Foundation's Basic Science Program; (center) meeting of Program Committee at Foundation. Center photograph by A. F. Sozio; others courtesy of Princeton University, Press-Enterprise of Riverside, California, E. M. Kosower, and Columbia University.

their own well-established policies. The monies, available to the Sloan Research Fellows through their institutions, are essentially unrestricted and may be used by the fellows for supplies and equipment, professional travel, publication costs, the support of predoctoral and postdoctoral research assistants, and for virtually any other purpose which they consider necessary for the conduct of their research. Some of the fellows, with departmental approval, may wish to be relieved of part or all of their teaching activities for a semester or two.

In order that the program shall not become financially burdensome to the institutions, a fixed percentage is allowed them to help defray indirect costs. In the case of the privately supported institutions, the allowance amounts to 25 per cent of the Foundation's grant and, in the case of the state-supported institutions, to 15 per cent. Excluded from indirect costs are purchases of major capital equipment which is, by definition, any item costing more than $500. All supplies and equipment purchased under the grant become the property of the institution.

The grants are usually made for a two-year period and are sometimes extended for another year or two. The amount of the individual grant will depend somewhat on the needs and nature of the research interests of the scientist. For these reasons, the grants have run from $1,000 a year to more than $15,000 in a few special cases. The current average is about $8,000 a year.

The program started rather modestly with an expenditure for the year 1955-1956 of about $200,000 for the support of 22 Sloan Research Fellows in 16 institutions. Since then, as more funds have been made available by the Foundation, the program's activities have expanded. At the present time, the program operates at a level of $1.2 million annually. In the years 1961 and 1962, the sum of $2,461,295 was committed to this program. Of this amount, $2,050,460 went for the direct support of the scientists, including $82,515, earmarked for major capital equipment, and the balance of $410,835 went to the universities for indirect costs. From the time the first appropriations were made in 1955 up to December 31, 1962, the Foundation has committed $6,902,726 for this program.

The allocation of funds for the three scientific areas from which the scientists are principally chosen is normally 40 per cent to chemistry, another 40 per cent to physics, and the remainder to mathematics.

In the seven years of the program's existence, fellowships have been provided for 333 individual scientists. Grants for their support were made to 78 educational institutions. Nominations have increased substantially each year. In 1962 the Foundation had under serious consideration a total of 374 qualified persons, representing an increase of 80 per cent since 1960. Out of that number only 48 *new* Sloan Research Fellows could be selected. Besides these, 18 existing fellowship holders were given grants for an additional period. This made a total of 66 awards effective in September of 1963. For the biennium under review, 217 scientists held Sloan Research Fellowships in 60 educational institutions.

In 1960 Dr. Larkin H. Farinholt succeeded Dr. Richard T. Arnold as Program Administrator, and now combines responsibility for the Basic Science Research Program with his other duties as Vice President for Scientific Affairs of the Foundation.

The Foundation issues a special brochure which provides a brief description of the program.

RECIPIENTS OF THE ALFRED P. SLOAN FELLOWSHIPS
IN BASIC SCIENCE, 1961-1962

University of Arizona, Tucson, Arizona
Gordon Tollin, *Biochemistry*

Brandeis University, Waltham, Massachusetts
Maurice Auslander, *Mathematics;* Heisuke Hironaka, *Mathematics*

Brigham Young University, Provo, Utah
H. Tracy Hall, *Chemistry*

University of British Columbia, Vancouver, Canada
Myer Bloom, *Physics*

Brown University, Providence, Rhode Island
Leon N. Cooper, *Physics;* John Ross, *Chemistry;* John Wermer, *Mathematics*

University of California, Berkeley, California
Errett A. Bishop, *Mathematics;* Eugene D. Commins, *Physics;* Heinz O. Cordes, *Mathematics;* Sheldon L. Glashow, *Physics;* Dudley R. Herschbach, *Chemistry;* John J. Hopfield, *Physics;* Frederick R. Jensen, *Chemistry;* Lucien M. LeCam, *Mathematics;* Norman E. Phillips, *Chemistry;* Andrew Streitwieser, Jr., *Chemistry;* Michael Tinkham, *Physics;* Steven Weinberg, *Physics;* Eyvind H. Wichmann, *Physics;* Ariel C. Zemach, *Physics*

University of California, La Jolla, California
James R. Arnold, *Chemistry;* William R. Frazer, *Physics;* John M. Goodkind, *Physics;* Sheldon Schultz, *Physics*

University of California, Los Angeles, California
Basil Gordon, *Mathematics;* James B. Hendrickson, *Chemistry;* Daniel Kivelson, *Chemistry;* William G. McMillan, Jr., *Chemistry*

California Institute of Technology, Pasadena, California
Felix Boehm, *Physics;* Richard P. Feynman, *Physics;* Murray Gell-Mann, *Physics;* Harden M. McConnell, *Chemistry;* John R. Pellam, *Physics;* John H. Richards, *Chemistry;* G. Wilse Robinson, *Chemistry;* Gerald J. Wasserburg, *Geochemistry;* Fredrik Zachariasen, *Physics*

Carnegie Institute of Technology, Pittsburgh, Pennsylvania
Simeon A. Friedberg, *Physics;* Robert T. Schumacher, *Physics*

Case Institute of Technology, Cleveland, Ohio
Frederick Reines, *Physics;* William Tobocman, *Physics*

University of Chicago, Chicago, Illinois
Walter L. Baily, Jr., *Mathematics;* Joseph W. Chamberlain, *Astronomy;* Gerhard L. Closs, *Chemistry;* Russell J. Donnelly, *Physics;* Eldon Dyer, *Mathematics;* Robert A. Gomer, *Chemistry;* Jack Halpern, *Chemistry;* William L. Lichten, *Physics;* James C. Phillips, *Physics;* Stuart A. Rice, *Chemistry;* Jun J. Sakurai, *Physics;* Elias M. Stein, *Mathematics;* Richard G. Swan, *Mathematics;* John G. Thompson, *Mathematics;* Nien-chu Yang, *Chemistry*

University of Cincinnati, Cincinnati, Ohio
Raymond E. Dessy, *Chemistry*

Columbia University, New York, New York
Richard Bersohn, *Chemistry;* Ronald Breslow, *Chemistry;* Wallace S. Broecker, *Geophysics-Oceanography;* Gerald Feinberg, *Physics;* Harish-Chandra, *Mathematics;* Richard V. Kadison, *Mathematics;* Martin Karplus, *Chemistry;* Thomas J. Katz, *Chemistry;* Serge Lang, *Mathematics;* Robert Novick, *Physics;* William H. Reinmuth, *Chemistry;* Melvin Schwartz, *Physics;* Stephen Smale, *Mathematics;* Jack Steinberger, *Physics*

Cornell University, Ithaca, New York
Robert H. Brout, *Physics;* Donald G. Farnum, *Chemistry;* Carl S. Herz, *Mathematics;* Jerrold Meinwald, *Chemistry;* Richard F. Porter, *Chemistry;* Harold Widom, *Mathematics*

Duke University, Durham, North Carolina
Horst Meyer, *Physics;* Jacques C. Poirier, *Chemistry*

Emory University, Atlanta, Georgia
Charles E. Boozer, *Chemistry*

Florida State University, Tallahassee, Florida
Ernest M. Grunwald, *Chemistry*

University of Georgia, Athens, Georgia
Marion K. Fort, Jr., *Mathematics*

Harvard University, Cambridge, Massachusetts
John D. Baldeschwieler, *Chemistry;* William Klemperer, *Chemistry;* Daniel Kleppner, *Physics;* Arthur E. Lilley, *Astronomy;* Paul C. Martin, *Physics;* Barry Mazur, *Mathematics;* David Mumford, *Mathematics;* Francis M. Pipkin, *Physics;* Shlomo Sternberg, *Mathematics;* John T. Tate, *Mathematics;* Tai Tsun Wu, *Physics*

University of Illinois, Urbana, Illinois
Douglas E. Applequist, *Chemistry;* R. Linn Belford, *Chemistry;* Theodore L. Brown, *Chemistry;* Donald Ginsberg, *Physics;* Dillon E. Mapother,

Physics; James C. Martin, *Chemistry;* Theron S. Piper, *Chemistry;* Kenneth L. Rinehart, Jr., *Chemistry;* Charles P. Slichter, *Physics;* Harvey J. Stapleton, *Physics;* John C. Wheatley, *Physics*

Indiana University, Bloomington, Indiana
Vernon J. Shiner, Jr., *Chemistry*

Institute for Advanced Study, Princeton, New Jersey
Tsung-Dao Lee, *Physics*

Iowa State University, Ames, Iowa
Orville L. Chapman, *Chemistry;* Charles H. DePuy, *Chemistry;* Glen A. Russell, *Chemistry*

Johns Hopkins University, Baltimore, Maryland
Bernard M. Dwork, *Mathematics;* Jun-ichi Igusa, *Mathematics;* Alex Nickon, *Chemistry*

University of Kansas, Lawrence, Kansas
Albert W. Burgstahler, *Chemistry;* Richard C. Sapp, *Physics*

Louisiana State University, Baton Rouge, Louisiana
Richard D. Anderson, *Mathematics*

University of Maryland, College Park, Maryland
Rolfe E. Glover, III, *Physics*

Massachusetts Institute of Technology, Cambridge, Massachusetts
F. Albert Cotton, *Chemistry;* David H. Frisch, *Physics;* Frederick D. Greene, *Chemistry;* Louis N. Howard, *Applied Mathematics-Physics;* Kerson Huang, *Physics;* Kenneth A. Johnson, *Physics;* Bertram Kostant, *Mathematics;* Franklin P. Peterson, *Mathematics;* Daniel B. Ray, *Mathematics;* Gian-Carlo Rota, *Mathematics;* Dietmar Seyferth, *Chemistry;* Isadore M. Singer, *Mathematics;* John S. Waugh, *Chemistry*

University of Michigan, Ann Arbor, Michigan
Peter Franken, *Physics;* Robert E. Ireland, *Chemistry;* R. Martin Stiles, *Chemistry;* Donat G. Wentzel, *Astrophysics*

University of Minnesota, Minneapolis, Minnesota
Maurice M. Kreevoy, *Chemistry;* Edward Leete, *Chemistry;* Charles A. McCarthy, *Mathematics;* Albert J. Moscowitz, *Chemistry;* T. Michael Sanders, Jr., *Physics*

New York University, New York, New York
Paul R. Garabedian, *Mathematics;* Michel Kervaire, *Mathematics;* Peter D. Lax, *Mathematics;* Kurt M. Mislow, *Chemistry;* Jurgen K. Moser, *Mathematics;* Louis Nirenberg, *Mathematics;* Jacob T. Schwartz, *Mathematics*

State University of New York at Stony Brook, Stony Brook, New York
Edward M. Kosower, *Chemistry;* Fausto Ramirez, *Chemistry*

University of North Carolina, Chapel Hill, North Carolina
Paul S. Hubbard, Jr., *Physics*

Northwestern University, Evanston, Illinois
Myron L. Bender, *Chemistry;* Avner Friedman, *Mathematics*

University of Notre Dame, Notre Dame, Indiana
Sperry E. Darden, *Physics;* O. Timothy O'Meara, *Mathematics;* Louis Pierce, *Chemistry*

Ohio State University, Columbus, Ohio
Michael P. Cava, *Chemistry*

University of Oklahoma, Norman, Oklahoma
Chun C. Lin, *Physics*

University of Oregon, Eugene, Oregon
Marshall Fixman, *Chemistry;* Terrell L. Hill, *Chemistry;* Robert M. Mazo, *Chemistry;* John A. Schellman, *Chemistry*

Oregon State University, Corvallis, Oregon
John L. Kice, *Chemistry*

University of Pennsylvania, Philadelphia, Pennsylvania
Abraham Klein, *Physics;* Donald N. Langenberg, *Physics;* Alan G. MacDiarmid, *Chemistry*

University of Pittsburgh, Pittsburgh, Pennsylvania
Irving J. Lowe, *Physics;* Lorne A. Page, *Physics*

Polytechnic Institute of Brooklyn, Brooklyn, New York
Rudolph A. Marcus, *Chemistry*

Princeton University, Princeton, New Jersey
Richard Blankenbecler, *Physics;* James W. Cronin, *Physics;* Val L. Fitch, *Physics;* Robert C. Gunning, *Mathematics;* Richard K. Hill, *Chemistry;* David Lowdenslager, *Mathematics;* John W. Milnor, *Mathematics;* Charles W. Misner, *Physics;* Marcos Moshinsky, *Physics;* Edward C. Nelson, *Mathematics;* C. D. Papakyriakopoulos, *Mathematics;* Paul von Rague Schleyer, *Chemistry;* John R. Stallings, *Mathematics;* Sam B. Treiman, *Physics*

Purdue University, Lafayette, Indiana
Robert E. Davis, *Chemistry;* Richard W. King, *Physics*

William Marsh Rice University, Houston, Texas
Robert F. Curl, Jr., *Chemistry*

University of Rochester, Rochester, New York
William H. Saunders, Jr., *Chemistry;* Kenneth J. Teegarden, *Physics*

University of Southern California, Los Angeles, California
Jerome A. Berson, *Chemistry*

Stanford University, Stanford, California
James D. Bjorken, *Physics;* Paul J. Cohen, *Mathematics;* William A. Little, *Physics;* John D. Walecka, *Physics*

University of Texas, Austin, Texas
Rowland Pettit, *Chemistry*

University of Toronto, Toronto, Canada
James M. Daniels, *Physics;* Alexander G. Harrison, *Chemistry-Geochemistry;* John C. Polanyi, *Chemistry*

Tulane University, New Orleans, Louisiana
Fred B. Wright, Jr., *Mathematics*

University of Virginia, Charlottesville, Virginia
Pierre E. Conner, Jr., *Mathematics;* Edwin E. Floyd, *Mathematics;* Loren G. Hepler, *Chemistry*

University of Washington, Seattle, Washington
Marshall Baker, *Physics;* David Bodansky, *Physics;* George D. Halsey, Jr., *Chemistry;* Victor L. Klee, Jr., *Mathematics;* Kenneth B. Wiberg, *Chemistry*

Wayne State University, Detroit, Michigan
Norman L. Allinger, *Chemistry;* Norman A. LeBel, *Chemistry*

University of Western Ontario, London, Ontario, Canada
Edgar W. Warnhoff, *Chemistry*

University of Wisconsin, Madison, Wisconsin
Marvin E. Ebel, *Physics;* Charles J. Goebel, *Physics*

Yale University, New Haven, Connecticut
Robert K. Adair, *Physics;* R. Stephen Berry, *Chemistry;* Felix E. Browder, *Mathematics;* Harold Conroy, *Chemistry;* Jack Sandweiss, *Physics;* Oktay Sinanoglu, *Chemistry*

Yeshiva University, New York, New York
J. Francois Treves, *Mathematics*

Development of Engineering Resources

BROWN UNIVERSITY – DARTMOUTH COLLEGE
JOHNS HOPKINS UNIVERSITY – UNIVERSITY OF NOTRE DAME
PRINCETON UNIVERSITY – UNIVERSITY OF ROCHESTER
LOVANIUM UNIVERSITY

IN THE DESCRIPTION of the Foundation's Basic Science Research Program (page 15) it was indicated that the program, adopted in 1955, sought to stimulate basic inquiry by young scientists of outstanding talent. Through that program, the Foundation hoped to expand opportunities for basic scientific research and, in a modest way, focus attention on the high importance, cultural and technological, of basic scientific endeavor.

Broadly similar concerns moved Foundation advisers and Trustees in 1961 to develop a special program for strengthening engineering education. The growing interdependence of engineering and science, the almost exponential rate of increase of industrial and governmental research and development programs, and the ever-increasing reliance of our entire economy upon the art of the engineer were among the more immediate considerations which persuaded the Trustees to undertake this program. These considerations assumed added significance because of the relatively low estate of engineering teaching and research equipment in some of our academic institutions, the troublesome decline in recent years of undergraduate enrollment in certain engineering disciplines, and the virtual certainty that engineering man power would fall seriously, if not catastrophically, short of national needs a decade hence.

Having decided to commit a significant part of its resources to the support of engineering education, the Foundation had next to resolve the question that all foundations must constantly ask themselves, namely, how the relatively

Photographs from institutions involved in Foundation's Engineering Development Program illustrate growing sophistication of equipment in contemporary engineering laboratories. Photographs courtesy of Brown University, Princeton University (by Elizabeth G. C. Menzies, Princeton, New Jersey), University of Rochester, Notre Dame University, Johns Hopkins University (by William C. Hamilton, Baltimore, Maryland), and Dartmouth College.

limited funds available for the purpose might be used so as to exert a maximum constructive impact.

A first, and decidedly modest, step was taken by the Foundation in 1959 when its Trustees authorized an experimental fellowship program for first-year graduate students in engineering who had expressed an intention to enter the teaching profession if they subsequently qualified. The program is described elsewhere in this volume (page 85).

Action of a more ambitious kind was initiated late in 1961 when the Foundation decided to make a series of "developmental grants" to selected institutions to assist them in extending and improving programs for the training of science-oriented engineers through the doctoral level, and to enlarge the pool of talent from which individuals could successfully be recruited into an engineering teaching career. Under the new program, the institutions were encouraged to use the grants for any appropriate educational or research purpose. The only condition which the Foundation sought to impose was the very general one that the funds be expended in whatever way would be most helpful to the institutions in broadening the education of engineers who, in addition to a high level of competence in a particular engineering specialty, would also acquire a broad base in the physical sciences.

In selecting institutions for these developmental grants, the Foundation's advisers directed their attention from the outset to colleges and universities which had not only a distinguished engineering program but which were fundamentally oriented toward the liberal arts. They also sought institutions which had unusual strength in the physical sciences and strong faculties in other departments. It was likewise agreed that institutions should be chosen which had demonstrated a desire to move, or had already moved, in the direction of a science-oriented engineering program.

Having applied these criteria to a relatively long list of distinguished institutions, the Foundation Trustees and their advisers eventually selected six. Among those six it is confidently anticipated that grants of the stipulated kind and magnitude will exert maximum influence in achieving the Foundation's goals. The institutions chosen were: Brown University, Dartmouth College, the Johns Hopkins University, the University of Notre Dame, Princeton University, and the University of Rochester. Each of these insti-

tutions was eventually given a grant of $1 million. The gift to Notre Dame was made in October 1961. Commitments to the remaining five were made during the course of the next few months. The grants are payable within a five-year period although in one or two instances the payment period has been adjusted at the request of the institution.

After the commitment had been made, the six institutions were invited to submit individual plans calculated to achieve their immediate developmental goals for engineering through the use of the grant. In their response, the institutions developed what amounted to a major survey of their plans for engineering education for the next decade and availed themselves to the full of the discretion which the Foundation had suggested.

At Brown University, engineering is organized as a division rather than a separate school. In the plans which that institution submitted, it was pointed out that the primary requirement for improving the engineering disciplines would be the construction of a new physics-engineering building. This would be the key structure in the University's planned Center for the Physical Sciences and Engineering. The new building would make it possible to house, under one roof, physics and engineering offices and laboratories now located in several buildings. A sizable portion of the required funds had already been subscribed by other sources, and Brown therefore proposes to use a part of the Foundation's grant to complete this new Center and to provide incidental laboratory and other forms of equipment. The remainder is to be used for the improvement of engineering instruction and for both faculty and student research.

After a careful re-examination of the program of its Thayer School of Engineering in 1954, Dartmouth College decided at that time to make some important changes in its engineering program. The School's Board of Overseers was extended to include representatives of engineering education and industry as well as practicing engineers from the Thayer alumni body. Dartmouth's departments of mathematics, physics, and chemistry were strengthened and their contribution to the engineering program expanded. Since 1871, the Thayer School has required its students to pursue a broad liberal-arts program, prior to the study of engineering, and this requirement has been continued. At the same time, a new major in engineering science has been introduced at the undergraduate level, and the College intends to make

a special effort to recruit young men for its undergraduate body who have demonstrated unusual scientific capacity. At the graduate level, the College will offer work in selected areas where the need is critical. The emphasis will be on quality rather than on volume. In addition to a Master's program, a doctorate will be offered both in Engineering and in Applied Science.

Dartmouth plans to use the Foundation's grant to increase the faculty required for its broader engineering curriculum, to support graduate students, and to finance a research program. Some of the grant will be used for special laboratory equipment needed for the research of staff members.

In presenting the Johns Hopkins University plan for engineering development to the Foundation, Dr. Milton Eisenhower, the University's President, stated that throughout the University's history, great emphasis has been placed on science. He added that several years ago Hopkins had concluded that the trend in engineering was to be toward what could be termed "engineering science." In view of the fact that Hopkins is a relatively small institution, careful thought was given to the contribution it might make to engineering education. Since it has always been active in training teachers, it was concluded that Hopkins' special contribution might well be the training of teachers of engineering.

The University began to move in this direction about three years ago, and in 1961 it adopted certain intramural objectives. These are: to increase undergraduate engineering registration from 400 to 500; to double the registration of engineering students working for the doctoral degree; and greatly to increase the volume of postdoctoral work. The University also decided to set up a preceptorial relationship between its growing body of graduate and postgraduate students and its undergraduate engineering students. Within a year or two all doctoral and postdoctoral candidates will have certain responsibilities for counseling undergraduates and for engaging in some teaching. Thus, students who take advanced degrees in engineering at Hopkins will acquire a limited experience in teaching. The University feels that this fact may interest more of its students in teaching.

The Foundation's grant will provide support for certain strategically important aspects of this broad program. The largest part of the proceeds will be used for predoctoral and postdoctoral fellowships and for certain

faculty salaries. Some of the proceeds will also be used for experimental laboratory equipment.

In the case of the University of Notre Dame, the Foundation's funds will finance a few new senior faculty appointments in the College of Engineering and encourage the staff to engage in special research projects. Part of the grant will be earmarked by Notre Dame for fellowships for graduate students who cannot be assisted by institutional funds. The University has also intimated that the grant will supplement funds from other sources, public and private, the combined resources to be used to renovate and expand existing laboratory space and to provide quarters for a computing center.

About ten years ago, Princeton University began to emphasize "engineering science" as an essential part of its effort to expand graduate work in engineering. Princeton's School of Engineering and Applied Science is one of four divisions of the University; and engineering at Princeton is integrated into the general work of the whole institution. Civil and electrical engineering were first undertaken at Princeton almost a century ago. In 1921, curricula in chemical and mechanical engineering were introduced and departments in these fields were subsequently established. In 1940, aeronautical engineering was added.

For some years Princeton has been developing its new engineering quadrangle. Construction was substantially complete when the Foundation made its grant. Hence, most of the Foundation's funds will be allocated for other purposes. They will be used to strengthen the University's graduate program in which special attention is paid to interdisciplinary areas. Additional funds will finance faculty grants and leaves of absence for research and other scholarly and professional work and provide for visiting professorships in new areas of engineering. Finally, Foundation funds will provide for postdoctoral fellowships, for additional predoctoral fellowships, and for the acquisition of research and instructional apparatus.

The University of Rochester's plan outlined various ways in which the Foundation's funds would be used for expanding and improving engineering education. The University states that its underlying philosophy is to develop a "new engineering education" that "will not be outmoded by future scientific advances."

Engineering had been a division within Rochester's College of Arts and Sciences until September 1958, when the division became the College of Engineering. Effective July 1, 1963, it was named the "College of Engineering and Applied Science," thus indicating Rochester's special interest in a strongly science-oriented curriculum. In the past, the University has had programs in chemical and mechanical engineering and in optics, and subsequently added a department of electrical engineering. The newly organized college will continue these four programs. It is anticipated that graduate enrollment at the University will be tripled during the 1960's.

Part of the Foundation's grant will serve to strengthen and enlarge Rochester's engineering faculty. In this respect, the University believes its greatest need is the establishment of a "Distinguished Professorship" in each of the four departments of the College. Funds will be used for this purpose as well as for certain other faculty appointments. Another segment of the grant will permit the purchase of equipment for a new engineering and applied-science building, now under construction.

As the programs described above are developed, they may undergo certain modifications. The Foundation grants allow for flexibility in the use of these funds in order that the individual institutions may meet their own changing needs.

LOVANIUM UNIVERSITY

Related to the preceding grants, but not a part of the Foundation's general program for engineering development, is a grant of $25,000 made in 1961 to Lovanium University, Leopoldville, the Congo. A grant of that amount had been made in November 1959 to assist that institution in providing facilities for its engineering departments. Although in the interim additional support of considerable magnitude had been generously provided by certain other foundations and especially by the Belgian Government, the Sloan Foundation was informed early in 1961 that available funds were still inadequate to complete the planned physical expansion of the facilities. It was for this reason that in May of that year, the Foundation's Trustees voted the supplementary grant. The President of the University, Dr. L. P. Gillon, has announced that Lovanium graduated its first group of engineers in 1962 and that the contemplated full program in engineering will shortly be inaugurated.

B. Medical Research and Education

Research in Cancer and Allied Diseases

SLOAN-KETTERING INSTITUTE

SINCE ITS INCEPTION IN 1945, the Sloan-Kettering Institute for Cancer Research has been closely identified with the Foundation. This Institute, now recognized as a world center for research in neoplastic diseases, is a part of the Memorial Sloan-Kettering Cancer Center. Most of the Institute's operations are presently confined to its original building on East 68th Street in New York between York and First Avenues; but it also has a special laboratory, known as the Donald S. Walker Laboratory at Rye, New York, which was built in 1958.

The Foundation's rather intimate association with the Institute arises chiefly out of the fact that in 1945 a large Foundation commitment, amounting to somewhat more than $4.5 million, was made to the original incorporators of the Institute in order to construct the central building on East 68th Street. Indeed, Alfred P. Sloan, Jr., then President of the Foundation, together with such associates as Frank A. Howard and the late Dr. Charles F. Kettering, developed the original plan of the Institute, working to that end with the late Dr. Cornelius P. Rhoads, who became the Institute's first Director. Hence, much of the initial support, both financial and conceptual, came from individuals closely identified with the Alfred P. Sloan Foundation, and the Institute appropriately bears the names of Mr. Sloan and Dr. Kettering.

In the seventeen years which have elapsed since the creation of the Institute, some of the original Foundation sponsors, particularly Mr. Sloan and Mr. Howard, have maintained their personal and official association. Until June 1959, Mr. Sloan served as Chairman of the Institute's Board of Trustees;

(Bottom): *Alfred P. Sloan, Jr. presents first Foundation Cancer Research Awards, May 8, 1962.* Photograph courtesy of The New York Times. (Top): *Prototype of award citation.* Photograph courtesy of the Press of Joseph D. McGuire.

and, after relinquishing that post to Mr. Howard, Mr. Sloan continues as an Institute trustee. Additionally, certain Trustees of the Sloan Foundation serve as trustees of the Institute and as members of its Executive and Finance Committees. Despite this understandably close association between the Foundation and the Institute, the latter is a wholly autonomous agency having no legal connection whatsoever with the Foundation.

Since 1945, the Foundation has continued to make contributions for the Institute's support. If the original construction and maintenance grant of 1945 be included in the total of such support, the Foundation commitments to the Institute at December 31, 1962, totaled $15.73 million. Support of the Institute by the Foundation remains at a level somewhat above a half million dollars annually. This includes a regular annual grant of $400,000 and various grants for special purposes. Among the latter, during May 1962, was a grant of $105,000 to finance for three years the work of the well-known cytologist, Dr. Etienne de Harven of the Free University, Brussels, Belgium. Not unrelated to that grant was another of $200,000 to supplement an earlier grant for the construction and equipment of Sloan House, an apartment residence for nurses at the Memorial Hospital. The earlier grant, in the amount of $2 million, was made in January 1958 and was matched by a personal gift for the same amount by Mr. Sloan.

In recent years the Foundation's contributions to Sloan-Kettering Institute have become a minor part—normally less than 5 per cent—of the Institute's annual budget which, according to its latest report, exceeds $9 million. Other contributors to the Institute include other private foundations, the American Cancer Society, and public agencies interested in cancer research, such as the National Cancer Institute of the National Institutes of Health, the Department of Health, Education, and Welfare, and the Atomic Energy Commission.

In 1960, Dr. Frank L. Horsfall, Jr., formerly Vice President of The Rockefeller Institute and a well-known virologist and chemotherapy specialist, became President and Director of the Sloan-Kettering Institute succeeding the late Dr. Rhoads. At approximately the same time, the new corporation, Memorial Sloan-Kettering Cancer Center, was created. According to this corporation's first annual report, it is to serve as a coordinating entity for the Memorial Hospital for Cancer and Allied Diseases and the Sloan-Kettering

Institute. Memorial Hospital continues to be responsible for the clinical activities of the Center, including clinical research and related teaching programs; and the Sloan-Kettering Institute continues its various research and teaching programs. At the time the coordinating corporation was created, Dr. John R. Heller, formerly Director of the National Cancer Institute and a leader in cancer research, became its first President. Dr. Warren Weaver, Vice President of the Alfred P. Sloan Foundation, is currently the Chairman of the Scientific Policy Committee of the Memorial Sloan-Kettering Cancer Center.

In a recent report of the Sloan-Kettering Institute, its President and Director emphasizes the widely diverse aspects of the problem of cancer and the great variety of research programs upon which its considerable staff is presently engaged. Recent studies of cell structure and growth suggest to him the concept "that cancer, no matter what the inducing agent, is ultimately the result of an internal change in chromosomal nucleic acid of the affected cells." He adds that this assumption encourages a more orderly approach to the continued investigation of causes of cancer in man; and the research program of the Institute is being enlarged and extended, and its investigative staff is being augmented to meet the opportunity thus presented.

To expedite this program, the Institute reports that a new laboratory building is to be erected at East 68th Street in New York, immediately across from the main Institute building. The new building of some eleven stories will provide an estimated 83,000 square feet of laboratory space. It is scheduled for completion sometime during 1964.

ACTIVITIES ALLIED WITH THE SLOAN-KETTERING PROGRAM

Support of this Foundation has occasionally been extended to cancer research activities in other parts of the nation and the world when such activities are directly related to the broad program of the Sloan-Kettering Institute. Thus, in 1953, the Sloan Foundation supplemented grants made by the Charles F. Kettering Foundation to the Southern Research Institute at Birmingham, Alabama, which were designed to support certain projects relating especially to the Sloan-Kettering chemotherapy research activities. Most of the work is conducted in the Southern Research Institute's Kettering-Meyer Biological Laboratory. The Alfred P. Sloan Foundation is contributing

to the support of this research at the Southern Research Institute at the rate of $75,000 per annum.

Another extension of the cancer research activity of the Sloan-Kettering Institute is that conducted for some years in conjunction with the African Research Foundation of New York in Nairobi, Kenya. Certain unusual forms of cancer, especially prevalent in that area, offered an opportunity for possible therapeutic application of knowledge developed in the United States and elsewhere. Teams of physicians and technicians from the Memorial Sloan-Kettering Cancer Center in New York, financed by grants from this Foundation and the Charles F. Kettering Foundation, have assisted in maintaining this activity.

In December 1962, the Executive Committee of the Sloan Foundation authorized an additional two-year contribution of $75,000, to be matched by the Charles F. Kettering Foundation, for this special program. The aim

Laurance Rockefeller, Alfred P. Sloan, Jr., and Mary A. Connolly, Director of Nursing at Memorial Hospital for Cancer and Allied Diseases, at dedication of Sloan House. (See also page 42.)

is to continue investigations of types of cancer which are particularly prevalent in certain regions of Africa. Under this new grant, it is possible that cooperative research arrangements will be developed in areas on the African Continent in addition to Kenya, especially with the South African Institute for Medical Research in Johannesburg.

ALFRED P. SLOAN AWARDS FOR CANCER RESEARCH

On May 8, 1962, the first Alfred P. Sloan Awards for Cancer Research were made to four research scientists of the Memorial Sloan-Kettering Cancer Center. These awards, named in honor of Mr. Sloan, were established by the Foundation to give appropriate recognition of unusual scientific achievement in cancer research, as well as to provide an opportunity for recipients to broaden scientific competence and to enjoy professional contact with cancer experts elsewhere.

The first awards went to the following four scientists: (1) Dr. Oscar Bodansky, Chairman, Department of Biochemistry, Memorial Hospital for Cancer and Allied Diseases; (2) Dr. Felix Wróblewski, Associate Attending Physician of Memorial Hospital; (3) Dr. Charlotte Friend, Associate Member of the Sloan-Kettering Institute for Cancer Research; and (4) Dr. Lloyd J. Old, Associate of the Institute. Recipients of the awards will be permitted to select association, for one year, with an appropriate institution, dedicated to research relevant to cancer, either in the United States or abroad. During this period they will continue to receive regular compensation and allowances for travel and other expenses. The award also includes a $10,000 grant to the recipient.

In commenting on the new awards, Laurance S. Rockefeller, Chairman of the Board of Trustees of the Memorial Sloan-Kettering Cancer Center, declared that the program "will be of substantial benefit to mankind, not only by assisting our own scientific organizations at the Memorial Center, but also by advancing world-wide progress toward better cancer control through the diffusion of information and experience." The Foundation has set aside a special fund and has set up a special committee to make the official selections from nominations made by appropriate staff members of Memorial Hospital and the Sloan-Kettering Institute, the two operating arms of the Memorial Sloan-Kettering Cancer Center. The members of this committee are Dr.

Warren Weaver, Chairman; Alfred P. Sloan, Jr.; Dr. Larkin H. Farinholt; Frank A. Howard; and Dr. James R. Killian, Jr. For the time being, it is intended to restrict the awards to the staff of the Memorial Sloan-Kettering Cancer Center. There is a possibility, however, that this program may subsequently be extended to embrace candidates from other institutions.

CORNELL UNIVERSITY MEDICAL COLLEGE

Ever since 1950, the Sloan-Kettering Institute and the Cornell University Medical College have collaborated in certain graduate teaching and research programs which have been brought together under what is known as the Sloan-Kettering Division of the Cornell University Medical College. Staff members of the Medical College and the Institute supervise instructional and research programs which may lead to advanced degrees from Cornell University. Members of the supporting staff and holders of fellowships at the Institute frequently avail themselves of the facilities and opportunities afforded by this special Division.

This relationship between the Sloan-Kettering Institute and Cornell University Medical College was in part responsible for a grant of $500,000 authorized by the Trustees of the Foundation in October 1962, to assist the Medical College in developing its new research building. It is estimated that the construction cost will total some $7 million. The proposed new facilities at Cornell will expand opportunities for the development of biophysics, genetics, biomathematics, and other disciplines.

New apartment residence for nurses at Memorial Sloan-Kettering Cancer Center. Named in honor of Irene Jackson Sloan. Dedicated, September 11, 1962. Photograph courtesy of the Center.

Program in Ophthalmological Research

COUNCIL FOR RESEARCH IN GLAUCOMA AND ALLIED DISEASES

In addition to the program which the Foundation has been supporting in the field of cancer research, funds have also been invested, during the past decade, in a special program devoted to the support of research on the causes and treatment of glaucoma and uveitis. Glaucoma alone normally affects some 2 or 3 per cent of the population and it is considered a major cause of blindness in America. In 1952, when the Foundation first became interested, various ophthalmic consultants advised the Foundation Trustees that considerable progress had already been made in diagnostic methods and therapy in the case of glaucoma. They also indicated that a sustained program of research in leading ophthalmological centers not only offered promise of a better understanding of this affliction, but that, in two or three decades, it might become possible to eliminate altogether that form of blindness which results from glaucoma.

Following the recommendation of these consultants, the Foundation Trustees established a modest program to support research in the etiology and possible treatment of these two diseases. A permanent council of advisers was established, which became known as the Council for Research in Glaucoma and Allied Diseases. The first Chairman of the Council was Dr. Conrad Berens. He was then a member of the faculty of the New York University Medical School and one of the country's leading investigators in the field of uveitis. At the time of his death, early in 1963, Dr. Berens was Consultant to the Department of Research of the New York Eye and Ear Infirmary.

Dr. Berens' colleagues on the Council in recent years have been: Dr. John H. Dunnington, Professor of Ophthalmology, Emeritus, Columbia University; Dr. Edwin B. Dunphy, Chief of Ophthalmology, Massachusetts Eye and Ear Infirmary, and Professor of Ophthalmology, Emeritus, Harvard University; Dr. A. E. Maumenee, Ophthalmologist-in-Chief and Professor of Ophthalmology, the Johns Hopkins University School of Medicine; Dr. Frank W. Newell, Professor in the Department of Surgery, and Chairman of the Section of Ophthalmology at the University of Chicago; and Dr. R. Townley Paton, Surgeon Director of the Manhattan Eye, Ear, and Throat Hospital. Certain officers of the Foundation have served as *ex officio* members of the Council. These include: Raymond P. Sloan, Vice President; James F. Kenney, Vice President, Secretary, and Treasurer; and Dr. Arnold J. Zurcher, Vice President and Executive Director. The Council established offices and appointed Mrs. Mary M. Mollica its Executive Secretary.

The group composing the Council, meeting at regular intervals, has been largely responsible for the distribution of the funds made available by the Foundation from year to year for this research program. For the ten-year

Dr. Berens served as Chairman of the Foundation's Council for Research in Glaucoma and Allied Diseases from January 1953 until his death, March 2, 1963.

Dr. Conrad Berens
1889-1963

period ending in 1962, appropriations for this activity approximated $1 million. Small fractions of the total have been used to defray the costs of conferences on the state of research in various fields of ophthalmology conducted by the Council from time to time. Additional modest amounts have gone for the support of fellowships for younger investigators and candidates for medical degrees who have a primary interest in ophthalmology. Still another fraction has been used to improve and expand research facilities in one or two institutions. But by far the largest share of the total—approximately 80 per cent—has been devoted to the support of the work of a score of senior investigators interested in the etiology of glaucoma and various types of uveitis and the improvement of the clinical treatment of these diseases. Annual appropriations in support of research projects normally total about $125,000.

In the decade during which the Foundation has financed this program, resources for ophthalmological research have been augmented as a result of an increasing flow of funds from agencies of the Federal Government. The Foundation's grants, nevertheless, remain a valuable adjunct to the total national program for ophthalmological research. Private funds, such as these appropriated by the Foundation, however limited in amount, are relatively unencumbered and hence may supply support in specific situations for which public funds have not been made available or for which the use of public funds is inappropriate.

In recent meetings of the Council for Research in Glaucoma and Allied Diseases, it has been suggested that funds for research purposes have increased so rapidly that trained research personnel may not be available for their effective use. It was pointed out that relatively few students interested in the basic sciences or in medicine were choosing ophthalmology as a specialty. At any rate, they were not choosing this specialty in numbers sufficient to warrant the hope that research in ophthalmology could expand with assurance that there would be an adequate group of highly trained young researchers to staff projects.

It was this consideration which recently caused the Council to dedicate some of the funds at its disposal to fellowship stipends for medical students and to award them to a few students of high standing in some of the nation's research hospitals who had exhibited an interest in ophthalmology as a speciality or in some scientific field that was peripheral to, or closely related

to, ophthalmology. The first two stipends were authorized in 1959; four more were authorized in 1960 and the fellowship program has been continued since that time.

DESCRIPTION OF PROJECTS IN OPHTHALMOLOGY

Research projects in the Foundation's ophthalmological program, during the biennium under review, have been concentrated in some eight institutions.

Armed Forces Institute of Pathology-National Academy of Sciences, Washington, D. C. Co-investigators under grants made to this agency are Dr. Lorenz E. Zimmerman and Dr. Arthur M. Silverstein. Investigations during 1962 have stressed the desirability of incorporating into the body of ophthalmic knowledge the more recent advances in immunology and of making immunologists aware of the problems existing in the field of ocular allergy. Currently, this project is engaged in determining the extent to which local ocular antibody formation occurs in the course of the disease of uveitis. Funds voted for these activities by the Council during 1961-1962 totaled $23,800.

Baylor University College of Medicine, Houston, Tex. The Council made initial grants to this unit in 1957. Research is under the direction of Dr. Louis J. Girard, Professor and Head of the University's Department of Ophthalmology, and the microbiologist, Dr. Charles B. Dukes. A recent survey by consultants of the Council indicates that excellent progress has been made in the study of certain fundamental aspects of uveitis through tissue culture and immunological studies. The work by Dr. Dukes has made possible a more effective study of the metabolic relationships between layers of ocular tissues. Grants to the Baylor project during 1961-1962 amounted to $22,442.

The University of California Medical Center, San Francisco, Calif. Funds committed to this project are used to support certain biophysical and biochemical studies relating to glaucoma. New research is under the direction of Dr. Michael J. Hogan, Head of the Center's Proctor Foundation, and Dr. Phillips Thygeson. Two types of studies are being carried on, one involving

inflammations of the middle coat of the eye, that is uveitis, and the other dealing with the phenomenon of abnormal intraocular pressure. In the work in uveitis, efforts are being made to understand the causative role of certain viruses, blood proteins, and of possible parasitic factors. In the glaucoma research, an effort is being made to improve understanding of the influence exerted on pressure levels by the sclera or outer coat of the eye. Foundation funds committed to this project totaled $19,000.

College of Physicians and Surgeons, Columbia University, New York, N.Y. Under the direction of Dr. George K. Smelser of the Department of Ophthalmology, research has been concentrated upon the role of the so-called mast cell, especially its role in the recovery of ocular tissues from the acute inflammation characteristic of uveitis. An initial phase of the project was a study of the appearance, distribution, and number of mast cells in the ocular tissue of rabbits after recovery from an experimentally induced attack of uveitis. Funds supplied for this project totaled $20,506.

Manhattan Eye, Ear, and Throat Hospital, New York, N. Y. In this institution the chief researcher has been Dr. Adolph Posner. Under his project, entitled "Physiology and Pharmacology of the Corneoscleral Trabeculae in Normal and Glaucomatous Eyes," studies have been conducted to determine the manner in which sanguinarine, an alkaloid, familiarly known as "bloodroot," affects the outflow mechanism of the eye. Studies are also contemplated to determine the effects of metabolic poisons on the outflow mechanism of the eye and also of the effect of gasoline wastes on the eye, with particular reference to glaucoma. Funds committed to this project totaled $18,000.

Massachusetts Eye and Ear Infirmary, Boston, Mass. This project, which operates under the direction of Dr. W. Morton Grant, received some $8,200 during the biennium. Some of the funds were used to support clinical evaluation of Ismelin (guanethedine) in the treatment of glaucoma. Efforts have also been made to evaluate certain newly developed models of the tonometer used to measure ocular pressure.

Washington University School of Medicine, St. Louis, Mo. A group of specialists in this laboratory, operating under the leadership of Dr. Bernard Becker, Chairman of the Department of Ophthalmology at the University,

has continued a many-sided investigation into the causes of glaucoma. Research has been concentrated on the phenomenon of increased pressure within the eye, a phenomenon which is, as already noted, intimately associated with the disease of glaucoma. Clinical studies of glaucoma, including the use of certain drugs, are in process, and efforts are being made to study the relationship of glaucoma to diabetes and other diseases. The aim of the research continues to be an increased understanding of the glaucomatous process, including its cause, its early detection, effective therapy, and eventual prevention. Foundation grants, allocated to this project by the Council, totaled somewhat more than $40,000.

Johns Hopkins University—Wilmer Institute, Baltimore, Md. This project, under the leadership of Dr. Maurice E. Langham, only recently received support of the Council. A cytological study of the effect on mast cells in certain animals produced by a histamine liberator compound has been completed. The purpose of the study was to determine whether mast cells located in the ocular tissue of experimental animals had characteristics similar to those in other body tissues. Physiological and pharmacological studies of the distribution of histamine in the eye and its effect on intraocular pressure and dynamics are also under way. The amount voted for this project during 1961-1962 was $14,080.

Although the ophthalmological program does not include provision for capital and developmental grants, an exception was made early in the spring of 1961 when the Johns Hopkins University requested the Foundation to provide a portion of the funds required to construct a new building for its Wilmer Institute. Since its creation in 1925, this Institute, an integral part of the University's Hospital and Medical School, has been one of the nation's principal training centers in ophthalmology. Many administrators of ophthalmological centers and many distinguished professors of ophthalmology have been trained at the Wilmer Institute.

In presenting the University's request, President Milton S. Eisenhower referred to the traditions of excellence associated with this research center and its present outstanding staff. He declared that the need for more space for research, brought about by a variety of special factors, had made it apparent, some years ago, that the existing building was no longer adequate. Currently,

its inadequacy was underscored by the fact that six major research projects were being conducted in temporary quarters outside the existing building. Dr. Eisenhower estimated that the total cost of the new building, which is to be five stories high, would approach $1 million.

Testimony received from ophthalmologists throughout the United States strongly endorsed the appeal. Similar endorsement was received from each of the members of the Council for Research in Glaucoma and Allied Diseases. Hence, in October 1961, the Trustees of the Foundation voted a grant of $100,000 as a contribution toward the cost of the proposed new building to house the Wilmer Institute. It is anticipated that construction bids will be available in 1963, and that the new building will be ready for occupancy about a year later.

Other Grants for Medical Research or Education

GRANTS FOR OTOLOGICAL RESEARCH

THE FOUNDATION has continued to make limited contributions for the support of research in the field of otology. One important project in this area has been located at the Medical Center of New York University. It operates under the direction of Dr. John F. Daly, Chairman of the University's Department of Otorhinolaryngology. Its major research objective has been to add to the basic knowledge of the biological phenomena which accompany the transformation of sound energy into neural activity in the inner ear. A commitment of $75,000 was made to this project in 1959 for a three-year period. In December 1962, the Executive Committee of the Board of Trustees recommended a terminal grant for the project, again totaling $75,000, to be paid over a three-year period; and this action was confirmed by the Foundation's Board early in January 1963.

Other funds for research in the field of otology, totaling some $20,000, were contributed during the biennium to the Deafness Research Foundation. This recently established organization, with offices in New York City, seeks to encourage interest in research on deafness and to that end allocates funds to appropriate departments in the medical schools of several universities. At the moment one of its principal activities is the maintenance and expansion of its "temporal bone banks" at some 14 centers throughout the United States. By means of these "bone banks," individual patients stipulate that, after death, their inner ear structures may be used by qualified researchers.

The President and founder of the Deafness Research Foundation is Mrs. Hobart C. Ramsey.

MENNINGER SCHOOL OF PSYCHIATRY

About six years ago the Foundation undertook a limited obligation to assist the Menninger School of Psychiatry in Topeka, Kansas in an effort to supplement its regular faculty. This was to be done through a series of visiting lectureships. With funds provided by the Foundation, the Menninger School has brought specialists in various disciplines to Topeka from time to time and for varying periods to lecture to students. According to the School's administration, the plan has worked well. A number of outstanding scholars have visited Topeka over the years. They have come from various institutions in the United States and elsewhere. Some have remained for a week; others have remained for an academic term. Miss Anna Freud, daughter of the late Dr. Sigmund Freud, served as a visiting lecturer under this Sloan grant during 1962. Other recent visiting lecturers supported by the grant were: Dr. Margaret Mead, anthropologist; Dr. P. C. Kuiper, Dutch psychologist; Dr.

Architect's design of the new building being erected for the Wilmer Ophthalmological Institute at Johns Hopkins University, 1963. Photograph furnished by The Office of James R. Edmunds, Jr. (Architect). *(See page 49.)*

Frederick J. Hacker, Chief of Staff of the Psychiatric Clinic, Beverly Hills, California; Dr. S. I. Hayakawa, well-known semanticist; Dr. Erwin Stengel, psychiatrist of Sheffield University, England; and Dr. Angel Garma, Buenos Aires psychoanalyst. The grant for this project was renewed in 1961 and the Foundation will continue to make an annual contribution of $60,000 during a three-year period ending April 30, 1964.

The Menninger School of Psychiatry has achieved eminence as one of the leading centers for training in its specialty in the United States. Annually, about 100 students enroll and continue their residency in the various hospitals in Topeka which are identified with the School's program. Dr. Karl Menninger serves as Dean and Dr. Herbert Klemmer is the School's Director and Chairman of its Executive Committee.

COMMUNITY BLOOD COUNCIL OF GREATER NEW YORK, INC.

Through an appropriate amendment of its certificate of incorporation, made in February 1961, the Community Blood Council of Greater New York, Inc. became legally qualified to operate as a non-profit organization. Its concern is the coordination and the improvement of services for human blood procurement and its distribution and utilization in the New York Metropolitan area. The Council had been created as a non-profit advisory organization when steps were taken to implement certain recommendations contained in a report published in 1958 by the New York Academy of Medicine entitled "Human Blood in New York City—A Study of its Procurement, Distribution, and Utilization." The legal changes introduced in the Council's charter in 1961 provide for a more efficient organization and made it possible to carry out a somewhat more ambitious program than had originally been set for it.

Besides the organizations directly involved in the Council's services, such as the Academy of Medicine and the Greater New York Hospital Association, certain individuals were immediately responsible for the reorganization plan. These included Dr. Lindsley F. Kimball, former Executive Vice President of The Rockefeller Foundation and currently the Treasurer of The Rockefeller Institute, who serves as the Chairman of the Council's Committee on Program Development, and various of his associates, especially Dr. August H. Groeschel and Dr. J. Clarence Chambers, Jr., respectively President and Secretary of the Council.

In August 1961, the Foundation made a grant of $50,000 to the Council to be paid over a three-year period. Several other private foundations have also contributed to the Council's financing; and the City of New York, acting through its Commissioner of Health, has provided the Council with laboratory and housing facilities. It is anticipated that the Council, thus launched, will make a significant contribution toward overcoming chronic shortages of human blood for medical use, in expanding services as required by the medical profession and hospitals, in maintaining a central index of blood donors, especially of donors of rare types of blood, and in generally standardizing and improving the quality of blood donor services.

COLUMBIA-PRESBYTERIAN MEDICAL CENTER – PRESBYTERIAN HOSPITAL

Although the Foundation does not normally make grants either for the capital or operational needs of hospitals, an exception was made in 1961 when a grant of a half million dollars was made to the Presbyterian Hospital, a part of the Columbia-Presbyterian Medical Center. The Foundation's Trustees made this exception partly because this hospital is a part of a major educational center within New York City, but primarily because the funds given the hospital will be used for the promotion of scientific and medical research in special areas that are normally supported by the Foundation. For similar reasons, other exceptional grants have been made in the past to hospitals associated with university medical centers in New York City, notably to the New York University Medical Center and to the Cornell University Medical College.

C. Economics and Industrial Management

Economic Education

NEW YORK UNIVERSITY–INSTITUTE OF ECONOMIC AFFAIRS

AT THE TIME the Sloan Foundation was created in the thirties, diffusion of economic knowledge was one of its principal aims, and the Foundation subsequently supported several projects concerned with economic education. Diffusion of economic knowledge remains one of the Foundation's interests, and a project which gives substance to this interest is one established with Foundation funds at New York University in 1950. This is the University's Institute of Economic Affairs, for the support of which the Foundation has in recent years been contributing approximately $165,000 per annum.

The Institute's principal activity is the production, publication, and distribution of a periodical known as *Challenge Magazine*, issued ten times during the year. University economists and professional writers from the field of journalism supply articles on topical issues relating to the American and the world economy. The magazine also has other features. Its immediate reading public embraces some 20,000 subscribers, which include high-school and college teachers, college students, public officials, staff specialists in public and private research groups, and the general public. Additional circulation of the materials is secured through an extensive reprint service for particular constituencies and the syndication of materials in the daily and specialized periodical press. In recent years, selected articles, originally published in the magazine, have been republished for distribution abroad through the United States Information Agency.

Top: *Students at Amos Tuck School of Business Administration, Dartmouth College, discuss cases in introductory Marketing Management course. Classroom is specially arranged to encourage student interaction and analysis.* Bottom: *Exterior of the Amos Tuck School of Business Administration.* *(See page 65.)* Photographs courtesy of Dartmouth College.

The Foundation has been informed by the Director of the Institute, Haig Babian, that during the past year he and his associates have been engaged in developing a model for a magazine dealing with economic matters that might be useful to students at the high-school level. In recent months, the Institute has also sought to use its publications as a vehicle for semi-popular reporting on the social and related impact of the activities of various scientific and economic research agencies, both those related to universities and those operating independently. Plans are currently under consideration for the production of inexpensively bound books containing materials originally published in *Challenge Magazine*.

To assist in the contemplated expansion of the program of the Institute and to give it effective direction, New York University has recently increased the membership of the Institute's governing body, known as its Policy Board. The Chairman of this Board is Dr. Arthur Brandon, a University Vice President. His associates on the Board include Dr. Jules Backman, Research Professor of Economics of the University's School of Commerce, Accounts, and Finance; Dr. Solomon Fabricant, Professor of Economics of the Graduate School of Business Administration and the Graduate School of Arts and Science, and Director of Research of the National Bureau of Economic Research; Dr. Samuel P. McCutchen, Head of the Department of Social Studies in the University's School of Education; Dr. Lawrence S. Ritter, Professor of Finance in the University's Graduate School of Business Administration; and Dr. Arnold W. Sametz, Professor of Finance in the University's Graduate School of Business Administration.

In addition, New York University has enlisted the services of six distinguished economists, as advisers of the project, from various university faculties in the United States. These economists are: Dr. Benjamin Higgins, Professor of Economics, University of Texas; Dr. Calvin B. Hoover, Professor of Economics, Duke University; Dr. Raymond F. Mikesell, W. E. Miner, Professor of Economics, University of Oregon; Dr. Kenyon E. Poole, Professor of Economics, Northwestern University; Dr. Arthur Smithies, Nathaniel Ropes Professor of Political Economy, Harvard University; and Dr. Henry C. Wallich, Professor of Economics, Yale University. Haig Babian, who has served as Director of the project since its inception, continues in that position.

THE FOUNDATION FOR ECONOMIC EDUCATION, INC.

Another educational enterprise in the area of economics, which has received support from the Sloan Foundation, is the Foundation for Economic Education, Inc. of Irvington, New York. During 1961-1962, grants to this organization totaled $15,000. Although they may be used for the general program of the grantee, the Sloan Foundation has indicated that it is especially interested in having the funds applied to its "special college-business exchange project." This activity, which the Foundation for Economic Education has developed and directed over the past decade, makes it possible for professors of economics, business administration, and related disciplines, coming from several score of universities and colleges, to spend a period of time during the summer months with various banks, investment houses, and industrial corporations to observe operations and gain practical experience. The President of the Foundation for Economic Education is Leonard Read.

JOINT COUNCIL ON ECONOMIC EDUCATION

In the 1961-1962 period, the Foundation continued its support, originally undertaken some years ago, of the Joint Council on Economic Education. Funds contributed to this donee totaled $20,000. The Joint Council, established shortly after World War II, is concerned with the improvement of instruction in economics in the nation's secondary schools and in teacher-training institutions. It conducts or supports adult-education forums on economic problems. The Joint Council operates principally through local regional councils composed of interested citizens and by means of conferences, seminars, and workshops for teachers and professional economists. Its activities also embrace consulting services to teachers and educational administrators and the publication of suitable materials in its field of interest. In addition to this Foundation, supporters of the Joint Council include other private foundations, corporations, and industrial associations. The Joint Council's Director is Dr. M. L. Frankel.

Economic Research

THE BROOKINGS INSTITUTION

COUPLED WITH THE FOUNDATION'S EARLY INTEREST in economic education was an equally strong interest in economic research. This latter interest has been continued although the projects currently supported are limited in number. Most of the activity, moreover, has been centered in a few of the nation's leading economic research centers.

One of these is the Brookings Institution. The Foundation participated in the financing of several Brookings studies in the late thirties and early forties. In recent years, funds have been provided for a continuing study at Brookings of competitive practices and forces in the kind of large-scale, but nonetheless pluralistic, corporate structure which appears to be evolving in the United States.

For these studies, the chief investigator has been Dr. A. D. H. Kaplan, a senior economist on the Brookings staff. The principal publication arising out of this scholar's activity, which was supported by this and other foundations during the 1950's, was a volume entitled *Big Enterprise in a Competitive System*. This was published in 1954. Subsequently, another volume, arising out of the original research, was published under the title *Pricing in Big Business* (1958). A third volume, tentatively titled *Growth Patterns of Large Corporations*, is still to be published.

Many of the data which were incorporated in the first of these three volumes, that is, *Big Enterprise in a Competitive System*, as well as the conclusions set forth in that volume, related to the period immediately following World War II. In order to review conclusions in the original volume in the light of more recent data, especially data less affected by the post-World War II readjustment and the economic dislocations of the Korean

conflict, the Foundation agreed to finance a work of revision. This is now being undertaken under Dr. Kaplan's direction and, through a second edition, it will provide a continuing interpretation of the trend of corporate organization and the relation of large-scale industry to the market.

For that purpose, a grant was authorized by the Trustees in 1960 in the amount of $41,000. Proceeds of this grant were to be used not only to finance research necessary to a revision of the original volume *Big Enterprise in a Competitive System*, but also to contribute to the cost of publishing the third volume of the original study, that is, *Growth Patterns of Large Corporations*. A portion of the grant was earmarked for the expense of a special seminar which Dr. Kaplan was conducting at the George Washington University on some aspects of his research. This grant was supplemented by another a year later in the amount of $43,500. It is anticipated that the revised volume of *Big Enterprise in a Competitive System* will be published in 1964.

THE NATIONAL BUREAU OF ECONOMIC RESEARCH, INC.

In an earlier Foundation Report (1959-1960), it was indicated that, just before that volume went to press, the Trustees of the Foundation had voted a grant of $200,000 in support of the National Bureau of Economic Research. This grant was paid early in 1961. Another grant of $10,000 was made to the Bureau that year. These grants supplemented other financial assistance which the Foundation has extended to this research institution over the years. The Foundation's contributions have been applied to the cost of the Bureau's long-term, continuing studies on productivity, probably the most important yet developed on that subject in the United States or elsewhere. The Foundation's current and past support of this research has defrayed, in part, the cost of such growth and productivity studies, produced by the Bureau, as the following: John W. Kendrick's *Productivity Trends: Capital and Labor* (1956); and his *Productivity Trends in the United States* (1961); Solomon Fabricant's *Basic Facts on Productivity Change* (1959); Clarence D. Long's *Wages and Earnings in the United States, 1860-1890* (1960); Albert Rees' *New Measures of Wage-Earner Compensation in Manufacturing, 1914-1957* (1960); and his *Real Wages in Manufacturing, 1890-1914* (1961).

The National Bureau was founded in 1920, and has been supported chiefly by grants from various foundations. In the intervening years it has

attracted the support and cooperation of some of the nation's leading economists, and its studies in such subjects as growth, productivity, national-income measurement, and business-cycle theory have become standard additions to the empirical economic knowledge of the United States and the world. The National Bureau's President is Professor Arthur F. Burns; its Director of Research is Professor Solomon Fabricant.

OTHER ACTIVITIES

In recent years there has been an improved understanding on the part of both the public and the Federal Government of the relationship which exists between the rate of population increase and efforts to improve the economic lot of mankind. Increases in productivity and various forms of economic assistance to socially underdeveloped areas obviously contribute little to permanent improvement in the lot of the individual unless a satisfactory equilibrium is maintained between population increases and increases in economic resources.

Because of their concern with economic problems, the Foundation's Trustees have sought to assist, however modestly, in achieving a better understanding of the relationship between population growth and economic welfare. To that end they recently voted to make an initial grant of $10,000 to the Population Reference Bureau, Inc. of Washington, D. C. This Bureau is an informational agency and provides appropriate bulletins and reference services on population problems. The Bureau's chief publication is the *Population Bulletin*. Its President is Dr. Robert C. Cook.

For several years, the Foundation has also been a modest supporter of the Council on Foreign Relations in New York. The Council's major purpose is the study of the foreign policy, particularly intermediate and long-range problems of foreign policy and the conduct of appropriate educational and research activities. During 1961 and 1962, the Foundation made grants in the amount of $25,000 to assist the Council in financing an expanded research program. In 1961, the Foundation contributed $5,000 toward the cost of making certain capital improvements in the Council's headquarters, thus bringing its total contributions to this donee during the biennium to $30,000.

Support of Industrial Management

MASSACHUSETTS INSTITUTE OF TECHNOLOGY—SCHOOL OF INDUSTRIAL MANAGEMENT

In December 1950, following considerable study, the Trustees of the Foundation made a grant of $5.25 million to enable the Massachusetts Institute of Technology to establish an additional Institute unit to be known as the School of Industrial Management. This new School was to bring together certain existing undergraduate programs in industrial engineering and a postgraduate executive development program. It was contemplated that these existing activities would be integrated in the new institution, which would have its appropriate faculty and create a comprehensive graduate program and a broad research program as soon as adequate resources were available.

It was intended that the new School would draw heavily upon the Institute's existing School of Humanities and Social Studies, in which are located departments of economics and other disciplines necessary to a management-school curriculum. It was also intended that effective coordination should be established between this new educational enterprise in management and the Institute faculties in science and technology. Indeed the opportunity for a new and imaginative association between conventional management and business courses and the engineering and scientific resources of a great technological institution was one of the prime considerations which influenced both the Foundation and the Institute in embarking upon this new venture.

New instructional and research programs were quickly set up in the new unit. The former headquarters of Lever Brothers in Cambridge, Massachu-

setts, immediately adjacent to the Institute campus, became available at this time. This building was purchased and various alterations were made to provide suitable faculty and administrative offices, classrooms, and laboratories. About $2.5 million of the original grant of $5.25 million was used for this capital purpose, and the remainder of the grant, $2.75 million, was earmarked for general support for a period of ten years. Edward Pennell Brooks, an alumnus of the Institute, was appointed the School's first Dean and operations commenced during 1952.

In the decade which has elapsed since its creation, the School of Industrial Management has enjoyed a satisfactory evolution. An outstanding faculty has been assembled especially in such fields as finance, marketing, economic history, and certain specialized aspects of commercial law and management. For other subjects in the curriculum, the School of Industrial Management relies upon the distinguished faculties of other parts of the Institute and especially upon the School of Humanities and Social Studies. They supply instruction in such subjects as economic theory, statistics, social psychology, and industrial relations. A research program of considerable magnitude has also been developed. This embraces research activities of the School's own staff and a growing number of visiting management researchers and practitioners. In these research programs, attention continues to be paid to the interrelated problems of technology and management, especially to such problems as business forecasting, capital sources, industrial growth, and automation. Organization theory is another focus of research interest, several major projects having concerned themselves with problems associated with organizational adjustment to change. An appreciable part of the research program is financed by the income from a special capital research grant which the Sloan Foundation made to the School in 1952. The grant was valued at $1 million at the time it was made.

The School of Industrial Management continues to provide instruction to undergraduate students of the Institute, enrolling a substantial number of them in its undergraduate major and minor concentrations. The School reports that some 200 students were involved in its Master's program during 1962 and that some 10 students have enrolled in its recently inaugurated doctoral program in industrial management. In addition the School has several executive development programs at the graduate level, one of which, the Sloan Fellowship Program in Executive Development, will receive com-

ment later in this volume. (See p. 69). There are also various short-term courses, and additional special programs in India and in Africa.

In his report for 1962, Dean Howard W. Johnson, who succeeded Dean Brooks in 1961, states that the School of Industrial Management is "committed to educating enterprise managers." He identifies such managers as "men who have the will to manage and to risk, who can deal with complex systems, who have insight into themselves as well as others, who understand the total environment in which they live, and who continue to learn." There can be little doubt that in its relatively short span of existence this educational enterprise has made notable progress towards achieving this ambitious objective.

Dean Johnson reports further that, during 1962, Peter P. Gil succeeded John M. Wynne as Director of Executive Development Programs, Mr. Wynne having been appointed to the position of Associate Dean of the School. Concurrently, Arthur L. Singer, Jr. was appointed the School's Assistant Dean. In the concluding paragraphs of his report, Dean Johnson indicates that the growth and development of the School has made exceptionally pressing the need for a library and research center and for additional dormitory facilities, especially for married students. He states that plans have been developed to meet these needs as soon as adequate financing is provided.

As indicated earlier, the original support-grant for the School was limited to the ten-year period after 1950. For the time being, however, term support has been continued, albeit at a reduced rate, because of the rapid growth of the School and the consequent heavy commitments which it has been called upon to make within a relatively brief period.

DARTMOUTH COLLEGE—AMOS TUCK SCHOOL OF BUSINESS ADMINISTRATION

Foundation support has also been continued for the program of the Amos Tuck School of Business Administration at Dartmouth College. The Foundation's grants have not been allocated to any particular project or activity of the School; rather the School has been authorized to use its own judgment as to the most effective use of the funds in its total program. Thus, portions of the grants have been allocated to research, to the initial

support of new appointments, and to other constructive developments. In the period under review, this flexible support has been extended at the rate of $35,000 per annum.

Under the administration of Dean Karl A. Hill, the Amos Tuck School has strengthened both its instructional and research programs; and Dean Hill suggests that the discretionary nature of the funds furnished by the Sloan Foundation has played a part in these desirable developments. Within the past five years a faculty has been assembled at the Tuck School which has wide professional recognition in such areas as organizational behavior, human adjustment to change, marketing problems, industrial relations, international economics and banking, and money markets.

Important expansions in the curriculum have been matched by an extensive and fruitful research program. During 1962, five major publications were credited to the Tuck faculty. At the year's end (1962), the faculty was engaged in some fifteen research projects. One group, which has included various specialists on the Tuck faculty, will study the administration of hospitals with particular reference to the problems of the Mary Hitchcock Memorial Hospital at Hanover. Other major studies relate to the wage structure of the automobile industry, an analysis of the management problems of research and development programs, statistics, probability theory and quantitative measurement, and the curricular application of technological advances in computers and related devices.

In commenting on the future role of the School, Dean Hill recently stated that Tuck has "the faculty strength and the quality of students necessary for first-class performance in the classroom and in research. More important, we have within our faculty a capacity and a desire to break new ground in an educational sense."

OTHER GRANTS FOR INDUSTRIAL MANAGEMENT

Other Foundation activities in the field of business administration during the two years under review have been limited to two modest institutional grants. The first beneficiary is the Graduate School of Business at Columbia University, to which $20,000 was granted to help finance research and to provide salary supplements for certain members of the faculty whose record warranted special recognition.

An additional grant of $10,000 was made to the Patent, Trade-Mark, and Copyright Foundation of the George Washington University in Washington, D. C. This agency is closely related to the University's Schools of Business Administration and of Law. The immediate purpose of the grant was to finance the Patent Foundation's efforts to appraise current trends affecting international industrial property and the relation of such trends to existing antitrust and trade-practice legislation and policy. The project is particularly concerned with the possible impact of common policies which may be evolved by the six European Common Market states on questions affecting patent, trademark, and antitrust legislative policy. The proceeds of the Sloan Foundation grant will finance a series of lectures on these various topics.

This Foundation was involved along with others in financing the creation of the George Washington University's Patent, Trade-Mark, and Copyright Foundation and has extended its assistance on several occasions as the instructional, and especially the research, activities of this agency have developed.

Programs in Executive Development

MASSACHUSETTS INSTITUTE OF TECHNOLOGY–SLOAN FELLOWSHIP PROGRAM

A LITTLE MORE than thirty years have elapsed since the establishment at the Massachusetts Institute of Technology of the Sloan Fellowship Program for Executive Development. If this was not the first of such programs in the United States, it was one of the first, and in the period since its founding, it has clearly become one of the most distinguished. The concept of the program—embracing as it did special training in economics, history, and the arts of administration for junior management personnel whose formal training had been largely in engineering—was largely developed by three men: the late Dr. Karl T. Compton, then President of the Institute, Dr. Erwin H. Schell, now Professor Emeritus of Industrial Management at the Institute; and Alfred P. Sloan, Jr., an MIT alumnus.

Subsequently Mr. Sloan and the Alfred P. Sloan Foundation became the chief external supporters of the program and it came to be known as the Sloan Fellowship Program for Executive Development. Originally enrollment was limited to six students per year. Later the number was doubled. Interrupted by World War II, the program was resumed immediately after the conclusion of hostilities and, with the organization of the School of Industrial Management at the Institute in 1950, the number of participants was gradually expanded until some 40 to 50 students were attending annually. By the end of 1962, more than 500 young executives, drawn chiefly from American industry, had participated in the Sloan Fellowship Program at the Institute.

Professor Douglas M. McGregor and students of School of Industrial Management at Massachusetts Institute of Technology. Professor McGregor was appointed to newly created Sloan Fellows professorship of Industrial Management, October 1962. Photograph courtesy of MIT.

The selection of participants is a fairly lengthy process. Appropriate staff executives of corporations are annually invited by the Institute to make nominations for the program, and all nominees are subsequently interviewed at their business address by field representatives of the School of Industrial Management. Those selected are subsequently brought to Cambridge, together with their families, for a twelve-month period. Employers of those accepted for the program make a major contribution towards its cost. Not only does the employer provide the Sloan Fellow with a twelve-month leave with salary, but he also helps with moving expenses and pays the Fellow's tuition. The Foundation's annual support-grant for this program helps to defray certain Institute overhead charges and administrative costs as well as certain expenses related to the rather extensive field work by the students, and their visits to industrial, financial, and governmental establishments. Such field work and visits have become an integral part of the educational activity of the program since its inception.

Students in this Fellowship Program normally arrive in Cambridge in June and continue until the end of the following May. During that period they pursue a fairly intensive curriculum, especially designed for them and taught by leading members of the faculty of the School of Industrial Management and other MIT divisions. Study periods are interspersed with field work which, as already indicated, includes fairly lengthy visits to industrial and financial institutions in the New York area and visits to Washington and other parts of the United States. For the past three years, these field activities have also included a trip by the entire group of students to Great Britain and certain of the Common Market countries, where visits are made to factories and plant headquarters and interviews are conducted with leading industrialists, bankers, and governmental leaders. Formal instruction at Cambridge is supplemented by weekly seminars which are addressed by faculty members, industrial executives, and governmental leaders who come to the campus especially for the purpose.

Although not intended originally to lead to a degree, the duration of the course and its intensive nature have made it possible for students to earn an advanced degree if, in addition to the normal study program, they also complete a satisfactory thesis. Although virtually every student admitted to the program in recent years has had a baccalaureate degree and many have also had a Master's degree and, in one or two cases, even a doctorate, each

student now completes the requirements for the degree of Master of Science in Business Administration, conferred by the School of Industrial Management.

Despite the relatively heavy sacrifices required of a corporation which sends its young executives to this program at Cambridge, industry has continued to endorse and support the program with enthusiasm. Over the years a corporation like the American Telephone and Telegraph Company has sent more than 40 of its executives from its various subsidiary and associated companies. Other major corporations have been equally enthusiastic and several of them have had at least one representative in the program every year since the close of World War II. Since the program's inception, about 150 companies have sent one or more men. During the last few years, various departments and units of the Federal Government have also been rather heavily represented, and the program has attracted representatives from foreign companies in Europe, Africa, Asia, and South America.

In commenting on this program recently, Dean Howard W. Johnson of the School of Industrial Management suggested that it "paces the general field of management development as a kind of hallmark in terms of the quality of its participants, the concept of its educational process, and the rigor of the program itself." The Dean describes two important developments of the program during 1962. The first of these was a special two-day convocation to mark the program's thirtieth year, which was addressed by Mr. Sloan and attended by more than 300 former Sloan Fellows. The other was the announcement by the Society of Sloan Fellows, established some years ago, that its members had endowed the Sloan Fellows Professorship of Industrial Management. Dr. James R. Killian, Jr., Chairman of the MIT Corporation, announced simultaneously that the first holder of the new professorship would be Dr. Douglas M. McGregor, nationally prominent in the field of industrial relations, who had formerly been President of Antioch College and had for some time been a member of the faculty of the School of Industrial Management.

As noted elsewhere, during 1962, John M. Wynne, the Director of the Sloan and other Executive Development Programs at the School of Industrial

Management, was made the School's Associate Dean and he was succeeded as Director by Peter P. Gil.

STANFORD UNIVERSITY–EXECUTIVE DEVELOPMENT PROGRAM

Closely resembling the Sloan Fellowship Program at the Massachusetts Institute of Technology is the Stanford-Sloan Program in the Graduate School of Business at Stanford University. At that institution the program's course of study extends over a period of nine months instead of twelve as at MIT; and the Stanford course does not lead to an advanced degree. In most other respects, however, the Stanford Program resembles the other. The same emphasis is placed upon a specialized curriculum for which instruction is provided by leading faculty members of the School of Business and other departments of the University. The Stanford Program also confronts its students with diverse industrial problems through field visits and comparable experiences. The nine-month program leads to a special certificate awarded in June.

Students are chosen at Stanford following nomination by the industrial establishments which employ them; and industry shares in the cost of their stay at Stanford contributing not merely salary and maintenance but also the cost of tuition. As in the case of the program at MIT, the Foundation's annual grant to Stanford covers certain overhead costs, certain expenses of administration and instruction, and the costs of the more specialized aspects of the program such as the industrial and other field visits.

From the beginning of the Stanford program in 1957, the Fellows nominated by industry, who normally number twelve, have been joined in their seminars by six candidates for the doctoral degree at Stanford's Graduate School of Business. The two groups share all curricular and related activities for the nine-month term of the business Fellows. When these leave, the doctoral candidates remain at Stanford for another year or longer in order to finish the formal requirements for the degree, including the writing of a thesis. Most of these longer-term degree candidates are likely to enter the teaching profession; and association in the Sloan-Stanford Program is intended to bring them into contact with the more practical and empirical aspects of their chosen field of interest.

In a recent year about 75 per cent of the instructional and seminar program at Stanford was devoted to business subjects and about 25 per cent to the humanities. The Stanford Program has continued its policy of dividing its business and doctoral Fellows into four research groups, each of which then applies itself to the development of an assigned subject. The task includes assembly and review of all available literature on the subject, appropriate field interviews, investigation of particular company experience (normally elicited by visits and questionnaires) and, finally, a cooperative effort to prepare a report synthesizing and interpreting the data and conclusions which have been assembled. Most of these reports are eventually published and distributed to specialists in education and the industrial world.

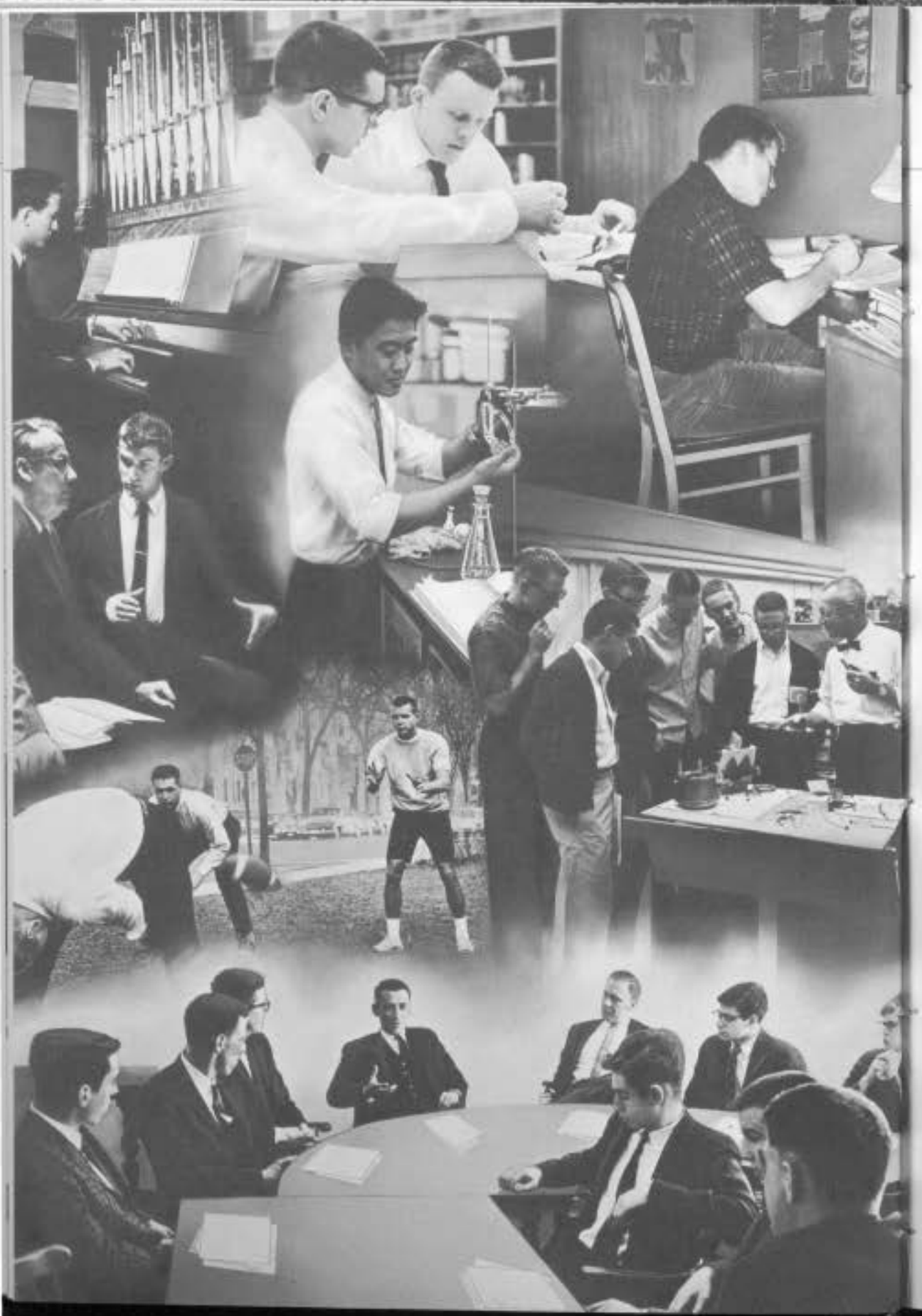
Recently, Professor Paul E. Holden assumed emeritus status at Stanford. He has, accordingly, relinquished the directorship of the program to Dr. Carlton A. Pederson, Associate Dean of the Graduate School of Business at Stanford. Professor Holden, himself, has become Associate Director.

Mr. Sloan addresses an alumni meeting of the Sloan Fellows in Executive Development at Hotel Somerset, Boston, May 4, 1962. Photograph courtesy of MIT.

TEACHING FELLOWSHIPS AND INTERNSHIPS IN INDUSTRIAL MANAGEMENT

In the preceding description of the Stanford-Sloan Program at Stanford University, reference was made to the association of certain doctoral candidates in business subjects, enrolled in Stanford's Graduate School of Business, with the business Fellows in that program. Such commingling was undertaken by Stanford as an experiment when the Stanford-Sloan Program was initiated. Both teachers and students have been favorably impressed by its results. To facilitate this experiment, the Foundation's grant regularly makes provision for generous fellowship stipends for the doctoral Fellows in the Stanford-Sloan Program, both during the year that they are commingled with the business Fellows and for at least an additional year in which they may be engaged in study and in the writing of a thesis for their doctoral degree.

Impressed by the Stanford experience, the Foundation and the leadership of the School of Industrial Management at the Massachusetts Institute of Technology undertook support of a somewhat similar activity on the Cambridge campus. The Foundation provides some $50,000 per annum to finance fellowships or awards to doctoral candidates. These candidates are associated at MIT with the Sloan Fellows for Executive Development coming from industry and share their experiences. Some of the doctoral candidates may have matriculated for an advanced degree at another institution and have come to the Institute's School of Industrial Management for a period in order to enjoy association with the Fellowship Program and advance the writing of their thesis, returning to take their degree at the institution in which they had previously matriculated. Others continue towards the doctorate at MIT which, as already indicated, now includes a degree in Industrial Management, offered directly by the School of Industrial Management.



Alfred P. Sloan National Scholarship Program

About a decade ago, the Foundation's Trustees decided to allocate a certain portion of annual income to the support of college undergraduate scholarships. The decision reflected the opinion then current that colleges and universities would find such additional private assistance highly valuable not only in supplementing the growing budgetary outlay which the institutions were making to finance students in economic need, but also to increase the opportunity for a young man of talent to enter a college or university whether or not he had the necessary means.

When the decision was taken to enter the scholarship field, it was also decided that the Foundation itself would not administer the program directly but instead would make grants to selected institutions. Appropriate officers of these institutions would then make the selection of the students for the scholarship awards and would also determine—within stipulated limits—the magnitude of the stipend and the conditions under which it might be retained throughout the college course.

A modest appropriation to inaugurate the program was made in 1952 to finance some 26 stipends in four institutions. All of these were technological institutions, and it was the original intention of the Foundation to restrict the program to such institutions. In June 1954, however, when the first enlargement of the program was undertaken, it was decided to extend it to colleges of the liberal arts. Again, in 1957, the program was expanded to include a selected group of state-supported universities. In the state universities, however, the scholarships were to be tenable only for the last two years of the undergraduate course. Other colleges and universities were added later and the number of scholarships allocated to particular institutions has been modified from time to time. At the end of 1962, there were 35 participating institutions throughout the United States which awarded scholarships under the plan developed and financed by the Alfred P. Sloan Foundation. Scholarships awarded under this program now number about 500. The participating institutions are as follows:

Montage of photographs of Sloan scholarship holders at various institutions in Program. Photographs courtesy of Harvard, Cornell, Colgate, and Columbia Universities; Massachusetts Institute of Technology, California Institute of Technology, and University of Michigan.

Albion College
Amherst College
Antioch College
Bowdoin College
Brown University
California Institute of Technology
California, University of
Carleton College
Carnegie Institute of Technology
Case Institute of Technology
Colby College
Colgate University
Columbia University
Cornell University
(College of Engineering)
Dartmouth College
Georgia Institute of Technology
Harvard University
Illinois, University of
Johns Hopkins University, The
Knox College
Lehigh University
Massachusetts Institute of Technology
Michigan, University of
Minnesota, University of
Notre Dame, University of
Oberlin College
Occidental College
Ohio State University, The
Purdue University
Stanford University
Vanderbilt University
Wabash College
Whitman College
Williams College
Wisconsin, University of

In selecting a student for a scholarship under this program, it has been the practice of the institutional authorities to select candidates without reference to economic need. The precise criteria of selection are those established by the institution itself, although the Foundation has indicated that it is especially interested in young men of talent, imagination, and intellectual curiosity, who offer promise of excelling in their college work and later training and of becoming leaders in whatever profession or vocation they eventually choose. The Foundation also stresses the desirability of selecting candidates who have the highest reputation for personal integrity in the communities from which they come, and who have exhibited a capacity for assuming and effectively discharging some of the responsibilities of leadership. Once selected for a scholarship, the successful student's economic requirements are investigated by his institution, usually with the assistance of information provided by the College Scholarship Service of Princeton, New Jersey; and the amount of the stipend is graduated accordingly, up to a stipulated maximum. Occasionally students selected for a Sloan Scholarship who are considered able to finance their education, or whose families are able to do so, may be given an honorary scholarship. Such an honorary scholar receives an annual stipend of $200.

As will be seen from the following chart, a broad geographical distribution has been achieved in the award of the Alfred P. Sloan Foundation Scholarships. The 499 students holding scholarships in 1962 came from 43 of the 50 states and from the District of Columbia.

DISTRIBUTION OF SLOAN NATIONAL SCHOLARS
ACCORDING TO STATE OF ORIGIN

	Number by classes graduating in: '63	'64	'65	'66	Total
Alabama	—	—	2	—	2
Arizona	1	2	3	5	11
Arkansas	—	—	—	1	1
California	17	15	11	12	55
Colorado	—	2	1	3	6
Connecticut	3	3	2	5	13
Florida	4	—	1	4	9
Georgia	2	3	1	2	8
Hawaii	1	—	—	2	3
Idaho	—	—	2	—	2
Illinois	16	13	6	2	37
Indiana	6	3	8	6	23
Iowa	1	—	—	1	2
Kansas	1	—	—	2	3
Kentucky	—	—	—	1	1
Louisiana	1	—	1	—	2
Maine	1	—	2	3	6
Maryland	2	4	3	3	12
Massachusetts	8	6	8	3	25
Michigan	6	7	4	4	21
Minnesota	9	8	2	4	23
Mississippi	—	1	1	—	2
Missouri	2	2	2	2	8
Montana	1	—	—	2	3
Nebraska	—	1	1	—	2
New Hampshire	—	—	1	2	3
New Jersey	5	6	4	5	20
New Mexico	1	—	—	—	1
New York	4	14	11	16	45
North Dakota	—	—	—	1	1
Ohio	15	14	4	4	37
Oklahoma	3	1	—	2	6
Oregon	—	3	2	1	6
Pennsylvania	14	10	10	6	40
South Carolina	—	—	—	1	1
South Dakota	—	—	1	—	1
Tennessee	5	1	—	2	8
Texas	2	2	1	—	5
Vermont	1	—	—	—	1
Utah	—	—	1	—	1
Virginia	—	4	1	4	9
Washington	3	5	3	2	13
Wisconsin	6	7	5	1	19
Washington, D. C.	—	—	1	1	2
TOTAL	141	137	106	115	499

Since 1957 when the first Sloan Scholars were graduated, there has been a total of 474 graduates of the program. Some 390, or 82 per cent of them, have enrolled in graduate or professional schools after completing the undergraduate course. The following tabulations indicate the programs of advanced study and the professional status—or the career objectives as the case may be —of graduates of the classes 1957 through 1962.

CHART I

Graduate Study

Total number of graduates, 1957-1962		474 (100%)
Seeking graduate degrees		390 (82%)
Physical and Life Sciences	97 (25%)	
Mathematics	32 (8%)	
Engineering	93 (24%)	
Medicine	24 (6%)	
Law	42 (11%)	
Business Administration and Economics	44 (11%)	
Other Social Sciences and Humanities	58 (15%)	

CHART II

Professional Status or Career Objective

Total number of graduates, 1957-1962		474 (100%)
Research	64 (13%)	
Teaching	119 (25%)	
Industry (including practicing engineering)	150 (32%)	
Medicine	24 (5%)	
Law	42 (9%)	
Other	75 (16%)	

Among the undergraduates currently enrolled in the program, the choice of academic major and career objective of the 273 upper-classmen in 1962 can be summarized as follows:

CHART III

Academic Major

Total	273 (100%)
Mathematics	27 (10%)
Physical Sciences	37 (14%)
Life Sciences	44 (16%)
Engineering	83 (30%)
Business Administration and Economics	17 (6%)
Other Social Sciences	39 (14%)
Humanities	26 (10%)

CHART IV

Career Objective

Total	273 (100%)
Research	49 (18%)
Teaching	50 (18%)
Industry (including practicing engineering)	96 (35%)
Medicine	21 (8%)
Law	19 (7%)
Other Professions	38 (14%)

These statistics indicate that most students who have had Sloan Scholarships have favored studies and careers in the sciences, mathematics, or in one of the engineering disciplines. These preferences are explained, in part, by the fact that many of the scholarships are awarded by science and engineering institutions. Also of interest is the fact that, next to the number preferring a career in industry, the largest group of graduates of the program is pursuing, or intends to pursue, careers in teaching. Similarly the first and second career choices of Sloan Scholars, who are now undergraduates, are practicing engineering, and teaching, respectively, two areas to which many prominent spokesmen are pointing as urgently requiring more of the nation's top talent.

As part of its continuing review of the Scholarship Program, the Foundation has been giving increased attention to the place of this particular program within the changing national context of student financial aid. On the one hand, there has been a considerable increase in the percentage of high-school graduates entering college and also a sharp rise in the cost of operating academic institutions. On the other hand, there has been an expansion of student-

aid resources, especially loans, both from commercial lenders and from the Federal Government. Consequently, the Foundation has undertaken to evaluate the status and significance of this program both in the light of recent developments in student financing which have occurred since it was inaugurated in 1952 and also in view of the projected needs of the future.

At the present time, it seems clear that there is a considerable need for student-aid resources of all kinds to help provide educational opportunities for the increasing number of young people of high promise who are qualified for college but need some financial assistance in the face of rising costs. Several recent studies have indicated that, while the total volume of such support has grown significantly in absolute terms, it has not kept pace either with the large growth in undergraduate enrollments or with rising tuition costs. The Director of the College Scholarship Service has pointed out, for example, that scholarship funds increased from about $66 million in 1955-1956 to about $98 million in 1959-1960, but that the percentage of students aided declined from about 14 per cent of the full-time undergraduate enrollment to 11 per cent. During the same period, moreover, there were increases in college

Mr. Kreidler became Director of Educational Affairs of the Foundation on September 4, 1962.
Photograph by Ira L. Hill.

ROBERT N. KREIDLER

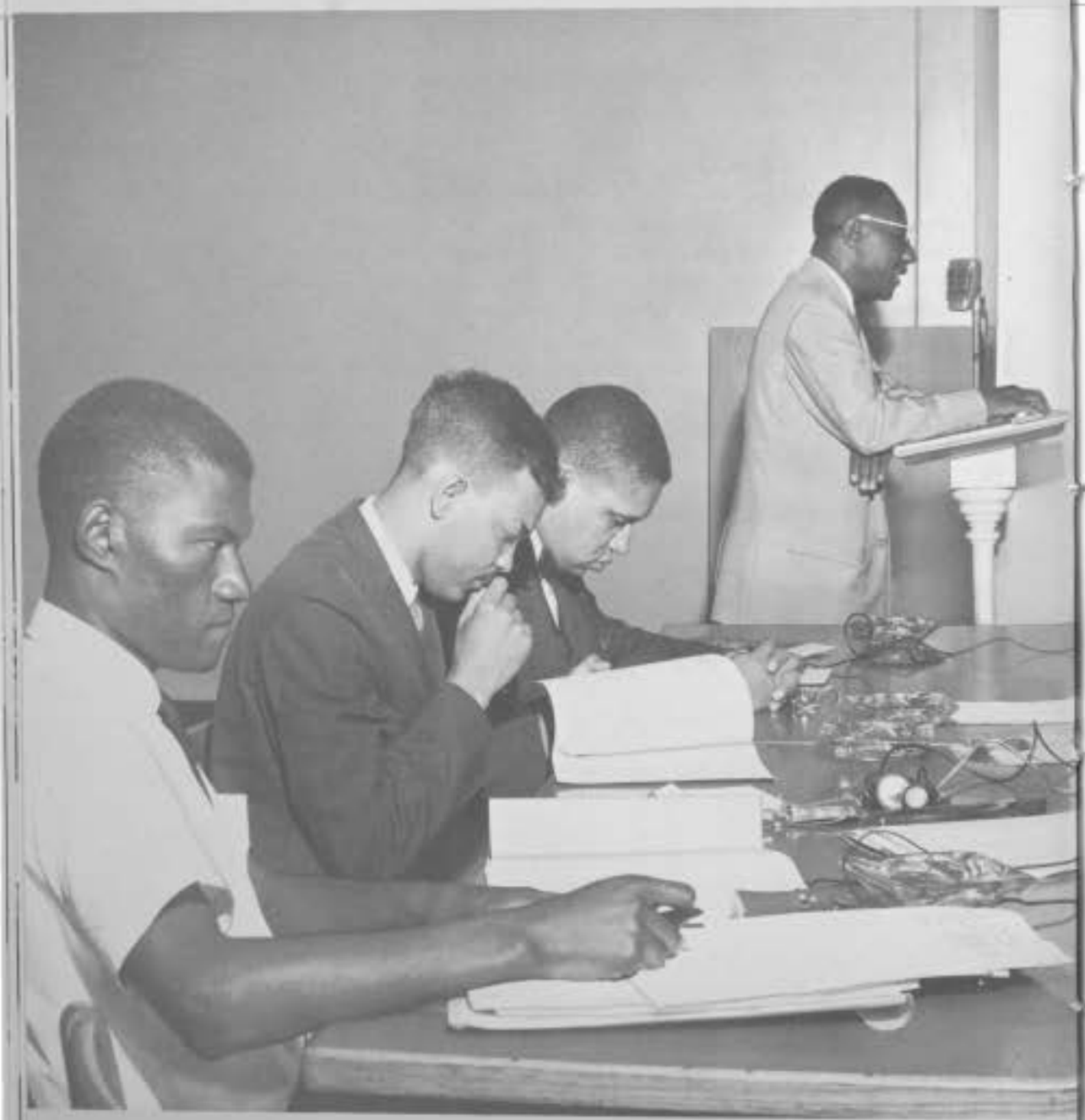
tuition charges "ranging from a low of 22 per cent at small public institutions to a high of 42 per cent at large private institutions."*

The rise in tuition charges has likewise increased the necessity for a scholarship student and his parents to contribute increased amounts to the costs of his college education. In the Sloan Program, an entering freshman who receives the average Foundation stipend of $1,400 will himself contribute, either directly or through his parents, an equal or greater amount. The scholarship is often indispensable, but the financial arrangements for Sloan Scholars are almost always a "package" involving family contributions and a student's summer earnings, and, sometimes, student loans and college employment.

Currently, the Foundation is making an annual cash outlay for the Scholarship Program approximating $1,100,000. This is about 13 per cent of the Foundation's total annual income. Of the amount thus committed to the program, about $850,000 is allocated to stipends and $250,000 is earmarked as a cost of education allowance. The latter goes directly to the college or university where the Sloan Scholar is enrolled and offsets in part the subsidy which every institution contributes to its students' education. The Foundation anticipates no immediate change in its Scholarship Program; hence outlays for this program in future years are expected to remain reasonably stable except for such increases as are required by the rising cost of tuition and other expenses among the educational institutions which participate.

Until April 1, 1962, as already indicated, the supervision of the Scholarship Program within the Foundation was in the hands of Joseph Allen who held the title of Administrator of the Alfred P. Sloan National Scholarship Program. Mr. Allen having resigned his post, the supervisory duties have been assumed by Robert N. Kreidler, who, became Director of Educational Affairs of the Foundation on September 1, 1962.

*Moon, Rexford G., Jr., "Student Financial Aid in the United States: Administration and Resources," Princeton, New Jersey: College Entrance Examination Board, 1963.



Fellowship and Related Programs

ENGINEERING FELLOWSHIPS

As stated earlier in this *Report*, a fellowship program of modest proportions for the support of graduate students in engineering was undertaken by the Trustees on an experimental basis in 1959. Several studies, conducted under public and private auspices during the middle fifties, had indicated that if engineering schools were to be properly staffed in the late sixties, engineering faculties would have to be doubled during the preceding decade. It was the desire to assist in overcoming this anticipated deficit in engineering faculties that moved the Foundation's Trustees to vote the original appropriation for this program. It was their hope that the stipends it provided would persuade more graduates of engineering schools to study for an advanced degree in one of the various engineering disciplines; and that a sizable proportion of these, if properly motivated, might eventually qualify as members of some engineering faculty.

Some 35 annual fellowships were established and have been distributed among nine technological institutions and engineering schools of various universities. These are California Institute of Technology, Columbia University, Cornell University, Massachusetts Institute of Technology, Purdue University, Stanford University, University of California at Berkeley, University of Illinois, and the University of Michigan. The Foundation's annual appropriation for the project is distributed among these nine institutions to provide fellowship stipends of $1,800 and to defray the cost of a student's

Leaders of panel at Workshop on Premedical Counseling for Negro Students held at Fisk University, June 15, 1962. (See page 86.) From left to right: *Dr. Robert D. Bonner, Robert Harrison, Dr. Lloyd Ferguson, and Dean George N. Redd of the University.*

tuition. The stipend is increased somewhat in the case of a married student, and each institution receives a cost-of-overhead allowance for each fellowship which may be allocated to it. The fellowship stipend is tenable only during the first year of graduate study. Foundation advisers in engineering institutions felt that the promise of a first-year fellowship was especially important in attracting qualified students to graduate work. In the opinion of these advisers, the problem of support in later years of graduate study was far less acute since some form of financial assistance normally became available in those years to qualified students.

Reports filed with the Foundation by the administering institutions indicate that the first group of 35 fellows under this program had compiled unusually high scholastic records. Obviously they had been selected with great care. A sizable number had favored the traditional disciplines of mechanical and civil engineering; a larger fraction had undertaken work in electrical engineering. Aeronautical, chemical, structural, and agricultural engineering were also represented in one or more students' programs. The great majority of this first group of 35 have continued graduate study either as research assistants or under other fellowships.

These institutional progress reports supplemented a special survey of the project which the Foundation itself conducted late in 1960. Comment from the university administrators of the project and outside consultants convinced Foundation staff and Trustees that, however modest this project may be in terms of the magnitude of the national need which it seeks to assist in meeting, it is nonetheless a valuable adjunct to other efforts with similar objectives. Accordingly, the Foundation has decided to maintain this fellowship project for the immediate future, at least, with appropriations continuing at approximately the original level of $150,000 per annum.

NATIONAL MEDICAL FELLOWSHIPS, INC.

Foundation contributions have been continued during the biennium for the support of a scholarship program for exceptionally qualified Negro students planning a medical career. Support of this program was begun in 1959 with a grant to National Medical Fellowships, Inc. of Chicago, an organization which had been especially active in seeking educational opportunities among the nation's medical schools for Negro medical students. The first

stipends under the program, which is known as the "National Medical-Sloan Foundation Scholarships," were awarded to ten students who entered medical school in the fall of 1960. Each year, since then, grants of like amount have been made for the support of a similar group.

Depending upon the economic needs of the students, stipends range from a minimum level of $600 to a maximum of $2,200 per annum. The stipends are tenable for four years. They are made only to male students with good scholastic records who score well in medical aptitude tests.

One of the principal aims of the Foundation in supporting this program is to augment the economic resources available to Negro candidates who wish to train for a medical career and to encourage more such students to apply for admission to medical school. By so doing, it is intended to increase the pool of qualified candidates for medical training and at the same time increase the proportion of Negro physicians to the general body of physicians.

Dr. Franklin C. McLean, (right) Secretary-Treasurer of National Medical Fellowships, Inc., presents Donald R. Hopkins, a 1962 National Medical-Sloan Foundation scholarship winner, with a special "millionth-dollar award." This special award symbolizes the fact that, including Mr. Hopkins' scholarship, this organization, since its founding in 1946, has contributed $1 million to assist Negroes in their medical training.

During 1961 and 1962, the Foundation's Trustees authorized $130,000 for this project. Virtually all of the proceeds of these grants were allocated to stipends for the twenty students to whom scholarships were awarded. Some of the medical schools in which the winning candidates applied their scholarships were: the State University of New York, University of Pittsburgh, University of Rochester, Howard University, University of Chicago, Harvard University, Albert Einstein School of Medicine, University of Kentucky, and Northwestern University.

Appropriations for this program also financed a conference held during the summer of 1962 in Nashville, Tennessee. This conference, attended by outstanding medical educators and representatives of many Negro institutions in the South, was especially concerned with the problem of better counseling and identification of students qualified to enter medical school from the Negro undergraduate colleges of the South. The conference also considered what steps might be taken to improve educational facilities in these colleges, particularly as respects training in the physical and life sciences.

Participants in Workshop on Premedical Counseling for Negro Students held in Park-Johnson Hall, Fisk University, Nashville, Tennessee, June 1962.

All funds committed to this project are granted to National Medical Fellowships, Inc. of which the President is Dr. Peter M. Murray, former member of the Board of Trustees, State University of New York. Its other officers include Dr. Franklin C. McLean, Professor of Physiology, Emeritus, at the University of Chicago, who serves as Secretary and Treasurer, and Mrs. Hilde Reitzes, who is the agency's Executive Secretary.

RHOADS MEMORIAL FELLOWSHIPS

In memory of Dr. Cornelius P. Rhoads, the first Director of the Sloan-Kettering Institute, who died in August 1959, the Institute, some months after Dr. Rhoad's death, established the Cornelius P. Rhoads Memorial Fund. Its primary purpose is to provide fellowship and scholarship stipends for students who are involved in the many-faceted research and educational activities of the Sloan-Kettering Institute and affiliated programs. In conjunction with other donors, the Trustees of the Foundation made an initial commitment of $300,000 to this Fund in 1959; and certain supplemental grants are now in prospect.

One of the more distinguished groups of scholars supported by the Rhoads Fund is the Visiting Research Fellows who come to the Institute for advanced study from various parts of the United States and from abroad. In 1960, the Rhoads Fund contributed to the support of some 34 such Visiting Fellows, 25 of whom came from 13 foreign countries. The resources of the Rhoads Fund are also used to support many of the students from the Institute staff who are candidates for an advanced degree in the Sloan-Kettering Division of Cornell Medical College, as well as to support a cooperative program of graduate instruction maintained by the Institute with Hunter College in which many of the Institute staff participate. Finally the Fund helps to make possible the attendance of many of the supporting staff of Sloan-Kettering at various institutions in New York City, either as nonmatriculated students or as regular graduate students working towards a degree.

WOODS HOLE OCEANOGRAPHIC INSTITUTION

As one of the leading private organizations in the United States devoted to the scientific study of the oceans, the Woods Hole Oceanographic Institution, at Woods Hole, Massachusetts, has, in recent years, greatly expanded

its research and educational activities to satisfy the growing scientific, economic, and other interests in marine problems. Oceanography combines the substance and methodology of many of the basic sciences, both of the physical and life sciences and of mathematics, and focuses them upon the phenomena of the oceans and the seas. Modest grants from this Foundation in previous years have aided the Institution in maintaining a sizable number of fellowships, most of them tenable during the summer months. The fellowships have been held chiefly by graduate students from major universities. Other fellowships have been awarded to postdoctoral research students.

Recently the Institution informed the Foundation that it was supplementing its summer-study and research fellowships with a sizable number of stipends to finance the investigations of researchers throughout the year. In a statement filed with the Foundation in 1962, the Institution noted that, in the past few years, it has granted almost 400 fellowships at Woods Hole, support for which had come largely from private foundations and from industry. It also indicated that some 16 of its senior research staff members held cooperative teaching appointments at major universities.

In 1962, the Foundation continued its previous support of the Institution's fellowship program with a grant of $10,000.

E. Educational and Public-Service Grants

Educational Projects

COUNCIL FOR FINANCIAL AID TO EDUCATION, INC.

ONE OF THE FOUNDATION'S major contributions to higher education during the past decade has taken the form of a contribution in support of the Council for Financial Aid to Education. Mr. Sloan, Chairman of the Foundation, was instrumental, along with Frank W. Abrams and the late Irving Olds, in establishing the Council in 1953. Together with other foundations, the Sloan Foundation has made both supporting grants and grants for special projects throughout the period since the creation of the Council. The last five-year commitment was made in 1958 in the amount of $375,000. This commitment provided support until September 30, 1963. In recent years the chief executive officer of the Council has been Dr. Frank H. Sparks, President Emeritus of Wabash College. Mr. Abrams, a Trustee of the Foundation, has served as the Chairman of the Council's Executive Committee.

More recently the Foundation made a special commitment of some $37,500 to permit the Council to hold a series of special seminars on college financing. It is estimated that these seminars directly involved about a thousand college and university presidents and an equal number of trustees and staff members. The Council has served as an advisory body to corporations and other private givers. One of its annual publications, entitled "Voluntary Support of America's Colleges and Universities," has identified the growing volume of private support from year to year, a growth to which the Council's informational and statistical services have undoubtedly contributed. Especially

is this true of the support given by American business corporations, which has been the Council's primary concern.

INDEPENDENT COLLEGE FUNDS OF AMERICA, INC.

A not dissimilar organization, which has also received support of the Foundation, is the Independent College Funds of America, Inc. This grew out of the work of a special commission of the Association of American Colleges and those who created it sought to supplement, through this proposed national body, the efforts of approximately 40 state and regional associations and colleges organized primarily to enlist the financial assistance of industrial corporations for higher education. The organization's stated objectives are: assisting higher educational institutions to win support from industry on a nationwide basis, engaging in research relating to financial support of higher education, and facilitating cooperation among the state associations of colleges to which reference has already been made. The Director of the Independent College Funds of America, Inc. is Dr. Gerald P. Burns, formerly Vice President of Reed College. Its Chairman, in 1962, was Dr. William E. Park, who is President of Simmons College, Boston.

Support of the Independent College Funds of America, Inc. is provided by its member state and regional associations, by industry chiefly through industrial foundations, and by the Alfred P. Sloan Foundation. The latter's grants in 1961 and 1962 totaled $20,000.

HARVARD UNIVERSITY–GRADUATE SCHOOL OF EDUCATION

Since 1958, the Trustees of the Foundation have given support annually for a program of fellowships to provide stipends to students of high promise at the Harvard Graduate School of Education. The stipends have ranged from a minimum of $300 to about $2,000, the median being $1,200. Preference is given to college graduates who have majored in one of the sciences or in mathematics and who are likely to become teachers of these disciplines, especially in secondary schools. It is estimated that fellowship funds provided by this grant have created stipends for some 35 to 40 students annually, most of whom are actually teaching or preparing to do so. In 1962, the Trustees of the Foundation authorized a terminal commitment for this project in the amount of $75,000 to be paid over a period of two years.

HARVARD UNIVERSITY–DEPARTMENT OF CHEMISTRY

The Foundation's *Report for 1959-1960* carries a brief description of a grant made to the Department of Chemistry at Harvard University to assist in the development and operation of an experimental undergraduate chemistry curriculum. A commitment of $46,000 was made to this project in 1960. The project embraces a new and imaginative chemistry program which seeks to take advantage of the fact that American high-school students are now better prepared than in the past in science, particularly in mathematics and physics. According to information received from Harvard, when an undergraduate completes the second and final year of the new program, he will be at the same level in chemistry as he would have been had he taken three years under the traditional curriculum. Foundation authorities believe the project may serve as a national demonstration of what may be done to provide a more substantial, more sophisticated, and more effectively taught undergraduate chemistry program for college students majoring in this field.

The funds supplied by the Foundation have been used mainly to purchase special laboratory equipment and also as a contribution toward costs of instruction. In March 1962, the Trustees voted an additional $36,000 to finance this experiment, thereby bringing the total commitment to $82,000.

EDUCATIONAL SERVICES INCORPORATED

From time to time, the Foundation has reported its participation with others in supporting the work of the Physical Science Study Committee, predecessor organization of Educational Services Incorporated, of Watertown, Massachusetts, in revising the curriculum of the secondary-school course in physics. The Foundation's contribution was $250,000. The work of the Committee resulted in a new textbook in physics which has been widely adopted in the United States and in certain foreign countries. The Committee has also created many teaching films on scientific subjects and other teaching aids, and is producing a lengthy list of semi-popular paperback discussions of science and scientific exploration and biographies of scientists. These paperbacks, published by Doubleday and Company, Inc., have become perhaps the outstanding library of its kind in America.

In the spring of 1962, Dr. Carroll Newsom, a former President of New York University and President of Educational Services Incorporated, outlined for the Foundation the plans of his organization to create new materials for certain of the social sciences in the secondary schools, particularly in economics, history, and related subjects. Before embarking on this enterprise, it had been decided to assemble a group of scholars during the summer of 1962 to give dimension and definition to the proposed program. Such meetings were held for a two-month period at Endicott House, a part of the Massachusetts Institute of Technology, in Dedham, Massachusetts. The Foundation contributed $10,000 to defray the cost of these exploratory meetings.

RECORDING FOR THE BLIND, INC.

Commitments in the amount of $15,000 were made to Recording for the Blind, Inc. during the biennium under review. These supplement earlier

Left: *Chicago attorney, member of a group of blind judges and lawyers called the "Blinks," secures professional information from records at Recording for the Blind, Inc.* Right: *Blind employee of Recording for the Blind, Inc. checks a disc as it comes from the embossing room.* Photographs courtesy of the Chicago Sun-Times.

Foundation contributions to this educational enterprise, the first of which was made in 1958. Founded in 1951 by a group of public-spirited citizens of the greater New York community, this agency has developed and expanded services of the highest value to blind students in the nation's secondary schools and universities. Volunteers do monitored oral reading of educational materials into a tape recorder, that is, one person reads and the other monitors to insure accuracy and a high standard of performance. From the tapes, plastic discs are embossed at the organization's headquarters and made available free on loan throughout the country to blind students and students with impaired vision.

Recent information about this project, on file with the Foundation, indicates that, during 1962, its services included the distribution of some 20,000 transcribed books. In the same period, over 200,000 discs were recorded, of which 1,300 were new titles that had been reproduced on tape. New titles are often recorded following a student's request and then are put into the organization's library and made available to other blind students. Some 2,000 readers, braillists, clerical workers, and monitors volunteered their services to the organization in a recent year.

Plans are being made to extend services to blind students below the senior high-school level. Such plans await the successful outcome of the agency's current effort to acquire new quarters and consolidate its metropolitan services now conducted at three different addresses. The National Director of Recording for the Blind, Inc. is Burnham Carter. Mrs. Frederick B. Payne served as President in 1962.

Public-Information Activities

EDUCATIONAL TELEVISION FOR THE METROPOLITAN AREA, INC.

THROUGHOUT ITS HISTORY the Foundation has had a modest but genuine interest in adult educational programs. As indicated earlier, it has been especially concerned with the problem of economic education and, in consequence of such interest, has experimented from time to time with radio, television, and motion pictures as teaching and communication tools. This traditional interest explains certain recent grants made in this area of public information and public education. The first was a contribution in 1961 toward the capital cost of television Channel 13 in New York City. This channel, which had been an outlet for commercial programs, had become available for purchase. A special non-profit corporation, called Educational Television for the Metropolitan Area, Inc., which had been created and chartered by the Board of Regents of New York State, sought to acquire the channel and transform it into an educational and cultural medium for the greater New York area. This plan was subsequently carried into effect and a request was then made of the Sloan Foundation to assist in the purchase of the channel.

The Foundation's grant, in the amount of $200,000, supplemented other and larger contributions made by various donors, including other foundations, the total cost of the channel having been upwards of $6.5 million.

ETMA enjoys the support of leading citizens of the New York area who have sought for some time to acquire a major television channel devoted exclusively to educational and broad cultural programs, an objective which they have now been able to carry out following the acquisition of Channel 13. It is estimated that the signal of this New York station will reach some 20 million potential viewers. Sponsors of this project believe, moreover, that, by producing program material which can be used on other educational stations, it may be able to encourage higher standards of educational television programming throughout the nation.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE–SCIENCE PROGRAMMING ON TELEVISION

The Foundation's interest in supporting public and adult educational programs was also evidenced in certain grants to assist in advancing public understanding of scientific and technical matters. An initial commitment for this purpose was a three-year grant in the amount of $196,650 which was made to the American Association for the Advancement of Science. The immediate purpose of the grant is to encourage more effective communication between professional scientists and the lay public, and especially between scientists and those directly responsible for adult educational programs dealing with scientific matters.

The project is an outgrowth of recommendations made by a special committee established in 1958 by the AAAS. This committee consisted of Dr. Paul Klopsteg of the National Science Foundation, Professor Roger Adams of the University of Illinois, Dr. Sidney Negus of the Medical College of Virginia, and Dr. Warren Weaver, then of The Rockefeller Foundation and subsequently Vice President of the Sloan Foundation. Members of this special committee were broadly concerned with the improvement of citizens' understanding of science and especially with an improvement of programming on the more popular media of communication. A special concern of the committee was the relatively small amount of science programming on television channels and the questionable quality of such programming as there was.

One result of the committee's recommendations was the establishment of an office within the AAAS to improve public understanding of science and the appointment of E. G. Sherburne, Jr., formally State-Wide Coordinator of Educational Television for the University of California, as Director of Studies in the Public Understanding of Science in this new office. At the same time, the AAAS established a permanent committee on the Public Understanding of Science, of which the Chairman is Dr. Weaver.

Among the various activities undertaken by Mr. Sherburne and his committee with the support of the Foundation's grant are a series of studies intended to provide more precise information as to what the public understands about science and as to what kind of science is actually presented on

educational programs. One of the studies, entitled "Science and the Public Mind" was undertaken by Dr. Wilbur Schramm of Stanford University. This is in the nature of a review of previous appraisals of the public understanding of science. A second study will embrace an analysis of responses to certain questionnaires–which had been previously developed by a number of public-opinion research organizations–intended to ascertain what the public knows about science. Still a third study, to be supported by the Foundation's grant, will consider the kind of information that the general public ought to have about science. Those directing this study will collate and analyze recommendations of scientists and communication specialists as to the quality and amount of scientific information which may properly be conveyed through the television medium. Certain existing television programs dealing with scientific subjects will be analyzed in a fourth study, its aim being to assist writers and producers of such programs to measure the quality and effectiveness of their efforts.

The group headed by Mr. Sherburne has other objectives in mind in carrying out this project to improve public understanding of science. Among them will be efforts to encourage and assist producers of existing or proposed public-information programs that appear to establish a high standard; to assist educators and public-service staffs in the broadcasting industry who are attempting to improve specific science programs; and generally to establish and maintain effective communication between the scientific community and those charged with developing informational and educational programs.

RADIATION INFORMATION PROJECTS

In 1960 the Foundation also became interested in assisting certain scientists in the greater New York area, operating under the name of Scientists' Committee for Radiation Information, who had undertaken to provide the public with objective information on the potential health hazards arising from nuclear testing and from too frequent use of Xrays. At the time this project was brought to the attention of the Foundation, the Committee was headed by Dr. Jules Hirsch of The Rockefeller Institute. An initial grant of $5,000 was made to the Committee to finance the establishment of a central office. In 1961 the Trustees approved of an additional grant of $30,000 for the support of this Committee.

The Committee's scientific members volunteer their services in addressing community groups throughout the metropolitan New York area and in providing the public with scientifically established and authenticated data on the danger of overexposure to radiation from various sources, especially to radiation hazards accompanying the processes of nuclear fission and fusion. Still another grant was made to this Committee in October 1962 to finance a conference of representatives of various scientific groups in the United States engaged in similar educational activities. The result of this conference was the establishment of a national organization to be known as the Scientists' Institute for Public Information. This is intended to serve as a clearing house and generally to stimulate national efforts of scientists to communicate information about nuclear phenomena and other scientific information to the general public.

Additionally, in July 1961, the Foundation made a grant of $30,000 to the Greater St. Louis Citizens' Committee for Nuclear Information. The program of this organization is similar to that of the Greater New York Scientists' Committee already described, and like the latter, the St. Louis Committee is a constituent member of the Scientists' Institute for Public Information.

Public-Service Awards

AUTOMOTIVE SAFETY FOUNDATION–NATIONAL SAFETY COUNCIL

About fifteen years ago the Foundation inaugurated a series of grants in support of a program of two national organizations concerned with automotive safety. These organizations are the Automotive Safety Foundation and the National Safety Council. The purpose of the grants is to finance awards to educational and public-service programs on various electronic media designed to promote pedestrian safety and to reduce accidents on the highways. In the spring of each year, following a careful appraisal of some 300 radio and television programs submitted for consideration, a ceremony is held in New York at which a bronze plaque and a citation are awarded each of the programs which the judges consider worthy of such recognition. The citation is known as the Alfred P. Sloan Radio-TV Award for Highway Safety. The plaque, which was redesigned in 1955, is a creation of the sculptor, Anthony de Francisci. In recent years, moreover, money prizes have been given annually to both the writer and the producer who, in the opinion of the judges, have made the greatest contribution toward more effective highway safety programming.

Normally the plaques and citations go to commercial broadcasters for appropriate commercial or sustaining programs in each of six categories, namely, (1) national radio networks; (2) television networks; (3) radio stations with a power of 1,000 watts or less; (4) all other radio stations; (5) regional radio networks and group-owned stations; and (6) individual television stations. Additionally, an award is sometimes made for a sustaining program on regional or group-owned television stations or to individual radio or television stations operating under an educational license.

In all, twenty-eight awards were made under the program in the two-year period, 1961-1962. For sustaining programs in radio and television, citations were given to Station WTKM, Hartford, Wisconsin; WGN (two awards) and WGN-TV, Chicago; WNEW, New York; the Canadian Broadcasting Corporation (two awards); WCPO-TV, Cincinnati; WAVZ, New Haven; WWOM, New Orleans, and WJR, Detroit. For so-called commercial radio and television programs the following corporations were cited as sponsors of appropriate programs over radio or television facilities: Thomson Brake & Alignment Company, Emporia, Kansas; Portland Cement Association, Nashville; Florida State Theaters Incorporated; Metropolitan Life Insurance Company; Shell Oil Company, Detroit; Philip Morris Incorporated; First National Bank, Phillipsburg, Kansas; Bethlehem Steel Company, Bethlehem, Pennsylvania; Spearman Distributing Company, Tallahassee; MFA Insurance Companies, Columbia, Missouri; Ray-O-Vac Company of Madison, Wisconsin; H. H. Meyer Packing Company, Cincinnati; and the Armstrong Cork Company, Lancaster, Pennsylvania.

Educational stations which were cited in the two-year period included Stations KLON (two awards), Long Beach, California; WQED-TV, Pittsburgh; and WYES-TV, New Orleans.

The special awards to writers and producers in 1961 went to Messrs. George A. Vicas and Palmer Williams for the production of the CBS television network program entitled "The Great Holiday Massacre," and in 1962, to James L. Pritchett and Carroll E. Gregg for four documentaries entitled "Where the Wheel Stops" and ten two-minute programs entitled "G. Reaper, Collector," telecast on Station KWTV of Oklahoma City.

Casualties on the highways continue to exact an atrocious toll of major accidents and death. In 1961 the death rate was around 38,000. Nevertheless, the death rate per 100 million miles traveled declined steadily between 1945 and 1961. In the former year the rate was 11.3 deaths per 100 million miles; in 1961 that rate had been reduced to 5.2 deaths per 100 million miles. The belief that this decline in the casualty rate has been brought about in part by such a program as this is the primary reason for the program's existence and the Foundation's continued grants for its support. Such grants have averaged about $18,000 annually in recent years.

NATIONAL CIVIL SERVICE LEAGUE–CAREER SERVICE AWARDS

Foundation support has also been continued for the Career Service Awards of the National Civil Service League. Some $30,000 was contributed to this organization during the biennium and most of the funds were used to defray administrative and other costs attending the selection of candidates for these merit awards of the League which are made each spring at ceremonies in Washington.

The Career Service Awards program, initiated in 1955, is designed to "strengthen the public service by bringing national recognition to significant careers in the Federal service." Those honored by such awards are Federal civil servants distinguished by their character, efficient service, and professional achievements. Nominations are normally made by heads of Federal

Recipients of Career Service Awards with President Kennedy and officials of the Government and the National Civil Service League meeting at the White House, March 27, 1963. Photograph courtesy of the League.

departments and agencies. Nominees must be "career" employees. The awards themselves are made by the officers and Board of Directors of the League who serve as judges.

Among the 20 of those honored as recipients of the Career Service Awards during 1961 and 1962 were career public servants from most of the administrative departments of the Federal Government and from the following agencies: Bureau of the Budget; Central Intelligence Agency; General Services Administration; Government of the District of Columbia; National Aeronautics and Space Administration; and the Securities and Exchange Commission.

The President of the National Civil Service League is Nicholas Kelley of the New York law firm of Kelley, Drye, Newhall, Maginnes and Warren. Its Executive Director is James R. Watson. The League's office is at 315 Fifth Avenue, New York. Since its organization at the end of the nineteenth century, following the various efforts made at that time to introduce the merit plan in the Federal civil service, this private organization has been a consistent supporter of a career public service. It engages in various educational efforts to this end and also supports research studies and publishes and distributes reports, bulletins, and booklets on various aspects of public personnel administration.

Staff Grants

BECAUSE OF THE FOUNDATION'S concern with formal education and research, and the desire of its Trustees to dedicate its resources to the development of "new knowledge," the Foundation has generally avoided contributions to "established charities" and to what might be called "community welfare activities." Nevertheless, its Trustees occasionally make contributions to a limited number of such organizations. They do this either because of such an organization's national or international significance or, when its activities are restricted to the community of greater New York, because they feel that, as citizens of that community, they have at least a limited obligation to engage in this type of philanthropy. Needless to say, support of educational and research activities of various kinds continues to have a prior and, whenever necessary, an exclusive claim on Foundation resources; but to the extent that the priorities established by Foundation policies permit, the Trustees will continue to make a limited number of modest contributions of the kind described.

For the biennium under review, the Foundation has made contributions of this sort to the following organizations:

The American Assembly, Columbia University, New York 27, N. Y.	$10,000
The American National Red Cross, Washington 13, D. C.	$20,000
Community Council of Greater New York, Inc., New York 17, N. Y.	$10,000
Foreign Policy Association, New York 17, N. Y.	$10,000

Herald Tribune Fresh Air Fund, New York 36, N. Y. . . . $ 5,000

International House, New York 27, N. Y. . . . . $ 5,000

The Legal Aid Society, New York 7, N. Y. $10,000

The National Council on Alcoholism, Inc., New York 29, N. Y. $ 3,000

National Information Bureau, New York 17, N. Y. . . . . $ 2,000

New York City USO Committee (Unit of United Service Organizations of Greater New York), New York 11, N. Y. . . . . $ 7,500

The New York Public Library, New York 18, N. Y. . . . $10,000

United Hospital Fund of New York, New York 22, N. Y. . . $10,000

In addition to the above contributions and those that have been described elsewhere in the pages of this *Report*, additional grants have been made during the period 1961-1962, as indicated in the appended tabulation. In each case, the name of the grantee is listed together with the amount of the Foundation's grant and a brief statement of the purpose of the grant.

American Council for Emigrés in the Professions, Inc., New York 36, N. Y.: For general support $15,000

American Institute of Biological Sciences, Washington 6, D. C.: For the distribution of a volume containing biographies of great American scientists, published by the editors of *Fortune* . . . $ 5,000

The American Society for the Prevention of Cruelty to Animals, New York 28, N. Y.: To finance certain research equipment in the Society's new Research Center . . . . . $ 5,000

California, University of, Berkeley 4, Calif.: For temporary support of a mass-spectroscopy research project conducted within the Department of Physics by Professor John Reynolds and associates $ 3,000

Citizens' Scholarship Foundation of America, Inc., Fall River, Mass.: For administrative support . . . . . $ 5,000

Colgate University, Hamilton, N. Y.: For the purchase of certain equipment to be used in the College's Department of Chemistry $ 9,500

Columbia University, New York 27, N. Y.: To finance the development of a manuscript describing the historical foundations of certain basic concepts of modern physics and for the support of the University Seminars; to finance certain projects undertaken by the University's Lamont Geological Observatory; for the support of professional-management seminars for administrators of municipal hospitals in New York conducted under the supervision of the University's School of Public Health and Administrative Medicine; and for the collection and analysis of "expectational" data in the field of consumer economics $34,800

Dartmouth College, Hanover, N. H.: To defray the cost of a special convocation on "New Directions in Mathematics" held at Dartmouth on the occasion of the opening of the new Albert Bradley Center for Mathematics . . . . . $ 7,500

Hartwick College, Oneonta, N. Y.: Contribution for purchase of scientific equipment . . . . . $ 5,000

Istituto e Museo di Storia della Scienza, Firenze (Florence) Italy: For general expenses of the Institute $10,000

Massachusetts Council for Public Schools, Inc., Boston 16, Mass.: For the support of various activities of the donee . . . . $ 5,000

Morehouse College, Atlanta 3, Ga.: To assist in defraying the cost of new equipment for the physics laboratory of the College . $ 5,000

National Recreation Association, New York 11, N. Y.: To prepare a manuscript for a book to be used by recreation directors and others to interest young people in science $10,000

New York University, New York 3, N.Y.: For reconditioning a a special seminar room at New York University; for the support of the Governing Council of the Courant Institute of Mathematical Sciences; and for the support of a conference on the subject of "Education for Creativity in the Sciences" $27,225

Sloan-Kettering Institute for Cancer Research, New York 21, N. Y.: To defray miscellaneous travel expense of staff member . $ 1,000

Thayer Hospital, Waterville, Me.: To assist Thayer Hospital in developing its cancer detection and treatment clinic $10,000

Tulane University, New Orleans 18, La.: To defray certain expenses of a visiting Polish mathematician lecturing in the University's Department of Mathematics . . . . . $ 1,300

United Negro College Fund, Inc., New York 22, N. Y.: Contributions for the support of member colleges of the United Negro College Fund, Inc. $20,000

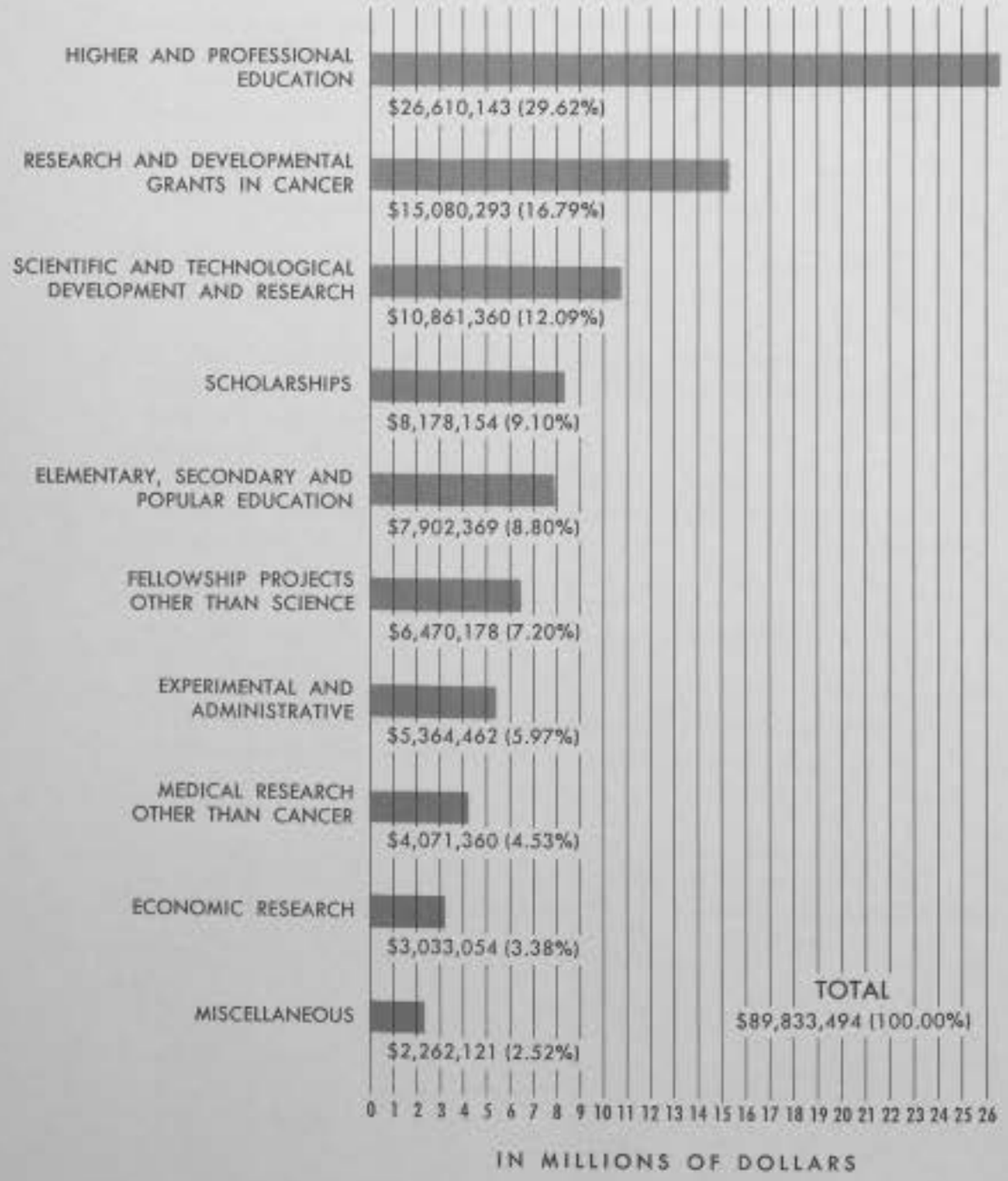
United States Citizens Committee for the Atlantic Institute, Inc., Pittsburgh 30, Pa.: For the general support of the activities of the Institute $10,000

Virginia, University of, Charlottesville, Va.: To provide salary supplements for certain members of the Department of Physics of the University $10,000

Wisconsin, Regents of the University of, Madison Wis.: For special freshman scholarships in the University's College of Engineering $10,000

F. Administration and Finance

DISTRIBUTION OF THE FOUNDATION'S FUND 1935-1962



General Policies of the Foundation

THE ALFRED P. SLOAN FOUNDATION was established as a non-profit corporation under the laws of the State of Delaware on August 2, 1934. Hence the publication of this *Report* marks the 28th year of the Foundation's existence. Originally incorporated as the "Sloan Foundation," its name was later changed to "Alfred P. Sloan Foundation, Inc." A further amendment of its certificate of incorporation in 1958 established "Alfred P. Sloan Foundation" as the legal name.

The certificate of incorporation clearly imposes restrictions upon the activities of the Foundation. Operations are confined to those of a religious, charitable, scientific, literary, or educational nature; individuals having a personal interest in the affairs of the Foundation are forbidden to receive any benefit from its operations; and no activities designed to influence legislation are permitted.

Within this restricted area, considerable discretion is allowed in applying the Foundation's resources to charitable and related purposes. Grants, as well as other expenditures, may be made either from current income or from the capital funds of the Foundation. The Foundation may enter into contracts, employ staff personnel, establish offices, and, in general, carry on all activties necessary or desirable properly to conduct its affairs.

On January 1, 1938, the Foundation's Trustees announced their intention to devote their organization's resources primarily to the fields of American economic education and research, and industrial management. Adherence to this limited policy continued until 1945 when a grant of major propor-

tions was made for research in cancer. As indicated on the preceding pages, other fields have now been added. These include basic scientific research, engineering, and certain limited fields in medical research, particularly ophthalmology and otology. The expanded activities of the Foundation also include support of a fairly extensive undergraduate scholarship program in American colleges and universities.

With minor exceptions the Foundation acts as a grant-making agency. Occasionally it may finance certain surveys and special investigations for its own information; but it conducts no educational work on its own account; nor does it engage directly in research. Its grants are made to assist specific projects carried on by accredited educational and charitable institutions, the great majority of which are located within the United States; or to support scholarships and fellowships in specific educational institutions.

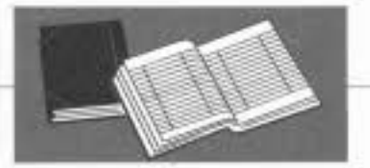
Commitments for projects are often made for a single year. They may, however, be made for a period of three years; and, in unusual cases, for an even longer period. At the end of each year, or at the end of the period for which the Foundation's commitment is to run, an accounting is made, either by the grantee or by the Foundation, and unused funds are returned to the Foundation. Requests for renewal are considered far enough in advance of the expiration date of an existing commitment to assure uninterrupted progress of activities if a renewal should be voted; or to permit of orderly liquidation if the Foundation's Trustees should decide not to renew.

The Foundation believes that one of its functions is that of assuming the risks of new enterprises which, because of their experimental character, would prove to be an unwarranted burden upon the regular administrative budgets of the sponsoring institutions. Hence, at the outset, the initial expenses of an acceptable project are absorbed and the necessary equipment is furnished. Although the Foundation makes no promise, implied or otherwise, to assume a financial obligation for a longer period of time than is specified in its original commitment, the Trustees occasionally do vote to renew existing projects. This is done only after a careful examination of the project by appropriate Foundation staff members and consultants and after a recommendation to the Trustees that continuation of support for an additional period is clearly desirable.

RECOMMENDED PROCEDURE IN APPLYING FOR A GRANT-IN-AID

The Foundation welcomes constructive criticism and suggestions. Qualified institutions seeking grants within the fields of the Foundation's concern should feel free to submit to the Foundation projects which fall within the scope of the Foundation's fields of activity and fit in with its various programs. Conscientious attention and careful thought are given to all such communications.

In the case of educational and research projects, the procedure of applying for assistance is normally informal. The Foundation supplies no application forms. Specific projects which are to be submitted for consideration should first be definitely formulated in a brief memorandum and sent to the Foundation. The objectives of the project should be clearly stated, the proposed procedures outlined, and an estimate given of the probable expense involved. Routine is greatly facilitated by settling as much as possible by correspondence. Conferences and field investigations, demanding, as they do, a considerable amount of time and expense, properly come last in the course of negotiations, and, in any case, will not be undertaken unless it has first been established that the proposed project falls within an area in which the Foundation has made grants in the past and that the Foundation has indicated a serious interest in the proposal.



Financial Review

THE NET WORTH OF THE FOUNDATION at December 31, 1962, with securities valued at market on that date, was $204,116,358 as compared to $184,000,122 on December 31, 1960, an increase of $20,116,236. An analysis of this increase follows:

Gift: principal account		$ 1,744,861
Increase in unrealized appreciation of security values		24,154,621
Total increases		$25,899,482
Less:		
Excess of expenses over income	$4,147,737	
Net loss on sales of securities	1,635,509	5,783,246
Increase in net worth		$20,116,236

The gift of $1,744,861 indicated above was 75 shares of New Castle Corporation common stock received from Alfred P. Sloan, Jr. and valued at the date of gift. This brings the total of gifts and bequests from Mr. and Mrs. Sloan to $136,073,276.

The financial condition of the Foundation at December 31, 1962 and 1960 is shown in a comparative balance sheet on page 119 of this *Report*. Investments shown in that statement are at market quotation values on the respective dates. The assets of the Foundation, after provision for all commitments, are distributed among the various funds of the Foundation as follows:

	1962	1960
General Fund	$195,140,947	$172,312,707
Fund for Basic Research in the Physical Sciences		4,231,096
General Motors Dealers Appreciation Fund	8,749,137	7,456,319
Alfred P. Sloan Cancer Research Awards Fund	226,274	
	$204,116,358	$184,000,122

Design for Warren Weaver Hall, Courant Institute of Mathematical Sciences, New York University. (See pages 10 and 13.) Architects Warner, Burns, Toan, and Lunde. Photograph by A. F. Sozio.

The origin of the General Motors Dealers Appreciation Fund was explained in the *Report for 1947-1948* and of the Fund for Basic Research in the Physical Sciences in the *Report for 1955-1956*. As of January 1, 1962 the latter was merged into the General Fund. The Alfred P. Sloan Cancer Research Awards Fund was established in 1962 and is explained on page 41 of this *Report*.

The operations of the Foundation and the status of the various funds for the two-year periods ended December 31, 1962 and 1960 are shown in detail in the Statement of Income and Funds Adjusted to Market Quotation Values on pages 120 and 121. A summary of that statement for the two-year period ended December 31, 1962 follows:

	TOTAL	GENERAL FUND	GENERAL MOTORS DEALERS APPRECIATION FUND	SLOAN CANCER AWARDS FUND
Operating Account:				
Investment income	$ 15,974,884	$ 15,355,830	$ 619,054	
Refunds of unexpended grants	373,691	373,691		
Other income	7,638	7,638		
Total	$ 16,356,213	$ 15,737,159	$ 619,054	
Grants authorized	$ 19,295,536	$ 19,068,329	$ 227,207	
Alfred P. Sloan Cancer Research Awards	23,726			$ 23,726
Administrative and publicity expense	1,184,688	1,184,688		
Total	$ 20,503,950	$ 20,253,017	$ 227,207	$ 23,726
Income (deficit) for two-year period ended December 31, 1962	($ 4,147,737)	($ 4,515,858)	$ 391,847	($ 23,726)
Income balance (deficit) at December 31, 1960	(17,278,982)	(17,574,915)	295,933	
Income balance (deficit) at December 31, 1962	($ 21,426,719)	($ 22,090,773)	$ 687,780	($ 23,726)

	TOTAL	GENERAL FUND	GENERAL MOTORS DEALERS APPRECIATION FUND	SLOAN CANCER AWARDS FUND
Principal Account:				
Balance December 31, 1960— book value	$169,899,133	$165,406,013	$4,493,120	
Gifts	1,744,861	1,494,861		$250,000
Net gain (loss) on sales of securities	(1,635,509)	(1,601,623)	(33,886)	
Balance December 31, 1962 — book value	$170,008,485	$165,299,251	$4,459,234	$250,000
Unrealized appreciation in security values	55,534,592	51,932,469	3,602,123	
Balance December 31, 1962 — market value	$225,543,077	$217,231,720	$8,061,357	$250,000
Income balance (deficit)	($ 21,426,719)	($ 22,090,773)	$ 687,780	($ 23,726)
Net worth December 31, 1962 — market value	$204,116,358	$195,140,947	$8,749,137	$226,274

As of January 1, 1962 the policy of charging grants to expense when authorized rather than when paid was adopted. The current policy is reflected in the foregoing compilation and in all financial statements in this *Report*. However, the following summary shows the operating results on a cash basis for the two-year period ended December 31, 1962.

Income:	
Investment income	$15,974,884
Refunds of prior year grants	373,691
Other	7,638
Total	$16,356,213
Expenditures:	
Administrative and publicity expense	$ 1,184,688
Grant payments	16,846,483
Sloan Cancer Awards	23,726
Total	$18,054,897
(Deficit) for period	($ 1,698,684)

HASKINS & SELLS
CERTIFIED PUBLIC ACCOUNTANTS

TWO BROADWAY
NEW YORK 4

February 19, 1963

ACCOUNTANTS' OPINION

ALFRED P. SLOAN FOUNDATION:

We have examined the balance sheet of Alfred P. Sloan Foundation as of December 31, 1962 and 1960 and the related statement of income and funds adjusted to market quotation values for the two-year periods then ended, and the supplemental schedules of investments and grants. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, such financial statements and supplemental schedules present fairly the financial position of the Foundation at December 31, 1962 and 1960 and the results of its operations for the two-year periods then ended, in conformity with generally accepted accounting principles consistently applied.

HASKINS & SELLS

BALANCE SHEET
(INVESTMENTS AT MARKET QUOTATION VALUES)
DECEMBER 31, 1962 AND 1960

	1962	1960
ASSETS		
Cash	$ 503,289	$ 1,527,485
Investments:		
Fixed income securities	31,543,002	39,412,816
Marketable stocks	188,890,573	159,110,163
New Castle Corporation common stock, proportionate ownership of underlying assets at market quotation values	1,747,691	
Note receivable	30,000	90,000
Other	460	9,262
TOTAL	$222,715,015	$200,149,726
LIABILITIES AND FUNDS		
Grants authorized but not due for payment	$ 18,598,657	$ 16,149,604
Fund Balances:		
General Fund	195,140,947	176,543,803
General Motors Dealers Appreciation Fund	8,749,137	7,456,319
Alfred P. Sloan Cancer Research Awards Fund	226,274	
TOTAL	$222,715,015	$200,149,726

NOTE 1: As of January 1, 1962 the Fund for Basic Research was combined with the General Fund. For purposes of comparison the two Funds have been combined in the above balance sheet.

NOTE 2: Personal property acquired by the Foundation from the estate of Mrs. Sloan and having an appraised value of $518,945 for estate tax purposes is not included in the above balance sheet. Upon disposal of the property the proceeds will be recorded in the General Fund.

NOTE 3: In accordance with the policy of the Foundation, no effect has been given to income accrued but not due at December 31, 1962 and 1960.

STATEMENT OF INCOME AND FUNDS

ADJUSTED TO MARKET QUOTATION VALUES

FOR THE TWO-YEAR PERIODS ENDED DECEMBER 31, 1962 AND 1960

	TOTAL		GENERAL FUND		GENERAL MOTORS DEALERS APPRECIATION FUND		ALFRED P. SLOAN CANCER RESEARCH AWARDS FUND
	1961-62	1959-60	1961-62	1959-60	1961-62	1959-60	1961-62
Income:							
Investment income	$ 15,974,884	$ 14,987,317	$ 15,355,830	$ 14,412,544	$ 619,054	$ 574,773	
Refunds of unexpended grants	373,691	141,179	373,691	141,179			
Other	7,638	948	7,638	948			
Total income	$ 16,356,213	$ 15,129,444	$ 15,737,159	$ 14,554,671	$ 619,054	$ 574,773	
Grants and Expenses:							
Grants authorized	$ 19,295,536	$ 18,481,980	$ 19,068,329	$ 17,731,980	$ 227,207	$ 750,000	
Sloan Cancer Awards	23,726						$ 23,726
Administrative and publicity expense	1,184,688	1,137,375	1,184,688	1,137,375			
Total	$ 20,503,950	$ 19,619,355	$ 20,253,017	$ 18,869,355	$ 227,207	$ 750,000	$ 23,726
Income (deficit)	($ 4,147,737)	($ 4,489,911)	($ 4,515,858)	($ 4,314,684)	$ 391,847	($ 175,227)	($ 23,726)
Income balance (deficit) at beginning of period	(17,278,982)	(12,789,071)	(17,574,915)	(13,260,231)	295,933	471,160	
Income balance (deficit) at end of period	($ 21,426,719)	($ 17,278,982)	($ 22,090,773)	($ 17,574,915)	$ 687,780	$ 295,933	($ 23,726)
Principal:							
Balance at beginning of period, book value	$169,899,133	$132,122,318	$165,406,013	$128,621,024	$4,493,120	$3,501,294	
Gifts	1,744,861	23,627,620	1,494,861	23,627,620			$250,000
Profit (loss) on disposals of securities	(1,635,509)	14,149,195	(1,601,623)	13,157,369	(33,886)	991,826	
Balance at end of period, book value	$170,008,485	$169,899,133	$165,299,251	$165,406,013	$4,459,234	$4,493,120	$250,000
Unrealized appreciation in security values	55,534,592	31,379,971	51,932,469	28,712,705	3,602,123	2,667,266	
Balance at end of period, market value	$225,543,077	$201,279,104	$217,231,720	$194,118,718	$8,061,357	$7,160,386	$250,000
Total Funds	$204,116,358	$184,000,122	$195,140,947	$176,543,803	$8,749,137	$7,456,319	$226,274

NOTE 1: As of January 1, 1962 the Fund for Basic Research was combined with the General Fund. The two Funds have been combined for both of the two-year periods covered by this statement.

NOTE 2: As of January 1, 1962 the policy of taking grants as expense when authorized rather than when paid was adopted. Any amounts shown in this statement have, where necessary, been adjusted to reflect the current policy.

INVESTMENTS
DECEMBER 31, 1962

	PRINCIPAL AMOUNT	MARKET QUOTATION VALUE
Fixed Income Securities:		
Obligations of United States Government:		
Treasury Bills, discounted—1/24/63	$1,100,000	$ 1,092,660
Treasury Notes,		
5%—8/15/64	3,000,000	3,084,375
3¾%—8/15/67	2,400,000	2,421,000
Obligations of United States Government Agencies:		
Federal Home Loan Bank,		
Consolidated Notes 3⅛%—4/15/63	2,300,000	2,300,000
Federal National Mortgage Association, Debentures		
3¼%—3/11/63	6,000,000	6,001,878
4%—9/10/64	2,750,000	2,775,781
Thirteen Banks for Cooperatives,		
Debenture 3.15%—4/1/63	1,650,000	1,650,000
Twelve Federal Land Banks, Consolidated		
Farm Loan Bonds 2¾%—5/1/63	1,600,000	1,598,501
Total		$ 20,924,195
Aluminum Company of Canada, Limited,		
Debenture 4½%—4/1/80	370,000	$ 378,788
American Telephone & Telegraph Company,		
Debenture 4⅜%—4/1/85	5,000,000	5,118,750

INVESTMENTS
DECEMBER 31, 1962
—CONTINUED—

	PRINCIPAL AMOUNT	MARKET QUOTATION VALUE
Fixed Income Securities *(continued)*:		
Appalachian Electric Power Company,		
First 4⅝%—3/1/87	$ 250,000	$ 259,687
Champion Papers Inc.,		
Debenture 3¾%—7/15/81	245,000	224,175
Commonwealth Edison Company,		
First "S" 4¼%—3/1/87	250,000	250,938
General Motors Acceptance Corporation Debentures		
5%—9/1/80	1,300,000	1,376,375
5%—3/15/81	1,500,000	1,597,500
Illinois Bell Telephone Company,		
First 4¼%—3/1/88	300,000	300,375
Mountain States Telephone & Telegraph Company,		
Debenture 4⅜%—2/1/88	250,000	255,000
Potomac Electric Power Company,		
Debenture 4⅝%—2/15/82	348,000	360,180
Public Service Company of Oklahoma,		
First "F" 4¼%—2/1/87	250,000	249,375
Public Service Electric & Gas Company,		
Debenture 4⅝%—3/1/77	239,000	247,664
Total		$ 10,618,807
Total Fixed Income Securities		$ 31,543,002

INVESTMENTS
DECEMBER 31, 1962
—CONTINUED—

	NUMBER OF SHARES	MARKET QUOTATION VALUE
Stocks—Common or Capital:		
Allied Chemical Corporation	23,548	$ 1,041,999
American Can Company	32,500	1,486,875
American Metal Climax Inc.	58,000	1,798,000
American Natural Gas Company	41,000	1,706,625
American Telephone & Telegraph Company	111,510	13,018,793
Babcock & Wilcox Company, The	35,000	1,719,375
Bankers Trust Co. (New York, N. Y.)	4,444	254,419
Broken Hill Proprietary Co. Ltd., The	90,000	501,876
Caterpillar Tractor Co.	32,400	1,210,950
Central & South West Corporation	25,000	1,034,375
Chase Manhattan Bank, The (New York)	9,197	747,831
Clevite Corporation	20,000	772,500
Continental Illinois National Bank & Trust Co. of Chicago	5,500	803,000
Corning Glass Works	10,050	1,618,050
Cutler-Hammer, Inc.	14,000	808,500
Dow Chemical Company	23,777	1,322,595
Dresdner Bank A.G.	10,300	562,637
DuPont (E.I.) de Nemours & Company	2,690	644,255
Eastman Kodak Company	22,000	2,395,250
Falconbridge Nickel Mines, Limited	33,000	1,558,834
Farbenfabriken Bayer A.G.	17,550	1,024,481
First National Bank of Boston, The	15,000	1,278,750
First National Bank of Chicago	9,300	788,175
First National City Bank of New York	7,427	710,206
Florida Power Corporation	32,000	1,412,000
General Electric Company	38,050	2,920,337
General Foods Corporation	21,800	1,711,300
General Motors Corporation	1,187,492	69,022,972
Gevaert Photo-Producten N.V.	10,000	531,250
Gillette Company	34,800	1,096,200
Goodrich (B. F.) Company, The	19,000	814,625

INVESTMENTS
DECEMBER 31, 1962
—CONTINUED—

	NUMBER OF SHARES	MARKET QUOTATION VALUE
Stocks—Common or Capital *(continued)*:		
Gulf Oil Corporation	26,726	$ 1,065,699
Halliburton Company	14,000	728,000
Harris Trust & Savings Bank (Chicago)	9,240	850,080
Hercules Powder Company	50,400	2,104,200
Household Finance Corp.	33,800	1,597,050
Idaho Power Company	32,000	1,056,000
Ingersoll-Rand Company	13,650	907,725
International Business Machines Corporation	15,300	5,967,000
International Nickel Company of Canada, Ltd.	43,000	2,687,500
Kennecott Copper Corporation	16,000	1,044,000
Koninklijke Nederlandsche Hoogovens en Staalfabrieken N.V.	250,000	383,500
Merck & Co., Inc.	10,000	776,250
Middle South Utilities, Inc.	30,300	1,098,375
Morgan Guaranty Trust Co. of New York	20,514	2,700,155
National Cash Register Company, The	6,200	499,100
Northwest Bancorporation	15,000	665,625
Otis Elevator Company	19,800	1,101,375
Philips Gloeilampenfabrieken N.V.	68,544	2,638,944
Pittsburgh Plate Glass Company	20,808	1,076,814
Procter & Gamble Company, The	41,000	2,921,250
Public Service Electric & Gas Company	34,000	2,346,000
Royal Dutch Petroleum Company	62,000	2,697,000
Sears, Roebuck and Co.	44,750	3,445,750
Security First National Bank (Los Angeles)	7,590	551,224
Shell Oil Company	19,728	757,062
Singer Manufacturing Company, The	22,600	2,858,900
Smith Kline & French Laboratories	18,000	1,161,000
Socony Mobil Oil Company, Inc.	26,500	1,556,875
Southern Company, The	26,000	1,342,250
Spencer Chemical Co.	20,000	590,000
Standard Oil Company of California	26,145	1,647,135

INVESTMENTS
DECEMBER 31, 1962
—CONTINUED—

	NUMBER OF SHARES	MARKET QUOTATION VALUE
Stocks—Common or Capital *(continued)*:		
Standard Oil Company (New Jersey)	48,947	$ 2,912,347
Texaco Inc.	51,666	3,196,834
Texas Gulf Sulphur Company	40,000	575,000
Texas Utilities Company	24,600	1,263,825
Thompson Ramo Wooldridge, Inc.	28,600	1,508,650
Travelers Insurance Co. (Hartford, Conn.)	9,000	1,471,500
Unilever N.V. New York	50,000	1,918,750
Union Carbide Corporation	9,426	950,848
United Gas Corporation	35,000	1,295,000
United States Fidelity & Guaranty Co. (Baltimore)	21,100	1,320,069
United States Gypsum Company	7,400	541,125
Virginia Electric & Power Company	24,270	1,462,268
Wells Fargo Bank (San Francisco)	11,979	801,096
Woolworth (F.W.) Company	28,700	1,504,950
Xerox Corp.	6,500	1,029,438
Total Marketable Stocks		$188,890,573
New Castle Corporation	75	1,747,691
Total Stocks		$190,638,264

SUMMARY

Total Fixed Income Securities	$ 31,543,002
Total Stocks	190,638,264
TOTAL INVESTMENTS	$222,181,266

G. Schedule of Grants

SCHEDULE OF GRANTS

	UNPAID AT DECEMBER 31, 1960	AUTHORIZED 1961-62	PAYMENTS 1961-62	DUE AFTER DECEMBER 31, 1962
Albion College	31,000	$ 30,200	$ 26,340	$ 34,860
American Assembly, The		10,000	10,000	
American Association for the Advancement of Science		196,650	85,000	111,650
American Council for Emigrés in the Professions, Inc.		15,000	15,000	
American Institute of Biological Sciences		5,000	5,000	
American National Red Cross		20,000	20,000	
American Society for the Prevention of Cruelty to Animals, The		5,000	5,000	
Amherst College	76,000	72,800	64,200	84,600
Antioch College	20,500	17,800	15,350	22,950
Arizona, University of		16,100	8,050	8,050
Association of American Medical Colleges	25,000		25,000	
Automotive Safety Foundation, Inc.		36,000	36,000	
Baylor University		22,442	22,442	
Bowdoin College	59,750	39,800	48,350	51,200
Brandeis University		26,700	16,700	10,000
Brigham Young University		9,250	9,250	
British Columbia, University of		29,900	29,900	
Brookings Institution, Inc., The		43,500	43,500	
Brown University	84,500	1,088,800	301,800	871,500
California, University of	54,034	296,206	267,975	82,265
California Institute of Technology	216,500	259,000	275,300	200,200
Carleton College	18,000	18,178	15,754	20,424
Carnegie Institute of Technology	117,000	128,200	113,000	132,200
Case Institute of Technology	94,000	113,325	112,625	94,700
Chicago, The University of	48,750	178,965	193,965	33,750
Cincinnati, University of		18,175	8,400	9,775
Citizens' Scholarship Foundation of America, Inc.		5,000	5,000	
Colby College		26,250	6,450	19,800

SCHEDULE OF GRANTS

	UNPAID AT DECEMBER 31, 1960	AUTHORIZED 1961-62	PAYMENTS 1961-62	DUE AFTER DECEMBER 31, 1962
Colgate University	40,500	$ 47,300	$ 41,650	$ 46,150
Columbia University	168,025	334,135	400,410	101,750
Community Blood Council of Greater New York, Inc.		50,000	50,000	
Community Council of Greater New York, Inc., The		10,000	10,000	
Cornell University	1,336,825	831,075	648,625	1,519,275
Council for Financial Aid to Education, Inc.	150,000		150,000	
Council for the Advancement of Science Writing, Inc.	60,000		60,000	
Council on Foreign Relations, Inc.		30,000	30,000	
Dartmouth College	495,000	1,280,500	509,300	1,266,200
Deafness Research Foundation, The		20,000	20,000	
Duke University	10,000	32,325	36,075	6,250
Educational Services Inc.		10,000	10,000	
Educational Television for the Metropolitan Area, Inc.		200,000	200,000	
Emory University	6,250		6,250	
Florida State University	6,900		6,900	
Foreign Policy Association		10,000	10,000	
Foundation for Economic Education, Inc., The		15,000	15,000	
George Washington University, The		10,000	10,000	
Georgia Institute of Technology	11,700	10,400	9,100	13,000
Greater St. Louis Citizens' Committee for Nuclear Information		30,000	30,000	
Hartwick College		5,000	5,000	
Harvard University	180,875	350,525	349,250	182,150
Herald Tribune Fresh Air Fund		5,000	5,000	
Illinois, University of	39,305	146,275	123,365	62,215
Independent College Funds of America, Inc.		23,500	23,500	
Institute for Advanced Study		15,000	15,000	
Institute of International Education, Inc.	50,000		50,000	
Istituto e Museo di Storia della Scienza		10,000	10,000	

SCHEDULE OF GRANTS

	UNPAID AT DECEMBER 31, 1960	AUTHORIZED 1961-62	PAYMENTS 1961-62	DUE AFTER DECEMBER 31, 1962
International House		$ 5,000	$ 5,000	
Iowa State University	8,050	48,500	40,450	$ 16,100
Johns Hopkins University, The	95,075	1,247,830	344,555	998,350
Joint Council on Economic Education		20,000	20,000	
Kansas, The University of		29,791	18,397	11,394
Knox College	16,000	20,710	14,230	22,480
Legal Aid Society		10,000	10,000	
Lehigh University	44,000	35,200	33,500	45,700
Lincoln Center for the Performing Arts, Inc.	200,000		200,000	
Louisiana State University	7,475	6,900	14,375	
Lovanium University		25,000	25,000	
Manhattan Eye, Ear and Throat Hospital		18,000	18,000	
Maryland, University of		14,625	14,625	
Massachusetts Council for Public Schools		5,000	5,000	
Massachusetts Eye and Ear Infirmary		8,200	8,200	
Massachusetts Institute of Technology	5,955,675	2,146,250	3,525,950	4,575,975
Mellon Institute of Industrial Research		17,500	17,500	
Memorial Hospital for Cancer and Allied Diseases	2,000,000		2,000,000	
Menninger Foundation, The	60,000	180,000	120,000	120,000
Michigan, University of	46,490	78,730	90,955	34,265
Minnesota, University of	26,715	101,445	82,850	45,310
Morehouse College		5,000	5,000	
National Academy of Sciences		23,800	23,800	
National Bureau of Economic Research, Inc.	200,000	10,000	210,000	
National Civil Service League		30,000	30,000	
National Council on Alcoholism, Inc., The		3,000	3,000	
National Information Bureau, Inc.		2,000	2,000	
National Medical Fellowships, Inc.	60,000	130,000	90,000	100,000

SCHEDULE OF GRANTS

	UNPAID AT DECEMBER 31, 1960	AUTHORIZED 1961-62	PAYMENTS 1961-62	DUE AFTER DECEMBER 31, 1962
National Recreation Association		$ 10,000	$ 10,000	
New York Academy of Sciences, The		30,000	30,000	
New York Association for the Blind, The		15,000	15,000	
New York City Board of Education	$ 25,000		25,000	
New York City USO Committee		7,500	7,500	
New York Public Library, The		10,000	10,000	
New York University	102,500	3,178,600	807,975	$ 2,473,125
North Carolina, University of	8,975	20,100	19,025	10,050
Northwestern University		30,525	22,475	8,050
Notre Dame, University of	56,000	1,078,700	680,350	454,350
Oberlin College	78,000	73,600	60,550	91,050
Occidental College	19,000	17,900	16,100	20,800
Ohio State University, The	21,350	16,800	24,850	13,300
Oklahoma, University of		19,104	9,552	9,552
Ophthalmological Foundation, Inc., The		15,000	15,000	
Oregon, University of	6,325	43,400	49,725	
Pennsylvania, University of		57,500	47,500	10,000
Pittsburgh, University of		31,226	31,226	
Polytechnic Institute of Brooklyn	8,750	7,000	15,750	
Population Reference Bureau		10,000	10,000	
Presbyterian Hospital	500,000		500,000	
Princeton University	28,125	1,157,875	235,625	950,375
Purdue Research Foundation		18,400	18,400	
Purdue University	25,350	52,092	39,452	37,990
Recording for the Blind, Inc.		15,000	15,000	
Research Foundation of State University of New York, The		43,818	35,768	8,050
Rice University, William Marsh		12,000	12,000	
Rochester, University of		1,030,000	130,000	900,000

SCHEDULE OF GRANTS

	UNPAID AT DECEMBER 31, 1960	AUTHORIZED 1961-62	PAYMENTS 1961-62	DUE AFTER DECEMBER 31, 1962
Scientists' Committee for Radiation Information, Inc.		$ 10,000	$ 10,000	
Sloan-Kettering Institute for Cancer Research, The	$ 2,130,000	1,028,207	1,088,207	$ 2,070,000
Southern Research Institute	150,000		150,000	
Stanford University	553,850	277,580	549,440	281,990
Texas, The University of	7,015	14,950	14,490	7,475
Thayer Hospital		10,000	10,000	
Toronto, University of		50,910	42,860	8,050
Tulane University	3,125	1,300	4,425	
United Hospital Fund of New York		10,000	10,000	
United Negro College Fund, Inc.		20,000	20,000	
United States Committee for The Atlantic Institute, Inc.		10,000	10,000	
Vanderbilt University, The	31,000	33,000	27,500	36,500
Virginia, University of	11,500	41,625	31,850	21,275
Wabash College	34,000	33,200	25,500	41,700
Washington, University of	13,650	29,014	29,477	13,187
Washington University		40,000	40,000	
Wayne State University		13,800	13,800	
Western Ontario, University of		17,500	8,750	8,750
Whitman College	15,800	15,720	13,520	18,000
Williams College	82,000	74,000	67,350	88,650
Wills Eye Hospital	2,000	6,000	8,000	
Wisconsin, University of	24,645	33,059	44,554	13,150
Woods Hole Oceanographic Institution		10,000	10,000	
World Federation for Mental Health	75,000		50,000	25,000
Yale University	16,750	65,750	65,000	17,500
Yeshiva University		22,024	15,774	6,250
TOTAL	$16,149,604	$19,295,536	$16,846,483	$18,598,657

ALFRED P. SLOAN FOUNDATION

630 FIFTH AVENUE, NEW YORK, N.Y. 10020

Report for 1963-1964

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ALFRED P. SLOAN, JR.
Honorary Chairman of the Board, General Motors Corporation; Chairman, Alfred P. Sloan Foundation

FRANK W. ABRAMS
Former Chairman of the Board, Standard Oil Company of New Jersey

HENRY C. ALEXANDER
Chairman of the Board, Morgan Guaranty Trust Company of New York

MARION W. BOYER[1]
Executive Vice President, Standard Oil Company of New Jersey

ALBERT BRADLEY
Director and former Chairman of the Board, General Motors Corporation

WALTER S. CARPENTER, JR.
Honorary Chairman, E. I. du Pont de Nemours & Company

EVERETT CASE
President, Alfred P. Sloan Foundation

GENERAL LUCIUS D. CLAY
Senior Partner, Lehman Brothers

JOHN L. COLLYER
Former Chairman of the Board and former President, The B. F. Goodrich Company

LEWIS W. DOUGLAS
Chairman of the Executive Committee and former Chairman of the Board, Mutual Life Insurance Company of New York; Chairman of the Board, Southern Arizona Bank & Trust Company

LARKIN H. FARINHOLT
Vice President, Alfred P. Sloan Foundation

FRANK A. HOWARD[2]
Vice President, Alfred P. Sloan Foundation; former Vice President, Standard Oil Company of New Jersey

---

[1]Elected January 12, 1965
[2]Deceased September 25, 1964

MEMBERS OF THE BOARD OF TRUSTEES
—CONTINUED—

DEVEREUX C. JOSEPHS
Vice Chairman of the Board,[1] Alfred P. Sloan Foundation; Director and former Chairman of the Board, New York Life Insurance Company

MERVIN J. KELLY
Consultant to the Chairman of the Board, International Business Machines Corporation

JAMES R. KILLIAN, JR.
Chairman of the Corporation, Massachusetts Institute of Technology

LAURANCE S. ROCKEFELLER
Chairman of the Board, Rockefeller Brothers, Inc.; President, Rockefeller Brothers Fund; Chairman of the Board, Memorial Sloan-Kettering Cancer Center

RAYMOND P. SLOAN
Special Lecturer, School of Public Health and Hospital Administration, Columbia University; Vice President, Alfred P. Sloan Foundation

ARTHUR K. WATSON[2]
Chairman of the Board, International Business Machines World Trade Corporation; Senior Vice President, International Business Machines Corporation

WARREN WEAVER
Consultant and former Vice President,[3] Alfred P. Sloan Foundation

GEORGE WHITNEY[4]
Chairman of the Directors Advisory Council, Morgan Guaranty Trust Company of New York

ARNOLD J. ZURCHER
Vice President and Executive Director, Alfred P. Sloan Foundation

---

[1]Elected Vice Chairman of the Board October 13, 1964
[2]Elected October 15, 1963
[3]Resigned as Vice President August 1, 1964
[4]Deceased July 22, 1963

COMMITTEES OF THE BOARD OF TRUSTEES

EXECUTIVE COMMITTEE

Everett Case, *Chairman*
Albert Bradley
Larkin H. Farinholt
Devereux C. Josephs
Alfred P. Sloan, Jr.
Raymond P. Sloan
Warren Weaver
Arnold J. Zurcher

INVESTMENT COMMITTEE

Albert Bradley, *Chairman*
Everett Case
Devereux C. Josephs
James R. Killian, Jr.
Laurance S. Rockefeller
Alfred P. Sloan, Jr.

POLICY COMMITTEE

Albert Bradley, *Chairman*
Devereux C. Josephs, *Deputy Chairman*
Henry C. Alexander
Walter S. Carpenter, Jr.
General Lucius D. Clay

TRUSTEE COUNSELORS

Walter S. Carpenter, Jr.
Devereux C. Josephs
Arthur K. Watson

ADVISORY COMMITTEES OF THE BOARD OF TRUSTEES

The President is *ex officio* a member of all committees

EDUCATIONAL AFFAIRS

Albert Bradley
Devereux C. Josephs
James R. Killian, Jr.
Alfred P. Sloan, Jr.
Arnold J. Zurcher, *Chairman*

SCIENTIFIC AFFAIRS

James R. Killian, Jr.
Alfred P. Sloan, Jr.
Warren Weaver
Larkin H. Farinholt, *Chairman*

CANCER AFFAIRS

Laurance S. Rockefeller
Alfred P. Sloan, Jr.
Warren Weaver

OFFICERS AND STAFF OF THE FOUNDATION

ALFRED P. SLOAN, JR. . . . . *Chairman of the Board*

DEVEREUX C. JOSEPHS . . . . . *Vice Chairman of the Board*

EVERETT CASE . . . . . *President*

ARNOLD J. ZURCHER . . . . . *Vice President and Executive Director*

LARKIN H. FARINHOLT . . . . . *Vice President for Scientific Affairs*

RAYMOND P. SLOAN . . . . . *Vice President*

FRANK A. HOWARD* . . . . . *Vice President*

JAMES F. KENNEY . . . . . *Vice President for Financial Affairs; Secretary and Treasurer*

WARREN WEAVER . . . . . *Consultant on Scientific Affairs*

ROBERT N. KREIDLER . . . . . *Assistant to the President and Director of Educational Affairs*

CLAIRE ARMSTRONG . . . . . *Assistant Treasurer*

MURIEL P. GAINES . . . . . *Assistant Secretary*

* * *

LINDSAY R. MOSS . . . . . *Supervisor of Office Personnel and Services*

CYNTHIA WILSON . . . . . *Secretary to the President*

*Deceased September 25, 1964

Foreword

IF THE INCOME OF $20.6 million received by the Sloan Foundation for the two years covered by this *Report* was the largest in its history, so, too, were the commitments of $30.4 million authorized by its Trustees. Indeed, this two-year operating deficit of nearly $10 million prompted one pundit to ask how the Foundation contrived to stay in business.

Viewed from the standpoint of this questioner, the corresponding figures for the life of the Foundation should be even more arresting. During this thirty year period, income totaled (in round numbers) $90 million; grants and commitments (including operating expenses) totaled $121 million. The difference of $31 million represents grants out of capital.

The Foundation was established by Mr. and Mrs. Alfred P. Sloan, Jr. in 1934. In the intervening thirty years their contributions (valued in each case at the date of contribution) have reached a cumulative total of $136,547,276.* After deducting grants out of capital of $31 million, the investment and reinvestment of these funds had raised their ledger value to $160,922,760 as of December 31, 1964 and, as of that same date, they were valued by the market at $297,751,560. Since grants committed but not due stood at $21,737,440, the Foundation's net worth at that date was $276,014,120.

*The only gift received by the Foundation from other sources was a contribution of $1,525,000 from a group of General Motors dealers made to the Foundation in appreciation of Mr. Sloan's manifold services to them, to the industry, and to the public. (See *Biennial Report for 1947-48.*)

These figures suggest, more eloquently than words, the singular productivity of the responsibly managed foundation as an instrument of enduring social purpose. Toward *current* needs for creative philanthropy, the Sloan Foundation has already distributed, or committed, sums which approach the original value of *all* the gifts entrusted to it. To meet the sharply rising curve of *future* needs and opportunities, its capital resources, like its income, continue to show a heartening capacity for growth. And both remain available, in the Board's discretion, for use in helping to meet the undisclosed challenge of the future.

True, such resources are subject to adverse as well as favorable market conditions; this will be true in the future as it has been in the past. Nevertheless the record speaks for itself, and the student of foundations will find no dearth of similar examples in the history of other philanthropic institutions.

For my part, the briefest of commentaries must suffice to conclude these introductory remarks. Certainly a social instrument that has demonstrated this kind of capacity for self-renewal is far too valuable not to be guarded jealously against abuse. By the same token, it is far too valuable to be subjected to indiscriminate and destructive attack, simply because of a few conspicuous examples of abuse.

It follows that, for the foundation, the first commandment is strict adherence to the principles of responsible trusteeship and public accountability. And the second is like unto it: a readiness to encourage and support all constructive and considered measures which, on scrutiny, seem well calculated to eliminate abuse and thus open fresh opportunities for the kind of creative service which the foundations were established to provide.

EVERETT CASE
President

Review of Operations

A MODERATE RISE occurred during the biennium in the level of commitments in several areas of primary concern to the Foundation. In support of basic scientific research, $5 million was given to the Massachusetts Institute of Technology to establish a special institutional research fund and another $1 million was given to four mid-continent universities to strengthen their science facilities and instruction. At the same time, authorization was given to increase the level of expenditure in the Foundation's fellowship program for Basic Research in the Physical Sciences from $1.2 million to $1.4 million beginning in 1965.

Sizable grants in science and mathematics were also authorized for a number of institutions, including one of $1 million for Stanford University's new Mathematics Center. In the related field of engineering, a $5 million commitment was made to the Massachusetts Institute of Technology to establish a pioneering program of continuing education for experienced engineers.

In the field of medicine, the Foundation continued its long-time interest in cancer research, virtually all of its grants for that purpose going to the Sloan-

MARION W. BOYER

ARTHUR K. WATSON

DEVEREUX C. JOSEPHS

Kettering Institute for Cancer Research in New York and to certain affiliated projects. Approximately $1.4 million were committed for the cancer program. Modest sums were also made available for research in glaucoma and uveitis, in which the Foundation has had an interest for more than a decade, and an initial grant was made for a new program of research in otology. A few special grants of some magnitude were made in the medical area, among them one of $300,000 to the Menninger Foundation and another of $1 million to the Community Blood Council of Greater New York, Inc.

The Foundation's most important contribution to undergraduate education continues to be the Sloan National Scholarship Program, which now embraces forty-five universities and colleges and requires an annual expenditure of about $1.28 million. As an expression of its concern for expanding higher educational opportunities for Negro students, the Foundation made a special grant of $500,000 to the United Negro College Fund in 1963. An additional $200,000 was voted for other projects designed to strengthen educational opportunities for Negro students; and at the end of 1964 serious consideration was being given to still another program with the same objective.

Several grants reflected and affirmed the Foundation's traditional interest in business management and economic research. A million dollar grant was made to Stanford University to assist in completing a new center for its Graduate School of Business, and sizable commitments were made to Columbia University's Graduate School of Business and to the Tuck School of Business Administration of Dartmouth College. Generous support was continued for the newly renamed Sloan School of Management of the Massachusetts Institute of Technology and for several of that School's special programs. For economic research and education, grants exceeded $1 million during the biennium, the major recipient being the National Bureau of Economic Research.

Top left: *Marion W. Boyer, elected to the Board of Trustees of the Foundation, January 12, 1965.* Photograph by Ferdinand Vogel. Top right: *Arthur K. Watson, elected to the Board of Trustees of the Foundation, October 15, 1963.* Photograph courtesy of IBM. Bottom: *Devereux C. Josephs, appointed Vice Chairman of the Board of Trustees, October 13, 1964.* Photograph by Fabian Bachrach.

A modest expansion also occurred in the Foundation's level of support of projects for the improvement of the public understanding of science. Various commitments in this area accounted for approximately $275,000.

These and other grants made by the Foundation are described in some detail on subsequent pages of the *Report* beginning on page 13. A listing of the modest but often strategically important grants authorized by the staff under its limited discretionary powers begins on page 110.

FINANCIAL SUMMARY

Commitments authorized between January 1, 1963 and December 31, 1964, including expenses of administration and experimental programs, totaled $30.4 million.* This exceeds the corresponding total for the preceding biennium (1961-1962) by some $9.9 million. Indeed, the new total is by far the largest in the Foundation's thirty-year history; and, when added to all grants and expenditures made since the Foundation began operations in 1934, brings the overall figure for the thirty-year period to $120.2 million.

Actual portfolio income of the Foundation, that is, interest and dividends for the two-year period, was $20.6 million. Since all commitments when authorized are charged to expense, the deficit for the two-year period—that is, the excess of commitments over income—was about $9.79 million. This sum was charged against capital. As already indicated in the President's *Foreword*, as of December 31, 1964, cumulative deficits—that is, the total invasion of capital required to meet commitments not paid out of earned income—amounted to $31.21 million.

On pages 128 to 131 of this *Report* there is a complete listing of the Foundation's portfolio of investments. As indicated on a previous page (see page 1),

*This and other figures given in this preliminary financial summary are rounded and hence only approximate. For the exact totals, see the "Financial Review" of this *Report* beginning on p. 121.

at December 31, 1964, the net worth of the Foundation was $276,014,120, and its gross assets, before deducting liabilities (grants committed but not paid), were valued at $297,751,560. Some $31,795,586, or about 11 per cent of this total, was invested in fixed-income securities. The remainder of the gross assets (less a cash balance of $162,029), which was about 89 per cent of the total and had a value of $265,793,945, was invested in the equities of corporations. Incidentally, the Foundation's interest in any one of these corporations is substantially less than 1 per cent of that corporation's outstanding stock.

For internal purposes, most of the Foundation's assets are held in its "General Fund." Since 1949 there has also been a special fund, the proceeds of a gift made by General Motors dealers throughout the United States in honor of Mr. Sloan, founder of the Foundation. On December 31, 1964 this fund, at market, was valued at $11,960,915. It is intended to support cancer and medical research, most of its income being distributed in grants to the Sloan-Kettering Institute for Cancer Research.

TRUSTEES AND STAFF

During the biennium the Foundation lost, by death, two of its most respected Trustees, Messrs. George Whitney and Frank A. Howard. Mr. Whitney died on July 22, 1963. Some years before, he had retired as Chairman of J. P. Morgan & Co. but he had continued as a member of the Board of Trustees of the Foundation which he had joined in 1943. A resolution, adopted by the Board on October 15, 1963, recalls Mr. Whitney's long service and his many contributions to the Foundation both in the management of its finances and in the development of sound and constructive philanthropic policies.

Mr. Howard's death occurred suddenly on September 25, 1964. He had been elected to the Board in 1949. For many years prior to his election he had been a close business associate of Mr. Sloan's and, as a member of the Foundation's Board, he continued that close association with Mr. Sloan in

their joint efforts to promote the Foundation's philanthropic aims. With Mr. Sloan, Mr. Howard was instrumental in developing the concept of the Sloan-Kettering Institute for Cancer Research and, from the year of the Institute's establishment in 1945, he had served it in one or another major capacity. His special interest in the Foundation's cancer and scientific research programs was persistent and creative in the highest sense. Early in 1962 his special role as adviser of the Foundation was formalized by his appointment as Vice President though he continued to serve without compensation. In a resolution voted by the Board at its meeting on October 13, 1964, it noted that Mr. Howard's passing "creates a vacuum in the many causes in which he was associated." The resolution further states that Mr. Howard "was richly endowed with a wide variety of talents—as a lawyer, engineer, business executive, and in a measure as a scientist."

To fill the existing vacancies, the Board elected Messrs. Arthur K. Watson and Marion W. Boyer. Mr. Watson became a Trustee in October 1963. Following graduation from Yale University and extensive service in the Army of the United States, he joined International Business Machines Corporation and, in 1954, became President of IBM World Trade Corporation and subsequently its Chairman. He is also a Vice President Group Executive and director of the parent company. Mr. Watson has had wide experience in educational and philanthropic affairs, with service on the boards of such institutions as The Carnegie Endowment for International Peace, the Metropolitan Museum of Art, Presbyterian Hospital in New York, and Colgate University.

Mr. Boyer became a Trustee at the end of 1964 and his election was formally announced following a meeting of the Foundation Board in January 1965. Except for a relatively brief interval, during which he served as General Manager of the United States Atomic Energy Commission, he has been associated with the Standard Oil Company (New Jersey) since 1927 and currently serves it as Executive Vice President. Recently Mr. Boyer was elected Chairman of the Board of the Sloan-Kettering Institute for Cancer Research, and

he also serves as a member of the board of Memorial Sloan-Kettering Cancer Center.

Certain organizational changes have also taken place in the Foundation's Board. On October 13, 1964 Mr. Devereux C. Josephs, former President of the Carnegie Corporation and a Foundation Trustee of long standing, became the Board's Vice Chairman. At the same time a special three-member Committee of the Board was established to serve as a Committee of Counselors for the President and staff of the Foundation. The original membership, which will be changed from time to time, consists of Mr. Walter S. Carpenter, Jr., and Messrs. Josephs and Watson. A Policy Committee of the Board was also established, which Mr. Albert Bradley serves as Chairman. Besides Messrs.

Left: *George Whitney, Member of the Board of Trustees from June 8, 1943 until his death, July 22, 1963.* Photograph courtesy of Morgan Guaranty Trust Company of N. Y. Right: *Frank A. Howard, Member of the Board of Trustees from April 6, 1949, and Vice President from April 19, 1962 until his death, September 25, 1964.* Photograph by Conway Studios.

George Whitney

Frank A. Howard

Josephs and Carpenter, his associates are Mr. Henry C. Alexander and General Lucius D. Clay.

The only* staff change to be reported is the retirement, at the end of 1964, of Dr. Warren Weaver as Vice President of the Foundation. Dr. Weaver continues as a valued adviser to the President and staff in the formal capacity of Senior Consultant of the Foundation. He also continues as a member of the Board and of the Executive Committee and of certain other Foundation committees, including that on Cancer Affairs.

*As previously noted, Mr. Howard, a Vice President of the Foundation, died September 25, 1964.

Grants and Commitments 1963 and 1964

A. Science, Mathematics, and Engineering

Program for Basic Research in the Physical Sciences

DURING THE EARLY 1950's, many thoughtful persons were concerned about the effect of contract and sponsored research on the universities and their faculties, especially in science. Some felt that too much emphasis was being placed on applied research in the academic community. Some believed that, in submitting detailed and specific research proposals to government agencies for possible approval, the faculty member might be deliberately forfeiting his most cherished prerogative. Perhaps the most attractive feature of the academic position is the privilege of working in a climate of complete intellectual freedom and, for a scientist, this privilege includes choosing at will the problems to be investigated and the right to modify or terminate such investigations.

In 1953, in the course of a meeting of the Sloan Foundation's Board of Trustees, General Lucius D. Clay, noting the disproportion between research and development, suggested that the Foundation should concern itself about this situation. As a result a special study committee of leading scientists was appointed to survey the problem and advise the Trustees as to ways in which they might contribute to its solution. Professor Roger Adams, a distinguished organic chemist, and at that time head of the Department of Chemistry and Chemical Engineering at the University of Illinois, served as chairman. Others on his committee were Dr. Mervin J. Kelly, then President of Bell Telephone Laboratories, Inc., and a Foundation Trustee; Dr. Robert W. King, formerly Assistant to the President of Bell Telephone Laboratories, Inc.; Professor W. Albert Noyes, Jr., a professor of chemistry and at the time Dean of the College

Warren Weaver Hall, new 14-story home of the Courant Institute of Mathematical Sciences at New York University. This structure has won one of eight awards for excellence given by the New York State Association of Architects, and a first honor award for excellence in civic architecture and urban design from the Albert S. Bard Foundation. Architects, Warner, Burns, Toan & Lunde. Photograph by Gil Amiaga. Inset lower right: *Bronze plaque, which appears in lobby of the building, was unveiled during dedicatory ceremonies on March 29, 1965.* Photograph courtesy of New York University.

of Arts and Sciences at the University of Rochester; and Dr. Julius A. Stratton, President of the Massachusetts Institute of Technology.

This group of advisers recommended the establishment of research fellowships to support "young scientists of marked promise" in educational institutions "where the general climate favored research." Funds granted under a fellowship would be essentially unencumbered, and the scientist selected would have maximum freedom in applying the stipend to the pursuit of his basic research interests.

The philosophy of supporting "people" instead of "projects" is not new. In the medical and biological fields there had been many examples, but in the physical sciences the emphasis was almost entirely on project support. In any case, it was decided that the scientists selected for these fellowships should be working in the area of the basic physical sciences, namely, physics, chemistry, and mathematics, and in interdisciplinary fields, such as astrophysics and geochemistry.

After considerable discussion of the report of Professor Adams' committee, the Trustees established "A Program for Basic Research in the Physical Sciences." Dr. Richard T. Arnold, then Head of the Department of Chemistry at the University of Minnesota, was appointed Administrator of the Program. Also established was a Program Committee consisting of five outstanding scientists: two chemists, two physicists, and one mathematician (at a later date, an additional mathematician was added to the group). One of the chemists, Professor Arthur C. Cope, Chairman of the Department of Chemistry at the Massachusetts Institute of Technology, was appointed chairman of the Program Committee.

Since then, because of a policy of rotation, there have been changes in the personnel of the committee. During the period covered by this biennial *Report*, the chairman was Professor Henry Taube, now Professor of Chemistry at Stanford University. Other members were Dr. Polykarp Kusch, Professor of Physics at Columbia University; Dr. Nelson J. Leonard, Professor of Organic Chemistry at the University of Illinois; Dr. Edward J. McShane, Professor of Mathematics at the University of Virginia; Dr. Deane Montgomery, Professor of Mathematics at the Institute for Advanced Study at

Princeton; and Dr. Leonard I. Schiff, Chairman of the Department of Physics at Stanford University.

This committee is in many ways the key to the success of the program since, with the assistance of the Program Administrator, it is this group which finally selects those young scientists who will receive Sloan Research Fellowships. These selections are based on a great deal of detailed confidential information and on evaluations concerning the nominees obtained from a variety of sources, including well-established scientists who are in the same field of research.

The program started modestly with an expenditure for the academic year 1955-1956 of about $200,000 for the support of 22 Sloan Research Fellows in 16 institutions. Since then, these activities have expanded as more funds have been made available by the Trustees. During the years covered by this *Report*,

Members of the Program Committee of the Foundation's Basic Science Program. Clockwise: Professors: Leonard I. Schiff, Stanford University; Polykarp Kusch, Columbia University; Nelson J. Leonard, University of Illinois; Henry Taube, University of Chicago, Chairman of the Committee; Dr. Larkin H. Farinholt, Administrator of the Program; Edward J. McShane, University of Virginia; and Deane Montgomery, Institute for Advanced Study. Photograph by A. F. Sozio.

the program operated at a level of $1.2 million per year. In 1964, the Trustees approved a $200,000 increase which, during 1965, will raise the level to $1.4 million and make possible an additional 20 to 25 fellowships.

Under the Program for Basic Research in the Physical Sciences, unencumbered grants are provided for a small but select group of regular faculty members who have shown unusual creative ability as research scholars. An individual does not apply for a Sloan Research Fellowship but is nominated by the head of his department or by an older distinguished colleague who is well acquainted with the nominee's researches and his potential as a creative scientist. As already indicated, the goal of the program is to support "people" and not "research projects." The grant which is made to a university for the support of a particular person is essentially unrestricted, so long as it is used to further the basic research of this individual and does not conflict with any university policy. The Sloan Research Fellow is not required to carry out any specific project and is in no sense "hired" to do a particular job.

The funds under these grants are used by the Sloan Research Fellows for many purposes, including purchase of equipment and supplies, support of technical and scientific assistance, professional travel, summer support, computer time, etc. Sometimes the fellow, with the approval of the chairman of his department, may use his grant for relief from part or all of his teaching duties for a period of time, either at his own university or on leave at some other institution. In these cases the funds may be used to pay the fellow's academic salary, either in whole or in part according to circumstances, so that he may be free to devote more of his time to his basic scientific research.

The Foundation does not require the submission of a research proposal by the nominee, nor does it require voluminous reports during, or at the end of, the fellowship. The Sloan Research Fellow is expected to provide a very brief scientific progress report annually, but in lieu of such a report the Foundation will accept reprints of published scientific articles based on research supported by the grant.

It has been the policy, perhaps more so now than a few years ago, to try to identify young creative scientists at a very early stage of their academic careers. Those receiving new Sloan Research Fellowships during the period of this *Report* had, when they were selected, an average age of 29, actual ages

ranging from 25 to 34 years. This emphasis on youth, however, does not constitute a rigid policy and, under special circumstances, somewhat older persons may be selected. The committee has been very careful not to overlook older persons whose research development had been delayed for various reasons, such as military service or late entry into the academic profession.

In selecting Sloan Research Fellows the committee tries to pick the most promising young academic scholars, without regard to any considerations of geographical distribution or, for that matter, of institutional distribution. Because these persons are chosen on the basis of their creative potential in research, it is natural that the majority of Sloan Research Fellows are to be found on the faculties of the larger universities which are centers of research. However, every effort has been made not to overlook the young scholars of promise who happen to be teaching in the less well-known institutions and in the small liberal arts colleges.

In the program for 1962-1963 there were 154 Sloan Research Fellows in 49 institutions in the United States and in Canada. For the academic year 1963-1964 there were 144 Sloan Research Fellows in 49 institutions; and for the academic year beginning September 1964 there were 155 Sloan Research Fellows in 48 institutions. The grants are made for two-year periods and are sometimes extended for another year or two. The amount of an individual grant will depend on the needs of the fellow and upon the nature of his research interests. For these reasons, the grants have run from as low as $1,000 up to as much as $15,000 per year. The annual average has been approximately $8,000.

The grant, which is to support the researches of a member of its faculty, is made to the institution and administered by it. The university is allowed as "overhead," or indirect costs, a certain fixed percentage of the grant. A public institution under the program receives 15 per cent, and a private one, 25 per cent of the funds spent by the fellow under the grant. Excluded from indirect cost payments are purchases of "major capital equipment" which, by definition, are items costing more than $500 each. All supplies and equipment purchased under the grant, including major capital equipment, become the property of the institution.

The total amount of money allocated to the program is small when compared to the funds made available by government agencies for the support of scientific research. However, the real value of the program cannot be measured by its financial size. That value lies rather in certain important features, some of them unique. Among these are 1) the unrestricted nature of the grants; 2) the policy of supporting young physical scientists at an *early* stage of their academic careers; and 3) a selection process which has been remarkably successful in identifying promising and creative young scientists. The fact that at present almost all of the support for research in the physical sciences in universities comes from government sources underlines the need for free funds which may be used with imagination and without hampering restrictions.

In addition to his responsibilities as Vice President for Scientific Affairs, Dr. Larkin H. Farinholt is in charge of the administration of the Basic Research Program.

SCIENTISTS WHO HELD ALFRED P. SLOAN FELLOWSHIPS IN BASIC SCIENCE DURING 1963 AND 1964

University of Arizona, Tucson, Arizona
Gordon Tollin, *Biochemistry;* Ray J. Weymann, *Astrophysics*

Brandeis University, Waltham, Massachusetts
Maurice Auslander, *Mathematics;* James B. Hendrickson, *Chemistry;* Joseph J. Kohn, *Mathematics;* Howard J. Schnitzer, *Physics*

Brigham Young University, Provo, Utah
H. Tracy Hall, *Chemistry*

University of British Columbia, Vancouver, Canada
Neil Bartlett, *Chemistry;* Myer Bloom, *Physics;* Charlotte Froese, *Applied Mathematics-Theoretical Physics*

Brown University, Providence, Rhode Island
Leon N. Cooper, *Physics;* John Ross, *Chemistry;* John Wermer, *Mathematics*

Bryn Mawr College, Bryn Mawr, Pennsylvania
Frank B. Mallory, *Chemistry*

California Institute of Technology, Pasadena, California
Don L. Anderson, *Geophysics;* Felix Boehm, *Physics;* Steven C. Frautschi, *Physics;* W. Barclay Kamb, *Geochemistry-Geophysics;* Alan T. Moffet, *Radio Astronomy;* John H. Richards, *Chemistry;* G. Wilse Robinson, *Chemistry;* Fredrik Zachariasen, *Physics*

University of California, Berkeley, California
Peter N. Burgoyne, *Mathematical Physics;* Eugene D. Commins, *Physics;* David A. Freedman, *Mathematical Statistics;* James W. Garland, Jr., *Physics;* Sheldon L. Glashow, *Physics;* Morris W. Hirsch, *Mathematics;* Frederick R. Jensen, *Chemistry;* Shoshichi Kobayashi, *Mathematics;* Bruce H. Mahan, *Chemistry;* Norman E. Phillips, *Chemistry;* Steven Weinberg, *Physics;* Eyvind H. Wichmann, *Physics;* Ariel C. Zemach, *Physics*

University of California, La Jolla, California
William R. Frazer, *Physics;* Donald R. Fredkin, *Physics;* John M. Goodkind, *Physics;* Sheldon Schultz, *Physics;* Meir Weger, *Physics;* David Y. Wong, *Physics*

University of California, Los Angeles, California
Basil Gordon, *Mathematics;* Paul C. Haake, *Chemistry;* Daniel Kivelson, *Chemistry;* Raymond L. Orbach, *Physics;* Philip A. Pincus, *Physics*

University of California, Riverside, California
M. Fred Hawthorne, *Chemistry*

Carnegie Institute of Technology, Pittsburgh, Pennsylvania
Robert T. Schumacher, *Physics*

Case Institute of Technology, Cleveland, Ohio
Frederick Reines, *Physics;* William Tobocman, *Physics*

University of Chicago, Chicago, Illinois
R. Stephen Berry, *Chemistry;* Felix E. Browder, *Mathematics;* Joseph W. Chamberlain, *Astronomy;* Robert N. Clayton, *Geochemistry;* Gerhard L. Closs, *Chemistry;* Russell J. Donnelly, *Physics;* David H. Douglass, Jr., *Physics;* Philip E. Eaton, *Chemistry;* Leopoldo M. Falicov, *Physics;* Jack Halpern, *Chemistry;* William L. Lichten, *Physics;* James C. Phillips, *Physics;* J. J. Sakurai, *Physics;* Royal W. Stark, *Physics;* Richard G. Swan, *Mathematics;* John G. Thompson, *Mathematics;* Lennard Wharton, *Chemistry;* Nien-chu Yang, *Chemistry*

University of Cincinnati, Cincinnati, Ohio
Raymond E. Dessy, *Chemistry*

Columbia University, New York, New York
Richard Bersohn, *Chemistry;* Ronald Breslow, *Chemistry;* Wallace S. Broecker, *Geophysics-Oceanography;* Gerald Feinberg, *Physics;* Richard M. Friedberg, *Physics;* Harry B. Gray, *Chemistry;* Harish-Chandra, *Mathematics;* Sven R. Hartmann, *Physics;* Heisuke Hironaka, *Mathematics;* Martin Karplus, *Chemistry;* Thomas J. Katz, *Chemistry;* Serge Lang, *Mathematics;* Robert L. Mieher, *Physics;* Michael Nauenberg, *Physics;* Robert Novick, *Physics;* William H. Reinmuth, *Chemistry;* Melvin Schwartz, *Physics*

Cornell University, Ithaca, New York
Vinay Ambegaokar, *Physics;* Peter Carruthers, *Physics;* Donald G. Farnum, *Chemistry;* Douglas B. Fitchen, *Physics;* Carl S. Herz, *Mathematics;* Harry Kesten, *Mathematics;* Richard F. Porter, *Chemistry;* Harold Widom, *Mathematics;* Kenneth G. Wilson, *Physics*

Duke University, Durham, North Carolina
Horst Meyer, *Physics;* Jacques C. Poirier, *Chemistry*

University of Florida, Gainesville, Florida
William M. Jones, *Chemistry*

Harvard University, Cambridge, Massachusetts
John D. Baldeschwieler, *Chemistry;* Sidney R. Coleman, *Physics;* Herman R. Gluck, *Mathematics;* Louis N. Hand, *Physics;* Richard H. Holm, *Chemistry;* Daniel Kleppner, *Physics;* Paul C. Martin, *Physics;* Barry Mazur, *Mathematics;* David Mumford, *Mathematics;* Peter S. Pershan, *Physics;* Francis M. Pipkin, *Physics;* Carl Sagan, *Astrophysics;* Shlomo Sternberg, *Mathematics;* Tai Tsun Wu, *Physics*

University of Illinois, Urbana, Illinois
R. Linn Belford, *Chemistry;* Theodore L. Brown, *Chemistry;* Willis H. Flygare, *Chemistry;* Donald Ginsberg, *Physics;* Leo P. Kadanoff, *Physics;* Miles V. Klein, *Physics;* Rudolph A. Marcus, *Chemistry;* James C. Martin, *Chemistry;* Theron S. Piper, *Chemistry;* Kenneth L. Rinehart, Jr., *Chemistry;* Stanley G. Smith, *Chemistry;* Harvey J. Stapleton, *Physics*

Indiana University, Bloomington, Indiana
Russell A. Bonham, *Chemistry*

Institute for Advanced Study, Princeton, New Jersey
Tsung-Dao Lee, *Physics*

Iowa State University, Ames, Iowa
Orville L. Chapman, *Chemistry;* Charles H. DePuy, *Chemistry;* Andrew V. Gold, *Physics;* Allan R. Mackintosh, *Physics;* Glen A. Russell, *Chemistry*

Johns Hopkins University, Baltimore, Maryland
Bernard M. Dwork, *Mathematics*

University of Kansas, Lawrence, Kansas
Albert W. Burgstahler, *Chemistry;* Robin T. M. Fraser, *Chemistry;* Richard C. Sapp, *Physics*

Louisiana State University, Baton Rouge, Louisiana
Richard D. Anderson, *Mathematics;* Sean P. McGlynn, *Chemistry*

McMaster University, Hamilton, Ontario, Canada
Richard F. W. Bader, *Chemistry*

University of Maryland, College Park, Maryland
Oscar W. Greenberg, *Physics*

Massachusetts Institute of Technology, Cambridge, Massachusetts
Glenn, A. Berchtold, *Chemistry;* F. Albert Cotton, *Chemistry;* Kenneth M. Hoffman, *Mathematics;* Louis N. Howard, *Applied Mathematics-Physics;* Kerson Huang, *Physics;* Kenneth A. Johnson, *Physics;* James L. Kinsey, *Chemistry;* Bertram Kostant, *Mathematics;* Franklin P. Peterson, *Mathematics;* Gian-Carlo Rota, *Mathematics;* Dietmar Seyferth, *Chemistry;* Isadore M. Singer, *Mathematics*

Michigan State University, East Lansing, Michigan
Gerasimos J. Karabatsos, *Chemistry*

University of Michigan, Ann Arbor, Michigan
Morton Brown, *Mathematics;* Peter L. Duren, *Mathematics;* Robert E. Ireland, *Chemistry;* John M. Malville, *Astrophysics;* R. Martin Stiles, *Chemistry;* Donat G. Wentzel, *Astrophysics*

University of Minnesota, Minneapolis, Minnesota
John S. Dahler, *Chemistry;* Harry Furstenberg, *Mathematics;* Maurice M. Kreevoy, *Chemistry;* Edward Leete, *Chemistry;* Charles A. McCarthy, *Mathematics;* Albert J. Moscowitz, *Chemistry*

State University of New York at Buffalo, Buffalo, New York
Peter T. Lansbury, *Chemistry*

State University of New York at Stony Brook, Stony Brook, N.Y.
John M. Alexander, *Chemistry;* Edward M. Kosower, *Chemistry;* Fausto Ramirez, *Chemistry*

New York University, New York, New York
Paul R. Garabedian, *Mathematics;* Michel A. Kervaire, *Mathematics;* Peter D. Lax, *Mathematics;* Jurgen K. Moser, *Mathematics*

University of North Carolina, Chapel Hill, North Carolina
James P. Collman, *Chemistry;* Paul S. Hubbard, Jr., *Physics;* Hendrik van Dam, *Physics*

Northwestern University, Evanston, Illinois
A. Louis Allred, *Chemistry;* Myron L. Bender, *Chemistry;* Avner Friedman, *Mathematics*

University of Notre Dame, Notre Dame, Indiana
Sperry E. Darden, *Physics;* Paul C. DeCelles, *Physics;* O. Timothy O'Meara, *Mathematics;* Louis Pierce, *Chemistry*

Ohio State University, Columbus, Ohio
James R. Gaines, *Physics*

University of Oklahoma, Norman, Oklahoma
Chun C. Lin, *Physics*

University of Oregon, Eugene, Oregon
Marshall Fixman, *Chemistry;* Robert M. Mazo, *Chemistry;* John A. Schellman, *Chemistry*

Pennsylvania State University, University Park, Pennsylvania
Herman G. Richey, Jr., *Chemistry*

University of Pennsylvania, Philadelphia, Pennsylvania
Hendrik F. Hameka, *Chemistry;* Alan J. Heeger, *Physics;* Robin M. Hochstrasser, *Chemistry;* Abraham Klein, *Physics;* Donald N. Langenberg, *Physics;* Benjamin W. Lee, *Physics;* Alan G. MacDiarmid, *Chemistry*

University of Pittsburgh, Pittsburgh, Pennsylvania
Irving J. Lowe, *Physics;* Lorne A. Page, *Physics*

Princeton University, Princeton, New Jersey
Richard Blankenbecler, *Physics;* James W. Cronin, *Physics;* Christie G. Enke, *Chemistry;* Richard K. Hill, *Chemistry;* John J. Hopfield, *Physics;* Robert P. Langlands, *Mathematics;* David Lowdenslager, *Mathematics;* Kurt M. Mislow, *Chemistry;*

Marcos Moshinsky, *Physics;* Edward C. Nelson, *Mathematics;* C. D. Papakyriakopoulos, *Mathematics;* Paul von Rague Schleyer, *Chemistry;* John R. Stallings, *Mathematics;* Elias M. Stein, *Mathematics*

Purdue University, Lafayette, Indiana
Robert E. Davis, *Chemistry;* Louis deBranges, *Mathematics;* Richard W. King, *Physics*

Rice University, Houston, Texas
Robert F. Curl, Jr., *Chemistry*

University of Rochester, Rochester, New York
Ronald D. Parks, *Physics;* William H. Saunders, Jr., *Chemistry;* Kenneth J. Teegarden, *Physics;* David J. Wilson, *Chemistry*

Stanford University, Stanford, California
Sam M. Austin, *Physics;* Samuel M. Berman, *Physics;* James D. Bjorken, *Physics;* Paul J. Cohen, *Mathematics;* Victor W. Laurie, *Chemistry;* William A. Little, *Physics;* Donald S. Ornstein, *Mathematics;* Dana S. Scott, *Mathematics;* Peter L. Scott, *Physics;* Marshall S. Sparks, *Physics;* John D. Walecka, *Physics*

University of Texas, Austin, Texas
Rowland Pettit, *Chemistry*

University of Toronto, Toronto, Canada
James M. Daniels, *Physics;* Alexander G. Harrison, *Chemistry-Geochemistry;* John C. Polanyi, *Chemistry*

University of Virginia, Charlottesville, Virginia
Pierre E. Conner, Jr., *Mathematics;* Edwin E. Floyd, *Mathematics*

Wake Forest College, Winston-Salem, North Carolina
Howard Shields, *Physics*

Washington University, St. Louis, Missouri
Joseph Dreitlein, *Physics;* Kazimierz Luszczynski, *Physics*

University of Washington, Seattle, Washington
Marshall Baker, *Physics;* David Bodansky, *Physics;* Harry H. Corson, *Mathematics;* William D. McCormick, *Physics;* Leon J. Slutsky, *Chemistry;* Gershon Vincow, *Chemistry*

University of Waterloo, Waterloo, Ontario, Canada
Douglas J. Henderson, *Physics*

Wayne State University, Detroit, Michigan
Norman A. LeBel, *Chemistry*

University of Western Ontario, London, Ontario, Canada
Edgar W. Warnhoff, *Chemistry*

University of Wisconsin, Madison, Wisconsin
Frank C. Andrews, *Chemistry;* Robert R. Borchers, *Physics;* Lawrence F. Dahl, *Chemistry;* Charles H. Edwards, *Mathematics*

Yale University, New Haven, Connecticut
William R. Bennett, Jr., *Physics;* R. Stephen Berry, *Chemistry;* Jack Sandweiss, *Physics;* Oktay Sinanoglu, *Chemistry*

Yeshiva University, New York, New York
Jean F. Treves, *Mathematics*

Program for Basic Scientific Research— Massachusetts Institute of Technology

BECAUSE OF HIS LONG-TERM concern for the health of the physical sciences, and his desire to promote basic scientific research, Mr. Alfred P. Sloan, Jr., Chairman of the Foundation, made a personal gift of $5 million to the Massachusetts Institute of Technology, his Alma Mater, in December 1963. In honor of Mr. Sloan, the Institute named the fund, produced by this gift, the "Alfred P. Sloan Fund for Research in the Physical Sciences."

Early in 1964, selected staff members of the Foundation restudied the science research needs of the Institute and began giving active consideration to the possibility of a Foundation grant for that purpose. The Foundation had made an initial grant of $5 million to the Institute in May 1960 to support pure scientific research (see *Report for 1959-1960*, page 91). Following the receipt of Mr. Sloan's personal gift, the Institute had suggested that the assets of the Foundation's grant be consolidated with the proceeds of Mr. Sloan's gift. The Institute also expressed the hope that if, as a result of the Foundation staff survey in 1964, additional funds for basic research at the Institute were voted by the Foundation's Trustees, these new funds could be combined with the original Foundation gift and the personal gift of Mr. Sloan. The resulting sum, dedicated to basic scientific research and vested in a single institution, would be of a magnitude unusual for even the larger American universities.

In their survey, the Foundation staff investigators noted that the requirements of the existing program of pure scientific research at the Institute already demanded funds considerably in excess of conventional university levels. They were of the opinion, moreover, that it would be in the public interest, and in the interest of science, if substantial new funds from private sources could be made available at MIT and at comparable institutions. Funds of such magnitude, it was felt, would be not only a desirable supplement to public research funds but would protect and strengthen an institution's discretion and independence in the conduct of its research policy.

As a result of these conclusions, the staff investigators recommended a second Foundation grant of $5 million for the Institute's scientific research fund; and in April 1964, this recommendation was accepted by the Foundation's Board of Trustees. Subsequently the Institute, in pursuance of its earlier suggestion, consolidated the new grant with the 1960 Foundation grant and with the proceeds of Mr. Sloan's personal gift. Thus was brought into being for research in the physical sciences at MIT a capital sum of $15 million.

The Institute has announced that this consolidated fund will be controlled within MIT by a committee of three, consisting of the Chairman of the Corporation, the President of the Institute, and the Institute's Provost. Drafts against the fund's capital require unanimity among these three officials. Drafts on income can be authorized by two of the three officials.

Although the fund is intended chiefly for support of research in the physical sciences, its income may also be applied in those areas where fundamental developments in the physical sciences impinge on other areas of science as, for example, biology. The fund may also be used to support research in such fields as mathematics, engineering, and the economics of production. Moreover, whenever the administering committee of three determine that there is a significant use for these funds to support basic research outside the Institute, support of which would be appropriate and legal for funds owned directly by the Institute, the administrators may draw upon the Sloan Fund for this purpose.

In commenting on this research fund, Dr. Julius A. Stratton, President of the Institute, said: "In these days when the national interest requires extensive funding by government of scientific endeavor, private funds remain a highly essential source of venture capital for universities and other educational organizations. The establishment of this private Fund can be of far-reaching importance to research and to education, for it is a demonstration that private support for science, when greatly needed, is available. It can serve also as a model for comparable support in other universities."

Dr. Stratton's colleague, Dr. James R. Killian, Jr., Chairman of the Institute, declared that "the establishment of the Sloan Fund could hardly be more timely. It is vital that non-Federal support of science be increased. Funds are needed that can be used in a manner that affords great freedom in supporting the emerging scientists and the promising new idea. They make it possible to fill in gaps and to finance programs not ready to become projects. For all these reasons, the Massachusetts Institute of Technology views the establishment of this Fund as one of the most important additions to its resources that could be made at the present time."

Grants for the Development of Science Facilities at Four Mid-Continent Universities

TULANE UNIVERSITY
UNIVERSITY OF CHICAGO
VANDERBILT UNIVERSITY
WASHINGTON UNIVERSITY

DURING THE SUMMER of 1963 the Foundation, in furtherance of a policy of strengthening science and mathematics at selected institutions which derive support primarily from private sources, turned its attention to the needs of certain universities in the central part of the United States. In the months immediately preceding the Foundation's action many of the major institutions in this region had submitted extensive and ambitious plans for developing their science resources. These embraced requests to match building funds, provide equipment, promote research, and to assist in the development of other desirable institutional activities.

Although there has been a relative decline in the enrollments of private higher educational institutions, especially since World War II, and although this decline is expected to continue, it is essential that the private sector of the nation's higher educational system, whatever its eventual relative size, be of the very highest quality. In the Foundation's view, it is also essential that representative private institutional strength be distributed throughout the nation, and that the private universities continue to play a creative role in mathematics and the sciences. Prior grants by the Foundation for programs in these fields having been largely confined to a few institutions on the East

and West Coasts, the moment seemed propitious for extending such support to a few of the leading privately controlled universities of the mid-continent.

Accordingly, on October 15, 1963, the Foundation appropriated $1 million to assist four universities in this region in meeting some of their immediate educational and research needs in the sciences and mathematics. The appropriation was divided equally among them, each receiving a grant of $250,000. The four beneficiaries were Tulane, Vanderbilt and Washington Universities, and the University of Chicago.

In terms of the total needs of these institutions, as previously outlined to the Foundation, these grants were decidedly modest. The Foundation was assured, however, that the proceeds of each grant would be exceedingly useful in meeting certain immediate needs of the universities in question and as leverage in assisting them to fund their long-term needs.

To augment the potential usefulness of the grant, the Foundation gave each of the beneficiary universities maximum discretion in applying the proceeds. They were informed that the Foundation's sole purpose was to assist in strengthening their research and instruction in the sciences and mathematics and that, except for the limitation implicit in this statement of purpose, each university was free to use its grant as it saw fit. This policy of supplying "free" or unrestricted funds received an especially strong endorsement from President George W. Beadle of the University of Chicago. "...In these times," said Dr. Beadle, "when unrestricted income from endowment, tuition, and short-term support for universities is decreasing relative to that designated for specific small areas and projects, support that permits freedom to maneuver becomes increasingly important. This is especially so in science because of its very nature. Without flexibility, the imbalance that now exists within many universities may be dangerously increased."

In selecting these four universities to receive the grants, Mr. Everett Case, President of the Foundation, stated that the following considerations had been influential: (1) the ambitious and forward-looking nature of plans being developed by each of the four institutions; (2) evidence of institutional vitality and the belief of the Foundation that each of these privately-controlled universities is strategically situated to render service of great significance to the public; and (3) the character and vigor of their institutional leadership.

Grants for Mathematics and Science

COURANT INSTITUTE OF MATHEMATICAL SCIENCES— NEW YORK UNIVERSITY

IN ITS *Report for 1961-1962*, the Foundation reviewed at some length its growing interest in mathematics. The principal expression of that interest at the time was a grant of $2.75 million to New York University for the expansion and support of the University's Courant Institute of Mathematical Sciences. Some $2 million of this grant for the Courant Institute was allocated to the fund required by the University to finance a new building to house the Institute. At the insistence of the University, this will be known as "Warren Weaver Hall" in honor of Dr. Warren Weaver, Trustee of the Foundation and formerly Vice President for the Natural and Medical Sciences of the Rockefeller Foundation. Ground breaking ceremonies for this new structure were held on November 20, 1962 and it is anticipated that Warren Weaver Hall will be completed and dedicated as this *Report* goes to press.

In the course of its construction, plans for Warren Weaver Hall were modified in order to provide some 10,000 additional square feet of space. To finance this expansion and to take care of certain increases in costs, the Foundation, in 1964, made a supplementary grant of $300,000. This, together with the Foundation's original grant, and contributions from other sources, including other foundations, brought the total funds made available for this building to a figure approximating $6 million.

Montage of photographs taken at the dedication of the Alfred P. Sloan Mathematics Center—Stanford University. Top: Interior of mathematics library; Center: Rear view of remodeled section of the Center, Bottom left: *Dr. Harold M. Bacon, Professor of Mathematics at Stanford, and Mr. Everett Case, President of the Foundation.* (See overleaf) Center photograph by Pirkle Jones; others courtesy of Stanford University.

ALFRED P. SLOAN MATHEMATICS CENTER—STANFORD UNIVERSITY

Another major Foundation commitment in support of mathematics was made in January 1963 when the Trustees voted a grant of $1 million to assist in financing the Mathematics Center at Stanford University, which the University has named for Mr. Sloan. This contribution from the Foundation made it one of the major donors of this project, the overall cost of which was approximately $2.3 million. The funds were used for a complete reconstruction of a section of the original Stanford quadrangle which had been known as the "Physics Corner" and its transformation into a modern academic facility. Only the old sandstone walls of the original building were preserved in order to maintain the architectural unity of the quadrangle.

The new center was dedicated with appropriate ceremonies on December 11, 1964. The Mathematics Department at Stanford had been operating in five different campus locations. Among the many advantages provided by the new center will be that of bringing together under one roof all activities in this discipline.

OTHER GRANTS IN MATHEMATICS

Three additional grants in the field of mathematics were made during 1964. The first was one of $35,000 to the Mathematical Association of America, Inc. In order to strengthen mathematics instruction in some of the nation's liberal-arts colleges, the Association had undertaken sponsorship of summer seminars at certain universities attended by representatives of the mathematics departments of participating institutions. The first such seminar, lasting eight weeks during the summer of 1964, was held on the campus of Cornell University. It concentrated upon the subjects of Geometry and Probability. The seminar for 1965, for the financing of which the Foundation's funds will be used, will concentrate upon Algebra and Analysis. Additional contributions for these seminars, which carry a budget of approximately $100,000, have been supplied by industry and by the National Science Foundation.

The second special grant for mathematics was made to the American Mathematical Society. This, in the amount of $60,000, is intended to assist the Society over a two-year period during which it is relocating its publication,

Mathematical Reviews, in new quarters at Ann Arbor, Michigan. *Mathematical Reviews* is a monthly journal providing short reviews and occasional critical commentary on current research literature in mathematics and its applications. The journal is regarded as the Society's most important publication.

A grant of $10,000 for a related purpose was made to the Society for Industrial and Applied Mathematics. The funds are intended to assist in defraying the cost of the Society's *Journal*. The Society also publishes the *SIAM Review*.

UNITED STATES CHURCHILL FOUNDATION

Some years ago a group of American and British educators and business executives organized the United States Churchill Foundation. One of its principal objectives is to encourage graduate study and teaching by selected American scientists at the newly established Churchill College at Cambridge University. The College, named in honor of the famed British statesman, opened its doors in 1960. It is primarily a scientific institution. The Churchill Foundation's plan has the support of such American educators as Dr. James R. Killian, Jr., Chairman of the MIT Corporation, and Dr. Lee A. DuBridge, President of the California Institute of Technology. It also—and not surprisingly—has the enthusiastic endorsement of Sir John Cockcroft, Master of Churchill College.

Each year the United States Churchill Foundation plans to award scholarships to graduates of leading American universities and colleges for further study at Cambridge. In addition, the Foundation intends to establish exchange fellowships in science teaching and research between American and English universities. Such fellowships would finance lectures and seminars at Churchill College by outstanding American scientists and by visiting British scientists in certain American institutions.

In March 1963, the first three American students were named Churchill Scholars and undertook work at the College in Cambridge. Ten more were selected later to begin work at Cambridge during the academic year 1964-1965. Four scientists from three different American universities were also appointed Overseas Fellows to serve on the Churchill College faculty for varying periods of time during the academic year 1964-1965.

In June 1963, the Foundation made a commitment of $100,000 to assist in financing this scholarship and fellowship program for a period of five years.

ADDITIONAL GRANTS

Although the Foundation has no general program to assist colleges and universities to develop their science and mathematics programs, it has, for some time, made occasional small grants—at the level of $10,000 or less—to meet special or temporary needs. Usually such grants have been made for a pilot or experimental project in science teaching or scientific research, or to enable an institution to acquire some particular piece of laboratory equipment. The following institutions have received grants of this type over the past two years:

Adrian College, Adrian, Michigan
Bard College, Annandale-on-Hudson, New York
Briarcliff College, Briarcliff, New York
Cazenovia College, Cazenovia, New York
Dillard University, New Orleans, Louisiana
Hartwick College, Oneonta, New York
Knoxville College, Knoxville, Tennessee
Lincoln University, Lincoln University, Pennsylvania
Manhattan College, Bronx, New York
Marlboro College, Marlboro, Vermont

Several institutions received somewhat larger grants of an essentially discretionary nature. Among these institutions are Harvey Mudd College of Claremont, California, which received $20,000 for general developmental purposes. Part of the funds thus contributed were intended to finance fellowships for graduates of the College who had recently completed their doctoral degree elsewhere and were being invited to return to the College to engage in post-doctoral research and conduct one or two seminars for the undergraduates at Harvey Mudd. Another grant went to Colgate University at Hamilton, New York, in the amount of $14,750 to support faculty research in the sciences, to purchase certain new equipment required in science-research projects, and to provide a closed-circuit television camera for the departments in Colgate's Division of Natural Science and Mathematics. Still a third grant was made to

the recently established College of the Virgin Islands, St. Thomas, V. I., to enable it to expand aspects of its program in the basic sciences. The amount involved was $10,000, with a tacit understanding that a request for a similar grant in 1965 would have sympathetic consideration.

The Foundation also made two special research grants. One of $10,000 went to the Woods Hole Oceanographic Institution at Woods Hole, Massachusetts to supplement earlier Foundation contributions for the Institution's fellowship program in oceanography and related disciplines. The second was a grant of $10,000 to the Institute for Advanced Study—Europe *(Institut des Hautes Etudes Scientifiques)*. The Institute, located near Paris, France, was founded in 1958 and is concerned with advanced theoretical research in the sciences and mathematics.

Center for Continuing Education in Engineering—Massachusetts Institute of Technology

One of the Foundation's first grants, following its establishment in 1934, was made in support of the pioneer executive-development project at the Massachusetts Institute of Technology described elsewhere in this volume (see page 81). Assisting professional people, especially in such fields as industrial management, hospital administration, and engineering, to keep abreast of new knowledge and methods has remained a concern of the Foundation since that time, and occasionally other projects in these special areas have enlisted the support of its Trustees. The most recent project of this nature, and perhaps the most ambitious, is the Center for Continuing Education in Engineering at MIT.

Late in 1962 Mr. Sloan, Chairman of the Foundation, and officials of the Institute became concerned with the difficulty experienced by engineers in keeping pace with the growing sophistication of their various disciplines since the end of World War II. The almost explosive character of the intellectual advance in some of these disciplines has produced many new technologies or has transformed existing technologies to a point where they are virtually new. As Dean Gordon S. Brown of MIT has observed, as late as 1950, undergraduate curricula rarely included strong courses in specialized fields which, in the dozen or more years since that date, have become of major importance. Among these fields, says Dean Brown, are atomic and nuclear physics and nuclear engineering; computer technology and its penetration into engineering analysis and design; extra-terrestrial sciences; solid-state physics and molecular engineering; plasma physics and its potential for new forms of energy conversion; and information theory and advanced theories of communications.

In the Foundation's discussions with MIT officials it was also pointed out that many engineers who received their baccalaureate degrees in the 1940's and 1950's are being called upon, a decade or two later, to assume administrative responsibility for the work of younger engineers whose training and sophistication in the basic sciences and modern technologies may go considerably beyond that of their supervisors. The resulting failure of professional communication between supervisor and young engineering specialist is hardly conducive to efficient management and to the optimum exploitation of research and development opportunities within industry or research institutes. Difficulties also exist in the case of teachers in a number of engineering schools whose training and knowledge have lagged behind the newer problems, conceptions, and designs of various engineering disciplines.

As a result of these discussions, the Institute proposed that the Foundation provide support, for an initial five-year period, of an experimental project to show how this problem of "educational lag" in engineering might be over-

Design of building to house the Center for Advanced Engineering Study at MIT. Architects, Skidmore, Owings and Merrill. Photograph by MIT.

come. The proposal suggested a special center for post-graduate engineering study on the MIT campus. The proposed center would be housed in its own building, and have its own director and certain special faculty.

In the plan originally filed with the Foundation by MIT, three major groups of engineers were identified as among those who might be served by the proposed center. The first was a group identified as *engineering managers*. It is anticipated that, in discharging their decision-making role in industry and government, these men may require a broader understanding of the technologies that have emerged since their graduation. Such a group might typically receive an extensive orientation course, limited to three or four months. It was further suggested that a second group to be served by the proposed center might consist of *technical group leaders* in specific engineering disciplines who may require greater familiarity with recent developments in their own specialties or in technologies peripheral to theirs. These, it was suggested, might come to MIT for a period of from one to three months to pursue a curriculum tailored to their needs. Still a third group might consist of *engineering specialists* and possible instructors in engineering. These individuals, who might stay at the center for as long as twelve months, or possibly longer, would direct their attention largely to new developments in basic science and mathematics.

After further discussion, which embraced consultations between Foundation staff specialists and representative members of the MIT faculty and administration, the Foundation staff recommended a grant of $5 million to assist MIT in establishing such an experimental engineering center, to be known as the Center for Continuing Education in Engineering; and this recommendation was approved by the Foundation's Board of Trustees in April 1963. Of the total grant, $2.7 million is to be expended for a building to house the center. The building will contain no laboratories, but it will provide space for educational research and the teaching programs of the center, including conference and seminar rooms and small private studies for engineers returning from industry and other universities to participate in the center's educational programs. It is anticipated that the new building will be ready for occupancy early in 1967.

Meanwhile, according to the center's first general announcement, one part of this broad program has already been put into operation. This is identified

as an advanced program for practicing engineers. Participants in the program are engineers of widely varying background and future responsibilities who have come to MIT and become associated with a faculty member in an informal working partnership, each visiting engineer undertaking activities tailored to his needs and specifications. Upon completing this work at MIT, these visiting engineers will generally resume activities with which they had previously been associated which may include teaching, managing engineering projects, and managing research and development projects. The center is also offering a special laboratory program in solid-state physics during the summer of 1965.

Earlier, in October 1963, MIT announced the appointment of Dr. Harold S. Mickley, Ford Professor of Engineering, as Director of the new center. In his first report on the center's operations, Dr. Mickley reiterated the conviction, expressed earlier by his Institute colleagues, that this new undertaking in engineering education will quickly become an integral part of the educational and research activities of MIT. He also expressed confidence that such a conception of post-graduate training and development will be immensely useful in raising the professional level of senior personnel in the various engineering disciplines. If these hopes are realized, the Foundation shares with MIT leaders the belief that a contribution will have been made toward relieving the chronic shortage of high quality personnel in engineering. Technological obsolescence of older scientists and engineers has undoubtedly been responsible, to some extent, for that shortage. If a program such as this can update the training of selected numbers of existing engineers, it may make as effective a contribution towards relieving the present deficit of highly trained engineers as any attempt to enlarge facilities at the undergraduate level or to attract more people to engineering study.

Other Grants in Engineering

GRADUATE ENGINEERING FELLOWSHIP PROGRAM

In an effort to assist in overcoming an anticipated deficit in staffing future engineering faculties, the Foundation established a modest fellowship program for graduate engineering students in 1959 and has continued that program through the academic year 1964-1965. The fellowships provided for basic stipends of $1800 (later raised to $2100), with allowances to the recipient student under special circumstances and to the institution in which the student matriculated. Stipends were tenable only during the first year of graduate study. Their primary purpose was to assist those students who indicated a preference for teaching as a possible profession.

A total of thirty-five such fellowships were awarded annually by the nine universities which were invited to participate in the program. These were the California and Massachusetts Institutes of Technology, and the following universities: California (at Berkeley), Columbia, Cornell, Illinois, Michigan, Purdue, and Stanford. The program was unusually successful. Reports from these administering institutions indicated that little difficulty was experienced in discovering applicants of talent, high aptitude, and satisfactory motivation. Many of the students in the program favored the traditional engineering disciplines such as civil, chemical, and electrical engineering; but some selected the newer disciplines such as aeronautical and structural engineering.

With very few exceptions, academic performance was most satisfactory; and the majority of the students, after taking their first graduate degree, continued with graduate studies, most of them having secured another fellowship or having found part-time employment as a teaching or research assistant.

After reviewing this program in 1964, the Foundation decided that the essentially emergency nature of the program's objectives had been fulfilled. The program had helped to focus public attention on the need to recruit and train more highly qualified young engineering teachers. It had also made a significant, if modest, contribution towards alleviating that need. It was apparent, however, that substantial funds, both from private sources and especially from the United States Government, were now being channeled into graduate engineering education and it also seemed clear that the volume of such funds would increase rather than diminish. Accordingly it was decided to bring this fellowship program to an end. Appropriations for it, which had approximated $150,000 annually, will therefore be discontinued and the last fellowship group under this program will complete its work in June 1965.

UNITED ENGINEERING TRUSTEES, INC.

In 1963 the Foundation made a grant of $50,000 towards the construction of a new building for the United Engineering Trustees, Inc. The building is located on First Avenue between 47th and 48th Streets, opposite the United Nations site in New York. Recently completed at a total cost in the neighborhood of $10 million, the new center will house the various engineering societies of the United States which now make their headquarters in New York City and provide facilities for meetings, publications, and other professional activities. The Foundation's grant supplements one of $100,000 which it made for the same purpose in 1958.

The new Kettering Laboratory at the Memorial Sloan-Kettering Cancer Center on East 68th Street in New York. Photograph by Guy Gillette.

B. Medical Research and Education

Program in Cancer Research

SLOAN-KETTERING INSTITUTE AND ALLIED PROJECTS

THE FOUNDATION HAS maintained an interest in support of cancer research since 1945. That interest, however, has been largely confined to the Sloan-Kettering Institute for Cancer Research, the research arm of the Memorial Sloan-Kettering Cancer Center in New York. The Institute owes its creation to the efforts of Mr. Alfred P. Sloan, Jr., Chairman of the Foundation, and to certain of his associates, including the late Frank A. Howard, the late Dr. Charles F. Kettering, and the late Dr. Cornelius P. Rhoads, who was the Institute's first Director. The concept of the Institute is essentially the work of these individuals. It was the Sloan Foundation which, in 1945, made an initial commitment of somewhat over $4.5 million to construct the original Institute building on East 68th Street and to provide for the Institute's initial operations.

In the course of time the program of the Institute has expanded greatly. Its latest public report, issued in May 1964, indicates that its annual operating budget exceeds $9 million. Support for its operations now comes from several foundations, the Federal Government, and large numbers of private donors. The Sloan Foundation has continued its contributions to the operating budget but they now account for only a small percentage of the total—approximately five per cent.

In the two years under review (1963-1964) the Foundation's direct support of the research and educational programs of the Sloan-Kettering Institute totaled $997,000. This sum included an annual support grant of $400,000 for its immediate research program which, since 1964, is derived from the income of the General Motors Dealers Appreciation Fund (see page 7). In addition, the Foundation made grants for certain special projects at the Institute. Among them was one of $80,000, made in April 1963, to permit the Institute to purchase two Siemens electron microscopes for its microscopy

laboratory. Another grant of $42,000 was made at the same time to support the general program of the Rhoads Memorial Fund. This fund, bearing the name of the late first Director of the Institute, is used to support various types of fellowships and scholarships within the Institute and for an educational program conducted in collaboration with the Cornell University Medical College.

An extension of the regular cancer research program of the Sloan-Kettering Institute is a special collaborative effort conducted with the African Research Foundation of New York in Nairobi, Kenya and at the South African Institute for Medical Research in Johannesburg, Union of South Africa. The Foundation's *Report for 1961-1962* (see page 40) describes the purpose of this project and states that in December 1962 the Foundation's Executive Committee had authorized an additional two-year contribution of $75,000 for this special program, a commitment which the Charles F. Kettering Foundation planned to match. This contribution was formally approved by the Foundation's Board in January 1963.

The Foundation has also made grants for several years to the Southern Research Institute, which have been matched by the Charles F. Kettering Foundation. These funds support a fairly extensive research program in cancer chemotherapy conducted in conjunction with similar programs at the Sloan-Kettering Institute in New York. The Foundation's support has averaged about $75,000 per year. In April 1963, a new three-year grant of $225,000 was voted by the Trustees for the support of the work of the Southern Research Institute.

In the introduction to the latest public report of the Sloan-Kettering Institute, to which reference has already been made, spokesmen of the Institute state that its present research program encompasses seven major areas: chemotherapy, clinical investigation, immunity and virology, chemistry, biophysics, epidemiology, and pathology; and according to these spokesmen, the prime purpose of this research continues to be that which brought about the Institute's creation in 1945, namely, to discover means for the "more effective control of cancer in man through cure and eventual prevention."

During the biennium, the Memorial Sloan-Kettering Cancer Center completed construction of a twelve-story building on East 68th Street in New York.

It is estimated that these new quarters will provide Memorial Hospital and the Sloan-Kettering Institute with 85,000 additional square feet for their expanding activities. Mr. Sloan, Chairman of the Foundation, made a personal commitment of $6 million in 1963 toward this building program of the Memorial Sloan-Kettering Cancer Center.

Another project indirectly related to the welfare of the Institute is the new apartment residence for nurses at Memorial Sloan-Kettering Cancer Center. This twenty-story building, named in honor of the late Irene Jackson Sloan (Mrs. Alfred P. Sloan, Jr.), for which the Foundation had made a $2 million grant, supplemented by a personal gift by Mr. Sloan of like amount, was dedicated on September 11, 1962. In January 1963, the Foundation made an additional commitment of $200,000, which was also matched by a personal contribution by Mr. Sloan. Proceeds of these gifts were used to equip and furnish the new nurses' residence.

ALFRED P. SLOAN AWARDS FOR CANCER RESEARCH

In 1962 the Foundation originated a series of awards for outstanding achievement in cancer research at the Memorial Sloan-Kettering Cancer Center. The purpose was to give appropriate recognition of unusual scientific achievement and to provide recipients with an opportunity to broaden their professional experience by visits to other centers of research and collaboration with scientific colleagues in countries outside the United States and in other laboratories within the United States. Normally a recipient scientist from the Memorial Sloan-Kettering Center undertakes a temporary affiliation—which may last for as long as a year—with another research institute or comparable organization primarily concerned with research on cancer or neoplastic diseases. Under the terms of the award the recipient scientist continues to receive regular compensation as well as an allowance for travel and for other expenses. He also receives an outright grant of $10,000. In 1962, Mr. Sloan made a special gift to the Foundation for these awards.

These awards were continued during the biennium under review. In 1963 they were given to the following four scientists:

Dr. John W. Berg, Associate Attending Pathologist of Memorial Hospital for Cancer and Allied Diseases; Associate of the Sloan-Kettering Institute for Cancer Research, Division of Pathology; and Assistant Professor of Pathology of the Sloan-Kettering Division of the Graduate School of Medical Sciences, Cornell University Medical College.

Dr. Joseph H. Burchenal, Member of the Sloan-Kettering Institute for Cancer Research and Chief of the Division of Clinical Chemotherapy; Attending Physician and Co-Chief of the Chemotherapy Service of Memorial Hospital for Cancer and Allied Diseases; and Professor of Medicine at Cornell University Medical College.

Dr. Joseph G. Fortner, Associate Member of the Sloan-Kettering Institute for Cancer Research, Division of Experimental Surgery; Assistant Attending Surgeon of Memorial Hospital for Cancer and Allied Diseases; and Clinical Assistant Professor of Surgery at Cornell University Medical College.

Dr. Georges Barski and Dr. Frank Kingsley Sanders, the first scientists from outside the United States to receive the Alfred P. Sloan Awards for Cancer Research, pictured in laboratory at the Sloan-Kettering Institute. (See page 48.) Photographs by Raymond K. Martin.

Dr. Mary L. Petermann, Associate Member of the Sloan-Kettering Institute for Cancer Research, Division of Nucleo-Protein Chemistry; and Associate Professor of Biochemistry in the Sloan-Kettering Division of the Graduate School of Medical Sciences, Cornell University Medical College.

In 1964, these four additional scientists were given awards:

Dr. Aaron Bendich, Member of the Sloan-Kettering Institute for Cancer Research; and Professor of Biochemistry in the Sloan-Kettering Division of the Graduate School of Medical Sciences, Cornell University Medical College.

Dr. Leopold G. Koss, Attending Pathologist and Chief of the Cytology Service of Memorial Hospital for Cancer and Allied Diseases; Associate Member of the Sloan-Kettering Institute; and Professor of Pathology in the Sloan-Kettering Division of the Graduate School of Medical Sciences, Cornell University Medical College.

Dr. Walter Lawrence, Jr., Associate Attending Surgeon of Memorial Hospital; Associate Member of Sloan-Kettering Institute; and Clinical Associate Professor of Surgery at Cornell University Medical College.

Dr. Frederick S. Philips, Member of Sloan-Kettering Institute; and Professor of Pharmacology in the Sloan-Kettering Division of the Graduate School of Medical Sciences, Cornell University Medical College.

During 1964, Sloan Awards for Cancer Research were also given, for the first time, to scientists from abroad. One went to Dr. Georges Barski of Villejuif (Seine), France; the other to Dr. Frank Kingsley Sanders of the Virus Research Unit of the British Medical Research Council. Both of these scholars plan to visit the United States during 1965 and each will spend some time at the Sloan-Kettering Institute on their respective research projects.

Program in Ophthalmology

COUNCIL FOR RESEARCH IN GLAUCOMA AND ALLIED DISEASES

IN THE TWELVE-YEAR PERIOD since 1952 the Foundation has appropriated slightly in excess of $1.2 million in support of its ophthalmological program. Originally this program was limited to research in glaucoma, a major cause of blindness in the United States, accounting for some two or three per cent of all cases. Subsequently the program was extended to include basic and clinical research in the closely related disease of uveitis. From time to time, moreover, grants have been made to support fellowships for medical students with a special interest in ophthalmology and, on several occasions, grants have been authorized to assist in the construction and equipping of ophthalmological research laboratories.

Annual Foundation appropriations for this program, which have ranged from about $85,000 at the time the program was originated to an average of $150,000 in more recent years, have been allocated to grantees by a special committee of Foundation consultants known as the Council for Research in Glaucoma and Allied Diseases. This Council was originally headed by Dr. Conrad Berens, one-time member of the faculty of the New York University Medical School and a leading investigator in the field of uveitis. Upon his death on March 2, 1963, leadership of this group of consultants devolved upon Dr. John H. Dunnington, Professor of Ophthalmology, Emeritus, Columbia University, and formerly Director of the Institute of Ophthalmology at the Columbia Presbyterian Medical Center. Other members include Dr. Edwin B. Dunphy, Henry Willard Williams Professor of Ophthalmology, Emeritus, Massachusetts Eye and Ear Infirmary, and Ophthalmologist to the Harvard University Health Services; Dr. A. E. Maumenee, Ophthalmologist-in-Chief

and Professor of Ophthalmology, The Johns Hopkins University School of Medicine, and Director of the Wilmer Ophthalmological Institute; Dr. Frank W. Newell, Professor and Chairman, Section of Ophthalmology, Department of Surgery at the University of Chicago; and Dr. R. Townley Paton, Vice President, Surgeon Director of the Department of Ophthalmology, and President of the Board of Surgeon Directors of the Manhattan Eye, Ear and Throat Hospital. In 1964, Dr. John M. McLean, Clinical Professor of Surgery (Ophthalmology) of the Cornell University Medical College and attending Surgeon in Charge of Ophthalmology, New York Hospital-Cornell Medical Center, joined the group.

At the time the Foundation inaugurated this program in 1952, funds for the support of ophthalmological research were decidedly limited in amount. The National Institute of Neurological Diseases and Blindness had just been organized and private funds for research in ophthalmology were almost non-existent. In the intervening years, however, the total of government funds devoted to this area of research has climbed remarkably. In 1963, for example, the National Institute of Neurological Diseases and Blindness appropriated some $43 million for research of which about one-sixth went for ophthalmological research. Funds for research from private sources, such as the funds supplied by this Foundation, have also enjoyed a modest expansion.

Another indication of the acceleration of research in ophthalmology since 1952 is the increase in the number of research groups in various universities. Prior to World War II major groups existed only at Columbia, Johns Hopkins, and Harvard Universities. Since the War the number has expanded considerably and at present (1964) there are at least twenty-five important research groups in the same number of universities throughout the country.

During 1963, Dr. Frank W. Newell, a member of the Council for Research in Glaucoma and Allied Diseases, surveyed the state of research in ophthalmology and described the progress which that research had made during the past decade. Among other gains attributable to such research he identified the following: (1) the role of excessive oxygen in the pathogenesis of retrolental fibroplasia which has been responsible for blinding some 7,000 infants annually in the United States; (2) the development of chemotherapy effective against virus infections; (3) the isolation of the virus causing trachoma, the

chief cause of all blindness in the world, and the development of an appropriate vaccine to inhibit that disease; and (4) demonstration of specific diseases that cause uveitis. Dr. Newell indicated that the ophthalmological research program of the Foundation had made modest contributions toward this excellent record. He singled out Foundation-supported projects at two or three leading medical schools in which significant advances had been made in delineating some of the basic mechanics of human glaucoma and in expanding knowledge of causative factors in glaucoma and uveitis.

As a result of Dr. Newell's review, it appears likely that the Foundation will continue, and perhaps expand modestly, the funds annually appropriated for its ophthalmological program. He and his associates on the Council for Research in Glaucoma and Allied Diseases have suggested that, during the next five years, the following considerations will strongly influence their recommendations for grants: (1) giving priority to research projects in well organized laboratories under common leadership; (2) devoting increasing amounts of money to fellowships for outstanding medical students interested in investigative ophthalmology as well as to mature medical and non-medical scientists whose contributions to ophthalmology would be disrupted or delayed unless assistance were forthcoming; (3) support of symposia for the exchange and more effective communication of scientific knowledge on glaucoma and similar diseases.

DESCRIPTION OF PROJECTS IN OPHTHALMOLOGY

During 1963-1964, the Foundation appropriated $250,000 for its ophthalmological program. These funds were distributed in grants to various medical schools and research institutions throughout the United States. Some of the funds were also expended for fellowship stipends. The principal research projects are here briefly described.

Baylor University College of Medicine, Houston, Texas. Under Dr. C. Dean Dukes and Dr. Louis J. Girard of this institution, work was continued in the study of ocular tissues in tissue culture with special reference to uveitis. Work in the tissue culture laboratory at Baylor has been devoted, during 1964, to a study of the reactivity of individual cells to certain allergic reactions in the laboratory and responses to certain anti-viral drugs. The funds supplied for these activities during the biennium totaled $26,892.

College of Physicians and Surgeons, Columbia University, New York, New York. Research at this institution under the direction of Dr. George K. Smelser, Professor of Anatomy, was centered upon a study of the function of mast cells, a constituent of many connective tissues and numerous in the choroid of animal and human eyes. Funds for this project totaled $10,883.

University of California Medical Center, San Francisco, California. Under the auspices of the Francis I. Proctor Foundation for Research in Ophthalmology, research was continued at this institution on rheologic aspects of glaucoma, the major purpose being a search for clues as to the possible origin of glaucoma in the mechanical properties of the outer coat of the eye, or sclera. Dr. Michael J. Hogan and Dr. William K. McEwen are the principal investigators. The Foundation's contribution to this project was $10,880.

The Johns Hopkins University School of Medicine, Baltimore, Maryland. At the Wilmer Ophthalmological Institute of this institution, the Foundation committed funds for several projects. One, under Dr. Maurice E. Langham, is devoted to a study of mast cells in the uvea of normal eyes. Another project under Dr. Langham has been concerned with the effect of the sympathetic nervous system and sympathomimetic amines on the intraocular pressure and the intraocular dynamics of primates, the purpose being to compare eye drainage with that of other animals and with that of man. In 1964, funds were given in support of a third project in which Dr. Arthur M. Silverstein, of the Wilmer Institute, and Dr. Lorenz E. Zimmerman, of the Armed Forces Institute of Pathology, collaborated. This project concerned the pathogenesis of recurrent nongranulomatous uveitis. Grants for these three projects totaled $37,752.

Manhattan Eye, Ear and Throat Hospital, New York, New York. At this institution, investigation proceeded on the effects on glaucoma of certain drugs and the relationship between intraocular pressure and hemodilution. The work is under the direction of Dr. Raymond Harrison, Dr. Adolph Posner, and Dr. William G. Fogland. The funds committed amounted to $26,500.

Armed Forces Institute of Pathology-National Academy of Sciences, Washington, D. C. During 1963, with a grant of $16,200, investigative work was continued at the Immunobiology Laboratory at the Armed Forces Institute of Pathology on the pathology and etiology of uveitis, the principal investiga-

tors being Dr. Lorenz E. Zimmerman, Chief of the Ophthalmic Pathology Branch, and Dr. Arthur M. Silverstein. This project was transferred, in 1964, to the Wilmer Institute of The Johns Hopkins University School of Medicine, as already indicated.

Massachusetts Eye and Ear Infirmary, Boston, Massachusetts. A grant of $8,400 was given this institution in 1964 for studies on the anatomical and functional relationships between blood vessels and aqueous veins in the sclera of human eyes. The study was conducted by Dr. Vicente L. Jocson as part of basic experimental studies in glaucoma directed by Dr. W. Morton Grant.

Washington University School of Medicine, St. Louis, Missouri. Funds totaling $50,400 were contributed to this institution in support of a broad program of basic and clinical research in ophthalmology with special reference to glaucoma. Studies include an effort to determine the biomedical nature of genetic defects in cases of glaucoma, refinements and improvements in available instruments used in tonography, exploration of methods for earlier diagnosis and improved treatment of glaucoma, and continued study of basic mechanisms involved in glaucomatous eyes.

OTHER GRANTS IN OPHTHALMOLOGY

The Council for Research in Glaucoma and Allied Diseases also authorized grants amounting to $15,000 for the maintenance, during the biennium, of fellowships at the following institutions: College of Physicians and Surgeons, Columbia University ($6,000), Cornell University Medical College ($6,000), and the University of Oregon Medical School ($3,000). Funds contributed to the New York Association for the Blind to defray the administrative expenses of the Council for Research in Glaucoma and Allied Diseases included provision for the administrative costs of the third Council-sponsored symposium on uveitis, held at the Kenwood Country Club in Bethesda, Maryland in September 1963, and for the publication and distribution of the transactions of this conference. This publication, entitled *Immunopathology of Uveitis,* became available in November 1964.

The Foundation authorized a special grant of $15,000 to The Johns Hopkins University School of Medicine to finance completion of the construction of the building to house the Wilmer Ophthalmological Institute.

This supplements a grant of $100,000 made for the same purpose in 1961. The new Wilmer Institute building was dedicated on May 25, 1964.

RECORDING FOR THE BLIND, INC.

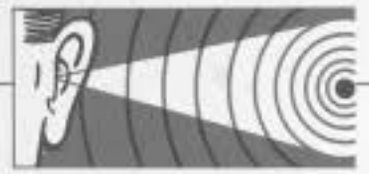
Some years ago the Foundation began to provide modest support for Recording for the Blind, Inc. What attracted the Foundation to this project was its effort to serve blind college and other students with text material that could be recorded on discs or tapes or other electronic devices. By using such devices, blind students have been able to increase appreciably their "reading" speed and comprehension of written or printed material.

During the relatively brief period of its existence, Recording for the Blind, Inc. has experienced a phenomenal increase in the demand for its services.

A volunteer monitor (left) checks the text to be read by a volunteer reader at Recording for the Blind, Inc. The monitor operates the tape recorder and checks the text to make sure that the reader does a perfect job of recording it. Photograph by Christa Armstrong of Rapho Guillumette.

At the end of 1963 its library contained some 42,000 recorded educational books and its library catalogue listed over 7,000 titles covering almost every field of study. The institution hopes eventually to meet the needs for such materials of most of the blind college and university students in the United States and to extend its service to blind adults enrolled in educational or vocational training programs and to blind children in the schools.

This expansion of services and anticipated future demand has required Recording for the Blind, Inc. to secure a new building in which to house its activities. Such a building, providing some 24,000 usable square feet, located at 215 East 58th Street in New York, was recently purchased. In April 1964 the Foundation joined other foundations and private donors in supplying the funds for the acquisition of this building and for its renovation. The Foundation's grant was $100,000. An additional grant of $10,000 was made for general support of Recording for the Blind, Inc. in 1963.



Program in Otology

DEAFNESS RESEARCH FOUNDATION—PROGRAM OF RESEARCH IN OTOLOGY

In June 1964 the Foundation made a grant of $258,750 to the Deafness Research Foundation for the support of otological research in American medical schools. This grant, one of the largest single commitments ever made for hearing research by a private foundation, follows a series of smaller grants to the same organization of which the most recent was one of $10,000 made in May 1963. These earlier grants to the Deafness Research Foundation were earmarked for general support of that organization and to assist it in carrying forward its "temporal bone banks" program. This program makes it possible for patients to stipulate that, after death, their inner ear structures may be used by qualified researchers in otological laboratories throughout the United States.

This most recent grant to the Deafness Research Foundation is intended to help that organization to expand the number and magnitude of otological research projects conducted in leading medical schools. For the Sloan Foundation the new grant marks a decision to commit an increasing, albeit modest, percentage of its resources to the study of hearing impediments and deafness. Instead of allocating these funds directly to specific research projects, the Sloan Foundation has made them available for research purposes to the Deafness Research Foundation and that organization will make the actual allocations. Since its formation in 1958, the Deafness Research Foundation has taken leadership in promoting otological research in the United States, and its staff of specialists and consultants is eminently qualified to assume responsibility for the distribution of these research funds.

To carry out its responsibilities under the grant from the Sloan Foundation, the Deafness Research Foundation has set up a scientific review committee

on grants of which Dr. John F. Daly, of the New York University Medical Center, will serve as Chairman until June 1969. This committee will screen all applications for grants directed to the Deafness Research Foundation and make appropriate recommendations. A so-called "Grants Approval Board" of seven members, also appointed by the Deafness Research Foundation, will evaluate and act upon the recommendations of the scientific review committee.

Under this arrangement, the first series of grants financed by the Sloan Foundation commitment was authorized by the Deafness Research Foundation on December 16, 1964. Funds totaling about $100,000 were allocated to some twelve research projects to be conducted in leading university medical schools in the United States. For the time being the Deafness Research Foundation proposes to make such allocations to research projects twice each year.

In commenting upon this new program, the Surgeon General, Dr. Luther Terry, stated that otology was "an area of great need," and that "significant progress should be possible through the combined efforts of a private foundation, a voluntary health agency, and scientists at medical centers throughout the country."

Dr. Richard L. Masland, Director of the National Institute of Neurological Diseases and Blindness, declared that "hearing loss has been a little-recognized and long-neglected health area which can benefit substantially through research." Dr. Masland welcomed especially the contributions of research funds from a private foundation. "The Government," he said, "has accepted an increasing responsibility for hearing research and for training scientists to conduct this research. However, there are inherent limitations in the utilization of Federal funds, especially in the ability to pioneer in the creation of new resources and in the development of new approaches. The private sector must play this essential role in the healthy development of the national research effort."

The founder and President of the Deafness Research Foundation is Mrs. Hobart C. Ramsey. Its Medical Advisor is Dr. Gordon D. Hoople, President of the Board of Trustees at Syracuse University. The Deafness Research Foundation has offices at 366 Madison Avenue, New York.

THE JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE

Since 1955 the Foundation has provided limited support for the program of the Institute of Human Communications at The Johns Hopkins University School of Medicine. Contributions have been at the rate of $20,000 per annum. The program has included psychological studies to establish methods for determining perceptual ability of children unable to communicate by normal means. Other researchers have sought to determine the type of hearing loss caused humans by lesions along the auditory pathways. The work of the Institute has been under the supervision and leadership of Dr. John E. Bordley, Andelot Professor of Laryngology and Otology at the University. During 1964 the Foundation made a terminal grant of $25,000 for this program.

Special Grants in Medicine and Allied Fields

COMMUNITY BLOOD COUNCIL OF GREATER NEW YORK, INC.

Early in 1961 the Community Blood Council of Greater New York, Inc. became legally qualified to operate as a non-profit organization and the Foundation made an initial three-year grant of $50,000 in August of that year to assist the Council in expanding its services in the metropolitan area. This interest of the Sloan Foundation has continued and, during the biennium under review, grants totaling $1.1 million were made to the Council.

The Council has established a blood bank which will embrace all blood types, including some of the rarer types, and supply blood and its derivatives on a non-profit basis to hospitals and health centers in the Greater New York area. A major consideration leading to the establishment of the blood center was the fact that, in metropolitan New York, blood has been handled in the past by more than 150 independent agencies. A single agency, in which responsibility can be centralized for the proper collection, handling, and distribution of human blood, seems essential if the community is to have a supply of blood adequate for its needs and if proper standards are to be maintained in storing and distributing it.

An affiliated research institute will carry on the Council's investigative and research activities relating to the composition and properties of human blood and to the scientific and technical problems relating to blood transfusions. The association of the Council with large health and research centers in the New York metropolitan area gives assurance that more than local significance will attach to the scientific work of this affiliated institute.

The Foundation's grants supplement additional and larger contributions to the Council from industry, other foundations, and especially from the National Heart Institute of the National Institutes of Health. Dr. August H. Groeschel is President of the Community Blood Council of Greater New York, Inc.

NATIONAL MEDICAL FELLOWSHIPS, INC.

The Foundation has continued its program of assistance to male Negro students in medicine which it began a number of years ago and which is currently administered by National Medical Fellowships, Inc., of Chicago. Support for this project currently is being maintained at a level of about $80,000 per annum. These funds provide scholarship stipends for approximately forty students, the average stipend being about $1,250. Actual stipends range from a minimum of about $600 to a maximum of about $2,200. Stipends are tenable for the entire four-year period of the medical course, provided the student holding the fellowship maintains a satisfactory academic average. The scholarships are known as the National Medical-Sloan Foundation Scholarships. In recent years some 26 medical schools have enrolled students holding these scholarships.

Of the total annual Sloan Foundation commitment to National Medical Fellowships, Inc. $10,000 is devoted each year to special awards to medical students in course who require temporary assistance. This special assistance is limited to students who have completed the first year of their work and the program is separate and distinct from the National Medical-Sloan Foundation Scholarships.

Dr. Eric Oldberg of Chicago is currently the President of National Medical Fellowships, Inc. and Dr. Franklin C. McLean of Chicago is the organization's Secretary and Treasurer.

MENNINGER SCHOOL OF PSYCHIATRY

Another project which has received support from the Foundation for a number of years is the Menninger School of Psychiatry at Topeka, Kansas, operated by the Menninger Foundation. In April 1964, the Trustees of the

Sloan Foundation voted an additional grant for the Menninger Foundation for a three-year period payable at the rate of $100,000 per annum.

Earlier grants of the Sloan Foundation have been devoted chiefly to the support of the Menninger School's visiting lectureships and professorships. Although support of this program is not excluded in the new grant, its proceeds may be applied, at the discretion of the Menninger Foundation, to expand and to develop generally its educational and training activities in psychiatry.

As noted in earlier reports of the Sloan Foundation, the Menninger Foundation's School of Psychiatry has become one of the chief training centers for psychiatrists in the United States. It is estimated that since the organization of this institution, more than 800 psychiatrists have had their training there. The Menninger Foundation also has programs for training psychologists, social workers, pastoral counselors, and other related professional people. It maintains a clinical center in Topeka and also engages in research.

NORTHEASTERN UNIVERSITY–COLLEGE OF NURSING

During 1964 a commitment of $100,000 was made to Northeastern University in Boston to assist in constructing and equipping a new center for training practical nurses. With the cooperation of many of the major hospitals in the greater Boston area, Northeastern proposes to develop a two-year course in practical nursing. The University intends to apply to this program the so-called "cooperative" features that distinguish certain other portions of its curriculum, that is, it will combine formal academic training with practical vocational and professional experience in an integrated program. Students who complete the program will be awarded an Associate Degree or Certificate and will be available to meet the constantly expanding demand among hospitals, health-care centers, and comparable institutions for people trained at that level. The estimated cost of the new building and appropriate equipment and certain initial instructional costs approximates $1.8 million.

THE NATIONAL FUND FOR MEDICAL EDUCATION

The National Fund for Medical Education came into existence in 1949. During its formative years the Sloan Foundation, along with others, made

modest grants in support of the Fund's program of aiding medical schools throughout the United States with unrestricted grants. In the ensuing years the Fund has distributed many millions of dollars to American medical schools, most of the money having been obtained from industry.

Since 1962 the Fund, in collaboration with the Association of American Medical Colleges, has sought to secure resources to support experimentation and development in medical teaching. It plans to make "medical-teaching grants" to appropriate medical colleges. In January 1963, the Foundation made a grant of $75,000, payable at the rate of $25,000 per annum, to assist the National Fund for Medical Education in carrying forward this program in support of medical teaching.

MEDICAL LIBRARY CENTER OF NEW YORK

The ever expanding volume of American scientific literature has raised, in rather acute form, for almost all medical libraries, the problem of storing such materials and of expediting their use by researchers. Problems such as these have been especially apparent in a city like New York where there are six major university medical centers and at least two major medical research institutes. In 1959 Dr. Howard Reed Craig, Director of the New York Academy of Medicine, and certain of his associates, incorporated the Medical Library Center of New York and gave it responsibility for solving some of these problems and encouraging cooperation, where possible, among medical libraries in New York. A cooperative housing facility for less-used library materials in medicine has since been established which also renders certain services to existing medical libraries. These include aid in developing cooperative solutions for storing, disseminating, and interpreting information; avoidance of duplication, particularly of less-used reference material and similar works; and development of a union catalogue of medical periodicals for the metropolitan area. This cooperative depository and reference service is housed at 5-17 East 102nd Street, New York.

The entire project, including the purchase of the building and necessary alterations, cost approximately $1.5 million. In 1963 this Foundation made a grant of $100,000 for this venture.

ADDITIONAL GRANTS FOR MEDICAL OR ALLIED PURSUITS

Although, as the preceding account indicates, the Foundation's support of activities in medicine and health care is limited to a few projects, it occasionally makes modest grants for other projects in this and closely allied fields. The circumstances which recommend such grants to the Foundation staff are invariably exceptional, at least from the point of view of the Foundation, in the sense that they are not made in furtherance of an expanded medical program.

Such exceptional grants have been made for two projects in hospital administration, a field in which the Foundation has occasionally committed funds in the past. Two grants, totaling $12,000, were made to Columbia University's School of Public Health and Administrative Medicine, to permit that institution to continue its developmental seminars for administrators of municipal hospitals in Greater New York. Another grant of $5,000 was made to the Roosevelt Hospital to finance a pilot exchange project for students of hospital administration in the United States and Great Britain. The grant financed, in part, a visit of a staff member of the Roosevelt Hospital to various British health centers and also paid part of the cost of a visit of a British student who came to the United States for a period of study and observation of health-care centers.

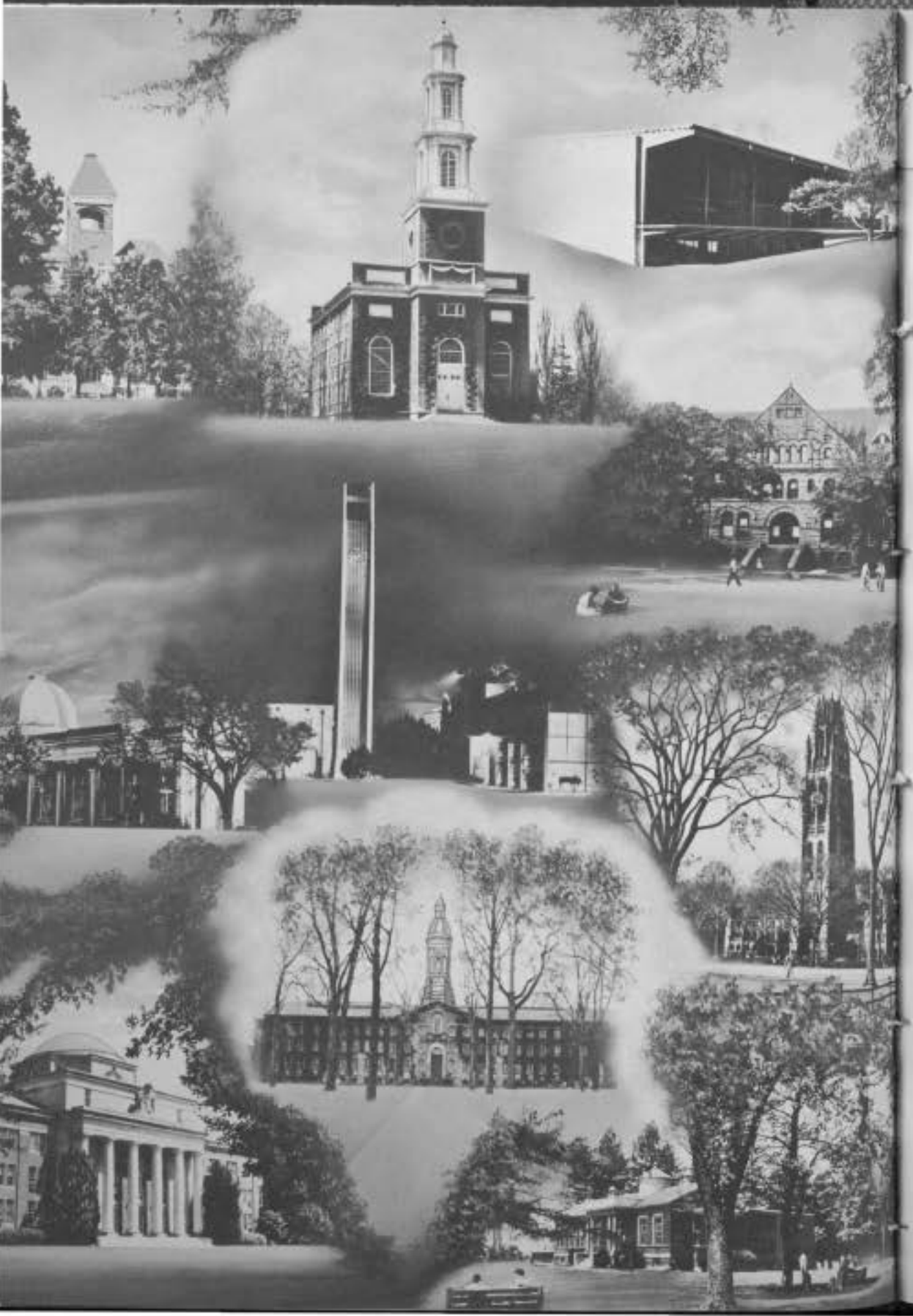
Three additional commitments were made in support of special research projects. The first, of $20,000, went to Yale University's School of Medicine to defray part of the cost of a Reference Serum Bank which had been established in 1963 under the auspices of the World Health Organization. Among other activities the Reference Serum Bank is engaged in exploring the general subject of serologic epidemiology as a new epidemiologic tool. The Mary Imogene Bassett Hospital of Cooperstown, New York also received a grant, of $10,000, to finance a study by Dr. James F. Powers of surgery for the aged. Still another recipient of a grant, also of $10,000, to assist efforts of Dr. Edwin T. Long to develop an inexpensive, versatile, and readily available oxygenator for cardiopulmonary "bypass" operations, was The Medical Research Foundation of Lakeland, Florida.

Three grants were made to projects outside the United States. One of $10,000 went to Makerere University College of Kampala, Uganda, East

Africa to assist that institution in constructing facilities to house visiting professors and research fellows. Another foreign grantee was the Liberian Government Hospital of Monrovia to which the Foundation made a contribution of $10,000 to be used for the construction of a new emergency outpatient clinic. An equal amount went to the third grantee, The Royal Society of Medicine of London, England, as a contribution to help the Society expand its headquarters.

The remaining three grantees in this area and the sums involved were as follows: (1) the National Fund for Graduate Nursing Education of New York to augment the funds it supplies to accredited graduate nurse-training programs in the United States, $10,000; (2) the World Federation for Mental Health of New York, for general support of its international program, $10,000; and (3) the Foundation for Medical Technology to support the activities of the International Institute of Medical Electronics and Biological Engineering, $10,000.

C. Scholarships and Special Educational Programs



Alfred P. Sloan National Scholarship Program

In the course of the biennium, the Foundation made a rather extensive evaluation of its scholarship and fellowship activities. As noted earlier, one result of this evaluation was the decision by the Trustees to terminate the modest program for the support of graduate students in engineering which was undertaken on an experimental basis in 1959. A similar conclusion was reached by the Trustees regarding an experimental scholarship-loan project for undergraduates which had been initiated by the Foundation in the fall of 1960 at nine participating colleges and universities (see *Report for 1959-1960*, page 32). In the case of both projects, a controlling factor in the decision to terminate was the substantial growth in support from other sources, principally from the Federal Government.

Although it had become clear in the course of this evaluation that graduate fellowships had become more plentiful and that the opportunity for students to borrow funds for educational purposes had expanded considerably, the reverse condition appeared to be true of undergraduate scholarships. Provision for such scholarships, either by private or public sources, had not kept pace with the rise of enrollments and tuition, and educational opportunities for qualified students of limited means were therefore contracting at least in relation to demand. Accordingly, in 1964, the Trustees decided to authorize a

Montage of representative campus buildings of colleges and universities admitted to the Alfred P. Sloan National Scholarship Program in 1964. Photographs (from top left to bottom right) courtesy of Morehouse College, Hamilton College, Grinnell College (by B. Korab), Tuskegee Institute, Pomona College (by Russell Lapp), Tulane University, Davidson College (by Kennedy), Princeton University, Yale University, and Lincoln University (by Bill Anderson).

modest expansion of the Foundation's National Scholarship Program, committing to it new funds at a level roughly equivalent to the appropriations previously authorized for certain discontinued student-aid programs.

The Foundation's Alfred P. Sloan National Scholarship Program had been established in 1952. At the end of 1962, nearly 500 young men, enrolled at 35 participating colleges and universities in the United States, were receiving scholarship assistance under this program. At that time the participating institutions were:

Albion College
Amherst College
Antioch College
Bowdoin College
Brown University
California Institute of Technology
California, University of
Carleton College
Carnegie Institute of Technology
Case Institute of Technology
Colby College
Colgate University
Columbia University
Cornell University
Dartmouth College
Georgia Institute of Technology
Harvard University
Illinois, University of
Johns Hopkins University, The
Knox College
Lehigh University
Massachusetts Institute of Technology
Michigan, University of
Minnesota, University of
Notre Dame, University of
Oberlin College
Occidental College
Ohio State University, The
Purdue University
Stanford University
Vanderbilt University
Wabash College
Whitman College
Williams College
Wisconsin, University of

As is nearly always the case when there are many worthy claimants for limited resources, the Foundation faced a difficult task in selecting additional institutions to participate in the program. Recognizing that every student attending a state or other public institution in effect receives "scholarship" assistance because of low or non-existent tuition, it was early concluded that the modest expansion of the Sloan program should be limited to private colleges and universities. But this conclusion still left a wide field of choice. Among other factors that received consideration, therefore, were the need to recognize and sustain institutional excellence, the potential value of such scholarship awards at some of the smaller colleges, and the importance of effecting a measure of geographical distribution in the allocation of Foundation resources.

In any event, in the spring of 1964, the following institutions were invited to participate in the program and each of them accepted the invitation:

Davidson College
Grinnell College
Hamilton College
Lincoln University
Morehouse College
Pomona College
Princeton University
Tulane University
Tuskegee Institute
Yale University

With the addition of these ten institutions, the participating colleges and universities will number 45. At the end of a four-year period, when the program at the recently admitted institutions is fully operational, the number of male undergraduates receiving Sloan Scholarship assistance will have increased from 500 to over 600 annually.

While the institutions admitted to the program in 1964 were private colleges and universities, the Trustees simultaneously adopted two measures designed to strengthen the operation of the Sloan Scholarship Program at several public or state universities. In the case of five of the institutions, the duration of the Sloan Scholarships, which had been limited to the junior and senior years, was extended to a full four-year period. Moreover, the grants to several of the state universities, which had been computed in most cases on the basis of $650 or $700 per student per year, were increased and standardized at a figure of $750 per student per year.

Other changes in the program approved by the Trustees during the biennium were: an increase in the Foundation's unrestricted cost-of-education allowance to the privately-supported colleges which helps them overcome, at least in part, the difference between the full cost of educating the student and the amount covered by tuition payments; a revision in the method of calculating the maximum annual stipend permitted an individual student; and a new allocation of honorary awards at several of the smaller colleges, that is, awards to candidates who are not in need of financial assistance but are given recognition (and a token stipend) because of their outstanding record.

While changes in the program, which have occurred over the last two years, have been featured in this account of scholarship activities, there is an important continuing feature of the Alfred P. Sloan National Scholarship

Program which deserves special emphasis. This is the decentralized basis for administering the program. From the very start, the Foundation has relied heavily upon the participating institutions in the conduct of the program. The Foundation makes grants to the participating colleges and universities and they, in turn, through their directors of admission and financial aid, select the scholarship recipients, determine the stipends to be awarded them, and follow up on their progress during the normal undergraduate years of study. Liaison with these individual administrators is provided by the Foundation's Director of Educational Affairs, Mr. Robert N. Kreidler, who regularly visits each college campus, meeting both with the designated college administrators and the Sloan Scholars.

The Sloan Scholars are selected on the basis of academic excellence, personal integrity, and potential for leadership. The amount of each scholarship is determined in accordance with the student's need, and awards range from $200 to a maximum of tuition plus $600 (in 1964, $2400). The $200 awards are the honorary awards, previously described, for young men who do not need financial assistance but who merit recognition. All awards are renewable for students who maintain high records of achievement.

The latest Foundation study reveals that over 82 per cent of the Sloan Scholars enroll in graduate or professional schools after completing their college requirements. Most of them are awarded graduate fellowships or receive appointments as teaching or research assistants.

In the years since the Alfred P. Sloan National Scholarship Program was established in 1952, over 3500 awards, including renewals, have been made possible through Foundation grants of over $9 million. With the expansion of the program during the biennium, the Foundation's annual support for these scholarships will increase from $1,100,000 to about $1,275,000.

Special Nonrecurring Programs in Education

UNITED NEGRO COLLEGE FUND

For a number of years the Foundation has participated in the annual effort of the United Negro College Fund of New York to secure funds for the operational needs of its member colleges, some 33 in number. During the biennium the Foundation contributed $20,000 for this purpose.

In 1963 the Fund launched a major capital campaign for these colleges, and in December of that year the Foundation appropriated $500,000 toward the total the Fund was seeking. One-fifth of the gift, that is, $100,000, was given directly to the Fund in New York to be distributed to its member colleges at its discretion. The remaining $400,000 was reserved for allocation through the United Negro College Fund to certain member colleges after the Foundation and the Fund had reviewed the needs and programs of specific member colleges. The Foundation assumed final responsibility for the selection of institutions.

Grants were subsequently made to seven of the member institutions of the Fund. Paine College of Augusta, Georgia, received $30,000 and Tougaloo College, Tougaloo, Mississippi received $35,000. Three other institutions, namely, Xavier University of New Orleans, Louisiana Livingstone College of Salisbury, North Carolina, and Bethune-Cookman College of Daytona Beach, Florida, each received $45,000. The grants to these five institutions were of a discretionary nature, that is, the institutions were advised that the funds might be used as each saw fit.

Fisk University of Nashville, Tennessee, received a grant of $50,000 which was earmarked for its Department of Chemistry and its general program in

the sciences. The remainder of the total, $150,000, went to Tuskegee Institute of Tuskegee, Alabama for the further development of its School of Engineering. The Foundation had joined the Richard K. Mellon Foundation in 1953 in financing the construction of the building which houses Tuskegee's engineering activities—a structure which was named for the late Dr. Robert R. Moton, who had been Tuskegee's President. The new grant is intended to assist in enlarging this engineering structure and in providing additional equipment.

It is estimated that, in 1963, the member colleges of the United Negro College Fund had an investment in physical plant of $88 million and possessed combined endowments of $89 million. As Dr. Frederick D. Patterson, President of the Fund, has suggested, these resources "loom large when compared to the amount of educational provisions otherwise available to Negro students in the states where they are located." Dr. Patterson adds that "if we do well the job of preserving and strengthening these institutions for their indispensable work of the present, we shall also insure their future as colleges available without hindrance to the nation's youth."

PRINCE EDWARD FREE SCHOOL ASSOCIATION

In order to avoid a possible court order to desegregate its schools, the school board of Prince Edward County, Virginia, closed that county's schools in 1959 and refused to appropriate funds. Instead the board offered the families of students tuition grants for use in private institutions. The effect of the board's action was to deny schooling to the Negro children of the community.

Early in 1963, a group of Virginians under the leadership of Virginia's former Governor, Colgate W. Darden, Jr., established the Prince Edward Free School Association and undertook to reopen the schools of the county with support from foundations and other private sources. At that time this Foundation made an outright contribution of $25,000 for this projected enterprise and offered another $25,000 provided it became evident that a substantial portion of the necessary funds were being contributed by Virginia sources and that the project was likely to achieve its goal of an operating budget of $1.25 million. The Foundation subsequently did make the additional gift.

The Association succeeded in opening the schools of the county late in 1963 with an enrollment of 1,500 Negro and four white children and operated the schools for about twelve months. It also succeeded in securing the temporary services of Dr. Neil V. Sullivan, then Superintendent of Schools in East Williston, New York, and since appointed Superintendent of the Berkeley, California school system. To open and successfully conduct the school system in Prince Edward County under the auspices of the Association, Dr. Sullivan had to recruit, within a period of ten days, about a hundred professional staff members and meet other very difficult problems of administration and operation. His efforts were attended with unusual success.

This private effort to provide schooling for the Negro children in the area came to an end after one year because, in May 1964, the United States Supreme Court declared that the closing of the schools in Prince Edward County was unconstitutional. The local board was required to open the public schools in September of that year and appropriate the necessary funds. However, temporarily at least, families of children in the county continue to receive tuition grants from public sources, and enrollment in the public schools is almost wholly restricted to Negro children.

AMERICAN COUNCIL ON EDUCATION

In 1963 the American Council on Education, under the leadership of Dr. Logan Wilson, who had become the Council's President in 1961, announced a new five-year program to assist in meeting critical current needs of higher education. The Council created five permanent national commissions of educators of which the one most immediately concerned with charting the future course of higher education is the Commission on Plans and Objectives for Higher Education. To assist this newly formed Commission, which had begun its work in January 1963 under the leadership of Dr. O. Meredith Wilson, President of the University of Minnesota, and to assist the Council with its general program, the Foundation, in July 1963, made a grant of $100,000 payable over a two-year period.

RADCLIFFE COLLEGE

With the assistance of grants from major foundations, Radcliffe College established in 1960 a special institute to assist "talented women to realize their

greatest intellectual and creative potential." In the three years following the establishment of the institute, which is known as the Radcliffe Institute for Independent Study, some 84 fellowships, most of them for half-time research or practice, had been awarded to women who had household and domestic responsibilities but who were trained to carry on some form of basic research or professional practice. The fellowships supported persons who held half-time hospital residencies, who were interested in further specialization in psychiatry, who wished to pursue basic research, or who were otherwise interested in redirecting and developing their professional interests. The fundamental purpose of the Radcliffe Institute is to expand the training of women competent in the sciences and the professions and thereby contribute toward the alleviation of the current national shortage of scientific and professional personnel.

In October 1964, the Foundation made a grant of $100,000 for the support of the Radcliffe Institute, the funds to be used during the subsequent three years to provide fellowships for full-time or part-time study by advanced students whose research interest is in the sciences, mathematics, or medicine.

AMERICAN COUNCIL FOR EMIGRES IN THE PROFESSIONS, INC.

Since June 1958 the Foundation has occasionally made grants to the American Council for Emigrés in the Professions, Inc. to assist that institution in its efforts to qualify refugee scholars and professional people to use their specialties in the United States and secure appropriate employment. The Council has been especially helpful in providing such services to émigré scientists, mathematicians, engineers, and other scholars, helping them qualify as members of American university faculties or finding a place for them on the staffs of business enterprises or research organizations.

In 1963 the Council outlined for the Foundation a special project for which it was seeking assistance. This is an effort to place its cultural orientation and re-training services, and its placement services, at the disposal of Cuban émigré intellectuals. The Foundation subsequently made a grant of $35,000, payable over a two-year period, the proceeds of which will defray about half of the anticipated cost of this particular enterprise.

The Director of the Council is Dr. Else Staudinger. Until his death, in December 1964, Dean Emeritus Harry J. Carman of Columbia served as the Council's President. The Council has offices at 1150 Avenue of the Americas, in New York.

OTHER GRANTS

Various special grants of a nonrecurring nature were made to a number of educational institutions during the biennium. Contributions over a two-year period totaling $17,715 went to the Northfield and Mount Hermon Schools to defray the cost of a summer institute on psychiatric counseling of students in independent secondary schools. This conference, held on the campus of the Northfield School at East Northfield, Massachusetts, was attended by representatives of about 25 such institutions.

Another professional agency which received funds was the American Association of Junior Colleges of Washington. The Foundation made grants of $14,500 to finance a survey of technical education at the junior college level which resulted in a 1964 publication of the Association entitled *Technical Education in the Junior College/New Programs for New Jobs*. This report, as its name indicates, comments on the changing and expanding demand for technically trained personnel and the role of the junior college and technical institutes in supplying the necessary training.

Other special grants went to organizations concerned with the improvement of curriculum or the creation of curriculum materials. A grant of $10,000 was made available to Educational Services, Inc. of Watertown, Massachusetts to permit appropriate staff members of that organization and specialists to survey the curriculum needs of social-studies and humanities programs in elementary schools. Grants totaling $18,500 also were made to Harvard University to assist in developing texts and other materials for courses in the physical sciences. One of these went to the Harvard Curriculum Development Project, directed by Professors Fletcher Watson and Gerald Holton, to assist efforts to create new materials for a secondary-school physics course. The proceeds of a second grant will assist Professor Edwin C. Kemble in financing the completion and publication of a volume on the physical sciences suitable for use as a college text.

Another grant of $10,000 was made to the Institute for College and University Administrators of Harvard's School of Business Administration to defray the cost of a study of the quality of the administrative direction and operation of American institutions of higher learning. The investigator is Dr. Joseph H. Willets, formerly Vice President of the Rockefeller Foundation.

Funds were also made available to two professional associations in the field of higher education. One, the Association of College Admissions Counselors of Evanston, Illinois received $10,000 to improve the Association's counseling services to students and college admissions officers, and to assist in decentralizing some of its information services. This organization has received support from the Foundation in the past for its clearinghouse for students seeking admission to college.

Additional grants totaling $22,446 were made to the Bank Street College of Education of New York to defray services rendered by the College to the Yorkville Cooperative School Project and to finance a science institute, conducted during the summer of 1963, for elementary and junior high-school teachers.

D. Business Administration and Economic Research

Alfred P. Sloan School of Management—Massachusetts Institute of Technology

On March 6, 1964, the School of Industrial Management at the Massachusetts Institute of Technology was renamed the Alfred P. Sloan School of Management. This tribute to Mr. Sloan, who is a member of the Class of 1895, at MIT, recognized the major role which Mr. Sloan had played in 1950, along with the then Chairman of MIT, the late Dr. Karl T. Compton, and the then President (now Chairman) of the Institute, Dr. James R. Killian, Jr., in establishing this fifth major unit of the Institute. In announcing the renaming of the School, the Corporation of the Institute took the occasion "to express its deep appreciation for the benefits which MIT has received through Mr. Sloan's creative ideas, wise counsel, and munificent benefactions" and expressed its conviction "that the School will gain distinction and luster from permanently bearing Mr. Sloan's name."

Following the announcement of the renaming of the School, Dr. Killian stated that the new Management and Social Science Research Center, which was begun in 1963 and is scheduled for completion in the autumn of 1965, was to be named the "Grover M. Hermann Building" in honor of the Chairman of the Martin-Marietta Corporation. Dean Howard W. Johnson, of the Sloan School, has announced that, besides seminar facilities and faculty and administrative offices, this new four-story building will house the Dewey library for management and the social sciences and provide space for the political science section of MIT's department of economics. Mr. Sloan made a personal gift of $1 million for the new building; the National Science Foundation provided another $1 million for research facilities; and Mr. Hermann gave $1.5 million toward the building's construction. The Institute's officials have indicated that another $500,000 was contributed anonymously for general support and maintenance of the new center.

Architect's model of Grover M. Hermann Building. This building will provide seminar and library facilities for the Alfred P. Sloan School of Management at MIT. Architects, Professor Eduardo F. Catalano of MIT, Robert C. Brannen and Paul S. Shimamoto.

During the biennium, the Foundation's grants in support of the newly renamed Sloan School continued at a level somewhat in excess of $500,000 per annum. This sum includes a contribution toward the general instructional program of the School and certain special programs as well. Among the latter is the Sloan Fellowship Executive Development Program upon which comment appears elsewhere in this *Report* (see page 81). In addition, in 1964, the Foundation made a special grant of $300,000, payable at the rate of $100,000 per annum, to strengthen the Sloan School's international management program. By means of fellowships, stipends for which will be financed by this special grant, the School plans to bring to Cambridge each year American and foreign specialists in management disciplines. The grant will also finance, temporarily, the appointment of certain new faculty members in disciplines relevant to international management. Still another portion of the grant will be used to supplement and strengthen existing international programs of the Sloan School, including the conduct or sponsorship of management seminars in other countries; to lend assistance in organizing new schools of management in such countries; to assist the School's graduates to serve temporarily in foreign posts, especially in the so-called developing countries; and to provide stipends for students from such countries who may come to MIT to advance their training.

In commenting on the Sloan School's doctoral program, which was added to the curriculum in 1960, Dean Johnson states, in his most recent report, that it has already "been given a strong place among the country's programs at the doctoral level in management." For the academic year 1964-1965, the School had more than 50 candidates for this recently inaugurated degree and even in June 1964, it had already awarded eight such degrees. Dean Johnson further reports that from 1952, when the first Master's degrees in industrial management were awarded under the jurisdiction of the Sloan School, until June 1963, 880 such degrees have been awarded. The level of graduate enrollment, excluding special programs which involve some 75 students, reached a total of 300 in 1963-1964, when undergraduate enrollment was 125.

On the occasion of the renaming of the School in honor of Mr. Sloan and the naming of the building which will house the new Management and Social Science Research Center for Mr. Hermann, Dean Johnson made the following observation concerning the cultural and economic value of institutions such as the Sloan School of Management:

"There are those who will doubt whether one can educate managers in a formal sense and who believe that other patterns of education will fill the pipelines for replacements. To them I say that no major leadership or professional group in industry has long survived without developing a planned process of educating its successors. In my opinion, corporate management is no different in this."

The quantitative and qualitative development of the Alfred P. Sloan School of Management at MIT, in the relatively few years which have passed since its establishment in 1950, suggests that both the academic and corporate worlds strongly endorse Dean Johnson's observations.

SLOAN FELLOWSHIP EXECUTIVE DEVELOPMENT PROGRAM

The Foundation has continued its support of what is perhaps the major special instructional program at the Sloan School of Management, namely, the Sloan Fellowship Program for Executive Development. Its origins antedate the School itself, going back to 1931, and the program is generally regarded, both in the United States and abroad, as the prototype of such programs in American universities.

The Fellowship Program enrolls "middle management" executives, with a new class going to the School each year in June for a 12-months' stay. Candidates for the program are nominated by the business concerns and other organizations by whom they are employed, and they are appointed to a fellowship by the Director of the Program at MIT and his staff. Selection, which emphasizes a careful and thoroughly documented process of nomination, interviews with applicants and their associates, and a special evaluation by a faculty committee, is, in the opinion of Dean Johnson of the Sloan School, largely responsible for the exceptional group of fellows who come to MIT each year.

The curriculum, in which the Master's degree is optional (although normally sought by all the fellows), is especially arranged for the group and is taught by leading members of the School and Institute faculties. During the past two years, a special committee has been active in evaluating the program and devising improvements. As a result of this activity, a new series of seminars has been added. One of the new seminars is concerned with the relationship

between industry and local and state governments. A new seminar in arts and related topics has also been provided. These curricular innovations reflect the constant effort of the School and the Director of the Fellowship Program to appraise and improve it.

About three-quarters of the cost of the program is borne by industry, that is, by the business concerns from the staff of which the Sloan Fellows are selected. Somewhat less than one-quarter of the cost is defrayed by the Foundation's grants. Proceeds of these grants help to defray overhead costs and provide for some of the special educational activities which distinguish this project.

One of several recent articles on the Sloan Fellowship Program which have appeared in national magazines begins with the statement that the program

Alfred P. Sloan, Jr. at the annual luncheon of the MIT Sloan Fellows at the Hotel Plaza in New York City, December 17, 1963. At Mr. Sloan's left, Philip Lang, Sloan Fellow and Director of Work Standards, General Motors Corporation, Saginaw, Michigan, and Peter Gil, Director of the Program at MIT. Photograph by Raymond K. Martin.

at MIT "has followed the belief that the businessman-turned-student learns as much from contact with top men in industry and government—'from exposure to excellence'—as he can from classroom work."* This contact with businessmen, public officials, and other community and national leaders, has indeed been a major feature of the program since its inception. Besides individual plant visitations in connection with the writing of a thesis or the conduct of an investigation, students in the program at Cambridge maintain contact with the outside world of business and public affairs by means of weekly seminars at MIT and by means of extensive "field trips" each year to New York, Washington, and other centers. In recent years, moreover, annual two-week plane trips have been made in May to Western European capitals and industrial centers for conferences with industrial, fiscal, and political leaders in countries such as Great Britain, Italy, France, and Germany.

Recently, in summarizing this program's accomplishments, Dean Johnson stated that from 1931, when the program began, until June 1964, a total of 550 Sloan Fellows have undertaken the training which the program affords. By far the larger part of this total have enrolled since the end of World War II. Classes in recent years have averaged about 45. The 46 fellows who completed training in 1964 came from 31 different organizations, four countries, and a wide spectrum of industry. The average age of the fellows in the past four years has been 36, the ages having ranged from 28 to 44 years. In a study of the alumni of this program made in 1962 by its Director, Dr. Peter P. Gil, it was noted that the roster included 27 presidents and/or directors of corporations, 51 vice presidents, 30 general managers, and nine directors of research. At that time, moreover, 95 per cent of the fellows were still employed by the corporation which originally sponsored them and supported their training at MIT.

*See "Executive Training by Meeting the Best," *Business Week*, April 6, 1963.

Grants for Support of Business Management

STANFORD-SLOAN FELLOWSHIP PROGRAM IN EXECUTIVE DEVELOPMENT— GRADUATE SCHOOL OF BUSINESS, STANFORD UNIVERSITY

FOR SOME YEARS, a program in executive development, similar to the one at the Sloan School at MIT, has been in operation at the Graduate School of Business at Stanford University. Originally directed by Professor Paul A. Holden, and now by Associate Dean Carlton A. Pederson, this program, known formally as the Stanford-Sloan Fellowship Program, annually enrolls some eighteen students. A specialized and rather intensive management curriculum leads to a certificate after nine months of concentrated study. Two-thirds of the fellows are nominated by various business concerns throughout the United States; the remaining one-third consists of doctoral candidates in Stanford's Graduate School of Business, the greater part of whom intend eventually to enter teaching and become members of business-school or allied faculties.

Between 1958 and 1963, a total of 92 Stanford-Sloan Fellows had completed this course, of whom 56 had matriculated from various corporations, the remaining 36 having been regularly enrolled doctoral-degree candidates in the Graduate School of Business. Extensive visitation of business headquarters and plants, plus field work, distinguish the curriculum of the program. An added feature is the plan of cooperative research. Teams of fellows at Stanford are assigned a special topic for investigation. Following appropriate library research, field interviews, and investigation of relevant corporate experience, each team prepares a report which usually is published by the School and distributed among those with a special interest in the subject.

The Foundation's supporting grant contributes substantially toward defraying the special costs of field work and administrative overhead. Other expenses are borne by industry and the Graduate School of Business. The cost ratio is about three to one, the Foundation contributing the lesser percentage. The Foundation's most recent grant for this project, made in 1963, and including second-year fellowships for doctoral fellows, totaled $408,000, payable over three years at the annual rate of $136,000.

NEW CENTER FOR GRADUATE SCHOOL OF BUSINESS AT STANFORD UNIVERSITY

In July 1964, the Foundation made a grant of $1 million to Stanford University for the construction of a four-story building to house the University's Graduate School of Business. Ground was broken a few months later. The new building will be located west of Stanford's Memorial Auditorium, across from the Thomas Welton Stanford Art Gallery. Estimated construction cost, includ-

Design for the new Graduate School of Business—Stanford University. Architect, Milton T. Pflenger. Photograph by Stanford University.

ing furnishings, is $5.3 million. A major component of the new building will be devoted to instruction and research in advanced management and will provide housing for the Stanford-Sloan Fellowship Program in Executive Development. The University has indicated it plans to call this component the "Alfred P. Sloan Hall for Management Education" in honor of Mr. Sloan's manifold contributions to the art.

AMOS TUCK SCHOOL OF BUSINESS ADMINISTRATION—DARTMOUTH COLLEGE

For some years the Amos Tuck School of Business Administration of Dartmouth College has been receiving support from the Foundation at the rate of $35,000 per annum. Under the leadership of Dean Karl A. Hill, the School has developed an outstanding faculty and has made significant progress in its institutional and research programs. As respects the latter, to which most of the Foundation's support has gone, Professor R. H. Guest, Chairman of the School's Research Committee, stated at the end of 1964 that research at Tuck has become an "integral part of the intellectual fabric of the School,...substantially enriched the quality of teaching," and resulted in "many publications that are used and respected by the business and academic communities."

Such progress has created new demands and provided new opportunities at the Amos Tuck School. Early in 1964 Dean Hill outlined some of the major goals of his institution in the period ahead. Besides appropriate and necessary enlargement of physical plant, these goals include expansion of the student body by somewhat more than 25 per cent; an increased research effort which will emphasize collaboration of a group or "team" of scholars; expansion of the faculty with immediate appointments in the international field and in subjects that stress quantitative aspects of production and accounting; further revisions of the Master's curriculum to reflect problems relating to science and technology, business-government relations, the behavioral sciences, and certain international areas; and various overseas programs.

To assist the Tuck School in realizing these ambitious goals during the years ahead, the Foundation, in July 1964, agreed to consolidate its existing obligations to the School, stemming from an earlier grant, and supply additional funds under a new grant. The resulting total, $355,000, will be made available to the Tuck School in a series of payments, the final one to be made in December 1966.

GRADUATE SCHOOL OF BUSINESS ADMINISTRATION—HARVARD UNIVERSITY

In July 1963, the Foundation made a special, two-year grant, totaling $100,000, to the Graduate School of Business Administration of Harvard University. The grant's proceeds will be used to provide stipends for doctoral candidates. In September 1964, the School reported that some 27 candidates for this degree had been assisted by the funds supplied by the Foundation and that the entire grant would provide for the needs of some 40 candidates.

In the presentation submitted by Dean George P. Baker, the Foundation's staff was impressed by the role of this program at Harvard in supplying able faculty members for business and related schools throughout the nation. Very few of the 193 recipients of the Business School's doctorate in the years between 1928 and 1962 had failed to identify themselves with a college or university faculty or, alternatively, as research specialists in some form of government service. Of the group of 27 who were granted the doctoral degree in 1963—the largest group in the history of the program—22 have taken faculty positions in some 16 colleges and universities in the United States and elsewhere.

The declining volume of "outside support" for this obvious "seedbed" of teachers of future businessmen, and of research specialists with a business orientation, was a major factor in influencing the Foundation to provide this limited financial assistance to the program at Harvard. So was the evidence that this decline was a purely temporary phenomenon which Harvard means to reverse.

GRADUATE SCHOOL OF BUSINESS—COLUMBIA UNIVERSITY

Earlier reports of the Foundation have identified modest contributions which it has made, from time to time, to assist the Graduate School of Business at Columbia University in financing its research program and providing salary supplements for certain members of its faculty. An additional grant for

these purposes, totaling $10,000, was made to the School during the biennium under review.

In August 1959, the Foundation also made a gift of $150,000, previously reported (see *Report for 1959-1960*, page 15), to assist the School in devising architectural and engineering plans for its new center on the Columbia campus. As this $8.5 million structure, known as Uris Hall, neared completion in 1964, the Foundation made an additional grant of $350,000, thus bringing its total outlay for the new center to $500,000. According to Dean Courtney C. Brown, of the School, portions of this second grant will be used to purchase and install teaching aids, such as a closed television system, and to make other necessary installations in the School's statistical and accounting laboratories. The balance will be used to develop the plaza and terrace which provide an appropriate setting for the building. Dean Brown has announced that this plaza will be named in honor of his friend and long-time business associate, Mr. Frank W. Abrams, who has been an outstanding supporter of the School for many years. Mr. Abrams is also a Trustee of the Sloan Foundation.

Economic Research

NATIONAL BUREAU OF ECONOMIC RESEARCH

PROMOTION OF ECONOMIC RESEARCH, like the support of business administration, was one of the original objectives of the Foundation; and, from time to time, throughout its history, it has made grants for this purpose to a limited number of institutions. One of them is the National Bureau of Economic Research. The Foundation's earlier grants to the National Bureau (see *Report of 1961-1962*, page 61) assisted in financing some of the Bureau's studies of productivity and related subjects.

During 1964, the Foundation made additional grants of some magnitude to the Bureau, including one of $180,000 in January, and a second, in October, of $500,000. The first of these grants will help the Bureau to revive, on a limited basis and for a three-year period, its so-called "Research Associates Program" which had recently lapsed for want of funds. This program, undertaken originally with the support of other foundations, brought to the National Bureau headquarters outstanding young economists holding rank as assistant or associate professor on college or university faculties. They were invited to secure a leave of absence for a year and spend it in research activity at the Bureau in New York. Since the middle 1930's, some fifty men and women have gone through this program. Today they are numbered among the nation's leading economists and the Foundation agreed that the program was very much worth reviving.

The second, and somewhat larger, grant is intended to staff and defray the costs of a five-year research project on the subject of "Prosperity, Employ-

ment, and Price Levels." Various concurrent approaches will be taken toward this broad problem. They will include a review to determine to what extent the statistical foundations for appropriate economic analysis are satisfactory to scholars and provide adequate guides to economic policy; an analysis of certain historical relations between prosperity and price trends in order to provide a basis for detecting current or emerging trends and for a critical examination of policies which may be offered for promoting prosperity without inflation; and a determination of some of the policy questions that may deserve study within the context of such a project. The broad aim of the research will be to determine whether a free society, such as the American and those of Western Europe, can continue to achieve significant increases in productivity and maintain reasonably full employment, but still avoid inflation.

The National Bureau of Economic Research, founded in 1920, is one of the nation's principal centers of empirically-oriented economic research. It collaborates with public agencies, universities, and other research institutions throughout the United States in its effort to improve economic knowledge and develop the research and teaching potential of university faculties. Professor Arthur F. Burns, head of the Department of Economics at Columbia University, is President of the Bureau; Professor Solomon Fabricant, of New York University, is Director of Research; and Dr. William J. Carson is the Bureau's Executive Director.

THE BROOKINGS INSTITUTION

A second major economic research institution to which the Foundation has made grants from time to time since the 1930's is the Brookings Institution of Washington, D. C. One activity of this organization, supported by the Foundation during 1963-1964, involved the revision and up-dating of an empirical study on corporate enterprise entitled *Big Enterprise in a Competitive System*, the first edition of which had been completed and published in 1954 by Dr. A. D. H. Kaplan, then senior economist of the Institution. The revision, in which Dr. Kaplan had the collaboration of Dr. Charles H. Berry, of the Brookings senior staff, was completed in 1964 and was published early in 1965. Many of the data upon which Dr. Kaplan and his associates had to rely in preparing the first edition of this study inevitably reflected the shift after 1945

from a wartime to a peacetime economy and also the dislocation arising from the outbreak of war in Korea. As respects some industries, therefore, a certain degree of distortion was inevitable and the revision has not only brought the investigation up to date, but has served to correct these variations from the norm. Funds for this task of revision and publication, supplied by the Foundation, totaled $55,000, half of which were paid in each of the two years.

In October 1963, the Foundation made an additional grant of $250,000 to the Brookings Institution. This will run for a five-year period, the final payment to be made in 1967. The aim of the program is to re-examine the changing pattern of competition in industry and analyze the forces which are influencing that pattern. According to a recent Brookings announcement, a series of studies are planned which will concentrate on "major industrial areas where technological growth and new product applications, as well as expanded international contact, have substantially altered the traditional framework of market analysis." Within this context, issues involving the organization, regulation, and conduct of business enterprises will be studied. The project will be one for which immediate responsibility will be assumed by the Institution's Program of Economic Studies, of which Dr. Joseph A. Pechman is Director. The research will be carried on by Dr. Charles H. Berry, of the Brookings senior staff.

THE TAX FOUNDATION, INC.

Grants totaling $20,000 were made to the Tax Foundation, Inc. of New York during 1963. These funds supplemented additional ones from other sources which financed a new study of taxation and tax policy conducted by the Tax Foundation's Committee on Federal Tax Policy, of which the Chairman was the late Roswell Magill, former Under Secretary of the Treasury. The Committee's aim was to supply information and stimulate discussion on the present tax structure and on future policy. During 1963, a 64-page booklet, entitled *Financing America's Future: Taxes, Economic Stability and Growth*, containing the results of the study, was published by the Committee. Professor C. Lowell Harriss of Columbia University served as the Committee's Director of Research, and Alfred Parker, Executive Secretary of the Tax Foundation, as the director of the project.

INSTITUTE OF ECONOMICS AND POLITICAL SCIENCE—RIKKYO UNIVERSITY

A grant of $10,000 was also made, in March 1964, to Rikkyo University, Tokyo, Japan, to assist that institution in organizing and financing the research program of its newly organized Institute of Economics and Political Science. Among other projects, the Institute plans a study of the factors responsible for the phenomenal growth rate of Japanese industry since World War II. A committee of distinguished American and European economists, which includes Dr. Arthur F. Burns of Columbia University and Professor Karl Brandt of Stanford University, will serve as an academic advisory board for the Institute.

E. Programs in Public Education

Science Information and Education

GRADUATE SCHOOL OF JOURNALISM–COLUMBIA UNIVERSITY

SUPPORT OF PUBLIC-INFORMATION PROGRAMS in certain fields was maintained and, in some instances, expanded by the Foundation during 1963-1964. Particular attention was devoted to efforts of organizations seeking to improve public understanding of science and technology. A beginning had been made by the Foundation in this direction in 1957 when it provided initial support at the Graduate School of Journalism at Columbia University for a number of fellowships for professional reporters, editors, and feature writers interested in pursuing a special science-writing curriculum. The nature of this fellowship program, and comments on its accomplishments, have been reviewed in earlier Foundation *Reports*, especially that for 1959-1960 (see page 107).

In 1963 the Foundation made an additional grant of $50,000 for this project. By supplementing the proceeds of this new grant with contributions from other sources, and with certain unexpended balances in previous grants of the Foundation, the Graduate School of Journalism expects to be able to maintain this program for several years.

COUNCIL FOR THE ADVANCEMENT OF SCIENCE WRITING, INC.

Another former grantee of the Foundation, interested in improving communication about science, namely, the Council for the Advancement of Science Writing, Inc. also received support in 1963. This took the form of a grant of $50,000 which, with an earlier grant of $60,000 made in 1960, brings the total Foundation support of this organization to $110,000. Like the earlier grant, the new one is for general support.

Besides administering certain special projects to advance the professional competence of its members, the Council serves as an information clearinghouse on science writing. By providing more adequate financing for this

organization, the Foundation hopes to assist in improving the quality and expanding the quantity of non-specialized science-writing in the United States.

SCIENTISTS' INSTITUTE FOR PUBLIC INFORMATION

Beginning about 1960 efforts of an essentially experimental nature were undertaken by various regional *ad hoc* committees of scientists to impart significant scientific information to the public. While the substance of the information covered many subjects, emphasis was placed upon the health hazards arising from nuclear testing and too frequent exposure to radiation. In the New York area this activity was directed by a group called the "Scientists' Committee for Radiation Information" of which the Chairman was Dr. Jules Hirsch of the Rockefeller Institute. Modest contributions in support of this activity were provided by the Foundation.

In October 1962, this and other groups of scientists, some twenty in number, who were promoting similar information programs elsewhere in the United States, formed the Scientists' Institute for Public Information with Professor Edward L. Tatum, a Nobel laureate, as Chairman. The newly formed organization will act as a clearinghouse for local groups, assist such groups in broadening and strengthening their information programs, and encourage the establishment of new regional groups. The Foundation supplied some $20,000 to the Institute during the biennium in a series of three grants and, at the end of 1964, was giving serious consideration to a much larger commitment to assist in financing the new Institute's program for the next three years.

UNIVERSITY OF CALIFORNIA–LAWRENCE HALL OF SCIENCE

Under the leadership of its renowned physicist, Professor Harvey White, the University of California at Berkeley established, in temporary quarters in 1962, a center on its campus for developing and testing new learning devices in science. Through conferences and seminars for high school teachers, many of whom will be given fellowships to permit attendance, it is intended that this center shall become a source of new teaching and learning techniques in science, especially for the secondary schools, and a place where such devices and techniques can be tested. The center is designed as an all-University activity and has the active support of the University's science faculties.

In 1963 plans were advanced for a new building to house the center, and the Foundation contributed $50,000 toward the cost of constructing and equipping this building. The proposed new structure, to be known as the Lawrence Hall of Science and, indeed, the entire enterprise, will serve as a living national memorial to the late Professor Ernest O. Lawrence, Nobel laureate and inventor of the cyclotron.

NATIONAL ACADEMY OF SCIENCES–
COMMITTEE ON SCIENCE AND PUBLIC POLICY

Still a fourth grant in this broad field is one of $50,000 given to the National Science Foundation in 1963 for its Committee on Science and Public Policy of which Professor George B. Kistiakowsky of Harvard University is Chairman. From its beginnings, a century ago, the National Academy has provided scientific information and advice to the Congress as well as to the executive branch of the Government. Part of the Foundation's grant will be devoted to developing a mechanism for improving and making more continuous the Academy's advisory activity within the Government. The remainder will be used for the preparation of a report which will consider some issue in the general area of science and education of immediate concern to the general public. One of several suggested subjects for such a report, all of which are on the committee's future agenda, would be the Federal Government's growing involvement in higher education, particularly in scientific and technical fields. The National Academy is a private body of scientists interested in promoting research and developing public policy in the fields of science and technology.

Related grants to the National Academy include one of $10,000 to support special services rendered by the Academy to the Special Assistant to the President for Science and Technology and to the President's Science Advisory Committee. Another is a grant of $10,000, made in May 1963, to assist in financing the Thirteenth General Assembly of the International Union of Geodesy and Geophysics held in August 1963 on the campus of the University of California at Berkeley. Still a third grant, of $10,000, made in March 1964, will provide partial support for meetings of the Seventh Congress of the International Association of Quaternary Research, to be held in Boulder and Denver, Colorado, in August 1965.

OTHER GRANTS

Three additional grants of limited magnitude were made in the field of science communication during 1964. They include a grant of $8,000 to the Educational Foundation for Nuclear Science, Inc., of Chicago, for the support of the *Bulletin of the Atomic Scientists;* a grant of $4,550 to the Rockefeller Institute of New York for the preparation of certain papers in biochemistry for the proceedings of the Sixth International Congress of Biochemistry; and a grant of $10,000 to the Columbia University Press to enable its Center for Mass Communication to finance a story-treatment by John Hubley for a film on the life and work of Galileo Galilei.

Economic Information and Education

EXPERIMENTAL FILM PROGRAM IN ECONOMIC EDUCATION

THROUGHOUT ITS EXISTENCE, the Foundation has invested funds from time to time for the creation of educational motion pictures. Several of the films thus produced have dealt with medical subjects, particularly in the field of cancer research; others have developed certain scientific themes in chemistry and biology. Its major interest, however, has always been in the field of economics.

In that field, the Foundation's most recent effort is a film entitled "Productivity: Key to America's Economic Growth" which is based on the studies of the National Bureau of Economic Research on increases in industrial productivity in the United States. Although the National Bureau was itself not involved in the production of the Foundation's film and assumes no responsibility for it, the Foundation's writers had access to the published research of the Bureau and benefited from the advice of Professor Arthur F. Burns, President of the National Bureau of Economic Research, and Professor Solomon Fabricant, the Bureau's Director of Research. These two scholars served as informal consultants in developing the film's treatment.

The Foundation also secured the services, as official consultant, of Professor John W. Kendrick, of the University of Connecticut, author of the Bureau's study entitled *Productivity Trends in the United States*. Professor Kendrick assisted directly in the writing of the treatment or film script and subsequently produced a "Teachers Study Guide." This reviews the research background of the film, outlines its content, provides appropriate background

and bibliography and, generally, seeks to increase the film's usefulness to teacher and student.

The film itself was produced by Sutherland Educational Films of Los Angeles, producer of other pictures which the Foundation has supported financially. The film, which is photographed in color and which consists partly of animation and partly of live-action sequences, has a running time of about 28 minutes. Prints have been made available for testing purposes to educational organizations and are available on a lease or rental basis to schools and colleges and to industrial organizations and educational television outlets. Responsibility for distribution presently rests with the producer. In the production of the film the Foundation has assumed direct developmental responsibility and has not followed its usual practice of making a grant to a non-profit educational or comparable agency. This exception to general policy is based on the assumption that the film project is still entirely experimental.

The Foundation has been much impressed by the opinions of its counselors, both professional economists and school men, that this experimental film is an acceptable and valuable addition to instructional materials in economics and that it might be one of a series dealing with the American and the world economies. Such a series, it is felt, would presently fill a real need in the curriculum of secondary schools and junior colleges. If properly structured, and prepared under expert professional and educational guidance, such films, it is suggested, could help to update the content and concepts of high-school economics and social-studies courses and provide a useful visual supplement for traditional instructional materials in that subject.

The President of the Foundation, Mr. Everett Case, developed this point at some length at an annual meeting of the National Association of Secondary-School Principals at Miami Beach, Florida in February 1965 where the Foundation's film on productivity was screened and reviewed. "Like the great majority of my colleagues and fellow trustees of the Foundation," said Mr. Case, "I simply share the increasing concern of businessmen and educators in taking effective action to put an end to an economic illiteracy which seems to us as stupid, destructive and unfair as it is unnecessary. Our economic system, dynamic and still developing as it is, remains part of our American heritage, and for both reasons we can no longer afford to leave economic understanding to the processes of intuition and osmosis."

Such convictions as these, reinforced by the endorsement which the Foundation's initial film has received from all constituencies for which it was created and to which it has been exhibited, has led the Foundation to take two additional steps toward the development of a larger program. In the first place, it has outlined, in a general way, major topics that might be included in a possible series of films to supplement instructional materials in a secondary-school semester course in economics. Secondly, it has contracted for the production of two additional film treatments. The first of these will deal with the nation's money, credit and banking structure; the second will deal with the structure and operation of contemporary industrial enterprise. In developing these film scripts or treatments, the Foundation has been assured of the continuing support and counsel of some of the nation's leading economists and educators.

NEW YORK UNIVERSITY–INSTITUTE OF ECONOMIC AFFAIRS

During the biennium, the Foundation made grants totaling $245,000 to the Institute of Economic Affairs of New York University in support of its educational publications in economics. Of the total, $80,000 was considered a termination grant, the Foundation having decided to bring to an end its support of a project to which it had contributed for more than a decade.

Among the Institute's publications, the best known is *Challenge*, a periodical issued ten times per year. It provides articles of a topical nature on matters relating to the American and world economies. In recent years it has enjoyed an annual distribution of 20,000 copies among high-school and college teachers, college students, public officials, staff specialists in government and private research organizations, and with the general public.

According to a recent announcement, *Challenge* will be continued, at least temporarily, under the auspices of New York University's Graduate School of Business Administration. The issues published since this change indicate that the magazine's format will be modified slightly but that it will continue essentially the same features and provide topical treatment of economic issues and problems by leading economists. Mr. Haig Babian is the editor of *Challenge*.

THE CONSERVATION FOUNDATION
THE POPULATION REFERENCE BUREAU

Indirectly, if not directly, related to the field of economic education are two other activities for which the Foundation provided support. One is concerned with conservation education and the other with the impact of population growth on resources and economic well-being.

The first of these is The Conservation Foundation to which a two-year grant totaling $30,000 was made in July 1964. The grant will provide partial support of the educational program of The Conservation Foundation's Pinchot Institute for Conservation Studies, situated on the former estate, at Milford, Pennsylvania, of the late Gifford Pinchot, internationally known conservationist. Recently the Pinchot family deeded the estate to the Federal Government which will maintain it and the buildings. The Government, in turn, has transferred the administration and use of the estate, and particularly of the buildings, to The Conservation Foundation which will maintain certain special facilities, such as the library, and use the facilities for appropriate educational and research projects.

The Population Reference Bureau, the other recipient of Foundation support, received a total of $20,000. The Bureau serves as a national reference center on demographic and related economic statistics, and conducts educational campaigns, both in the United States and elsewhere, on the need to counter uncontrolled population increase in the interests of maintaining an optimum balance between population and resources. Publications of the Bureau are used by schools and colleges, the press, and other informational and educational agencies. The Bureau's headquarters are in Washington, D. C.

OTHER PROJECTS IN ECONOMIC EDUCATION

Other projects in the field of economic education, supported by the Foundation during 1963-1964, include The Foundation for Economic Education, Inc. and the Joint Council on Economic Education. The latter body, which received some $25,000, is one of the principal national agencies seeking to

improve economic teaching, especially at the secondary-school level. It creates some educational materials itself, evaluates such materials produced by other agencies, supports local regional councils interested in economic education, and conducts workshops and conferences for teachers in economics and professional economists. Its headquarters are in New York.

Grants to The Foundation for Economic Education, Inc. of Irvington, New York, which totaled $15,000, are applied toward the cost of that organization's "college-business exchange project." This program, which has been in operation for a number of years, provides opportunities for college teachers of economics and related subjects to have a kind of "summer-internship" with business concerns, banks, and similar institutions, and thus to observe at first-hand some of the more practical aspects of business management.

Other Informational and Educational Grants and Awards

NATIONAL CIVIL SERVICE LEAGUE

For some years the Foundation has been contributing to the support of a special program of the National Civil Service League, the purpose of which is to honor outstanding service by career civil servants of the United States Government. The program has been described by the League as an effort, by a private agency, to "strengthen the public service by bringing national recognition to significant careers in the Federal service." This Foundation support has been continued, grants having been made in 1963, and again in 1964, to enable the League to maintain this program.

Nominations of career civil-service employees are made to the League by the heads of appropriate Federal agencies. Criteria of selection are character, professional accomplishments, and the quality of service rendered to the Government. Those selected each year, usually ten in number, are honored at a testimonial dinner in Washington and are given an appropriate citation. With the passage of time, this annual function of the League has taken on the status of a major event among career officials in Washington—an activity of considerable value as a morale builder in the civil service and as a means of providing public recognition of individuals who have dedicated their lives and talents to the welfare of a constituency which is not always too appreciative a constituency, namely, the people.

In the Spring of 1964, the citations read at this program's annual awards dinner honored ten of the top Federal administrators. Among others, these included John O. Crow, Deputy Commissioner of Indian Affairs; William

J. Driver, Deputy Administrator of the Veterans Administration; U. Alexis Johnson, Deputy Undersecretary of State; Robert V. Murray, Chief of Police of the Metropolitan (Washington) Police; Dr. F. Joachim Weyl, Deputy Chief and Chief Scientist of the Office of Naval Research; B. Frank White, Regional Commissioner of the Internal Revenue Service; and Philip A. Loomis, General Counsel of the Securities and Exchange Commission. All of these, and others thus honored, are long-time, devoted servants of the public.

In addition to supporting this special program, for which grants have normally been made at the rate of $10,000 per annum, the Foundation, in March 1964, made a grant of $75,000 in support of the general activities of the League. The proceeds of this larger grant are to be expended during a three-year period. The League's activities embrace three broad areas. These are: (1) evaluation of contemporary personnel requirements for the more efficient

Recipients of the National Civil Service League's Career Service Award for 1964, taken at the White House with President Lyndon B. Johnson. Seated at the President's right are: Bernard L. Gladieux, Chairman of the Board, National Civil Service League; Rocco C. Siciliano, Vice Chairman; Jean J. Couturier, Executive Director; and B. Frank White, one of the recipients. Photograph by Cecil W. Stoughton.

management of public enterprise; (2) information programs which will assist government recruiting agencies to secure and retain qualified people for government service; (3) advisory services to government on personnel and recruitment policy. The League also maintains educational and information programs for the general public. Its offices are located at 315 Fifth Avenue, New York.

AUTOMOTIVE SAFETY FOUNDATION–NATIONAL SAFETY COUNCIL

A second awards program, for which the Foundation has provided support, is the Alfred P. Sloan Radio-TV Awards for Highway Safety—a program administered by the Automotive Safety Foundation of Washington in collaboration with the National Safety Council of Chicago. Since its establishment some seventeen years ago, this program has received Foundation support at an annual level of $18,500. Awards in the form of bronze plaques and citations, the former designed by the late Anthony de Francisci, sculptor of international repute, are presented each year to representatives of the broadcasting industry and advertisers for public-service programs concerned with highway safety. A panel of experts determine what programs merit such recognition.

The awards are presented for appropriate commercial or sustaining programs in each of the following categories: (1) national radio networks; (2) television networks; (3) radio stations with a power of 1,000 watts or less; (4) all other radio stations; (5) regional radio networks and group-owned stations; and (6) individual television stations. In these categories during 1963-1964 some 27 awards were made. In addition, during this two-year period, awards were given to the following nonprofit educational stations:

WSBF-FM, Clemson, South Carolina
KDPS-TV, Des Moines, Iowa
WMBI-FM, Chicago, Illinois
WYES-TV, New Orleans, Louisiana

Beginning in 1961 special citations and grants, averaging $1,000, were made to writers and producers of programs devoted to highway and pedestrian safety. In the last two years such special citations and grants were given to Carroll James for the production of his "Stupid Driver Awards"; to Edwin L. Beachler and Brian Scruby for their documentary, "The Drinking Driver";

to Gene McPherson for writing and producing the documentary, "The Last Prom"; and to John Roberts for writing "Parkway of Death," and producing "Assignment Pittsburgh."

Although the ratio of fatalities per 100 million miles traveled on the highways declined steadily for a number of years, that ratio in the last two years has shown an increase and the absolute total of highway fatalities has been climbing at an alarming rate. This program is intended to assist officials and educators in their efforts to remind the public of the need for taking thought.

NATIONAL HIGHWAY USERS CONFERENCE, INC.

Grants totaling $20,000, the purpose of which is related to the Foundation's support of highway safety programs, were made during the biennium to the National Highway Users Conference, Inc. These funds will permit this agency to plan for maximum mobility on the nation's highways in the event of a national emergency, and to train specialists for such planning and use of the highways. In rendering these services, the Conference collaborates with the Bureau of Public Roads and other Federal agencies and with state and local governments which have responsibility for planning emergency highway traffic regulations and administering such regulations if events should require their use.

The National Highway Users Conference, Inc., with headquarters in Washington, is a private agency supported chiefly by industry and foundations.

THE FOUNDATION LIBRARY CENTER

In August 1963 the Foundation made a grant of $200,000, payable over a three-year period, to the Foundation Library Center for general support and to permit the expansion of its library and reference services. The Center, which receives support from various foundations, was organized several years ago to provide the public with a general reference service about foundations and to encourage and help maintain sound reportorial standards for foundations. To advance these aims, it publishes *The Foundation Directory*, probably the most comprehensive reference volume on foundations in existence, a bimonthly bulletin entitled *Foundation News*, and other reports and studies.

The Center maintains its office and principal reference library in New York and supports depositories in some seven locations throughout the United States. Late in 1963, it established a branch library and reference service in Washington, D. C. which is under the direction of Mr. J. Richard Taft. The President of The Foundation Library Center is Dr. F. Emerson Andrews.

AMERICAN ACADEMY OF ARTS AND SCIENCES

Another grant of $50,000 to expand information about foundations and advance public understanding of the role of foundations in American society was made in 1964 to the American Academy of Arts and Sciences of Boston. The Academy has a long-standing interest in the general subject of foundations and has organized a committee of its membership to administer possible

Alfred P. Sloan, Jr., Chairman of the Foundation, presenting one of fourteen Highway Safety Award plaques in 1963 to Dr. George M. Wheatley, Medical Director, Metropolitan Life Insurance Co. To the right of Mr. Wheatley is Mr. J. O. Mattson, President of the Automotive Safety Foundation. Photograph by Raymond K. Martin.

research projects in this field. One such project, for which the Foundation's grant will be used, is an investigation of the role of private philanthropic foundations in contemporary society to be conducted by Dr. Warren Weaver, a member of the Academy. Dr. Weaver is a former Vice President for the Natural and Medical Sciences of The Rockefeller Foundation and recently retired as Vice President of the Sloan Foundation.

TOOLS FOR FREEDOM

Plans to assist vocational and technical schools in some of the developing nations, initiated by an organization known as Tools for Freedom, received the support of the Foundation in 1963 in the amount of $25,000. With the assistance of educators and leaders of industry, and of American business corporations, this recently organized agency advises and assists individual business enterprises, trade associations, and other American organizations in carrying on programs to provide equipment and tools for overseas technical and vocational schools. Tools for Freedom encourages industry to donate needed equipment, selects appropriate recipient institutions in underdeveloped areas, and identifies their specific equipment needs. Usually the tools and equipment donated, though quite new and in good repair, are "competitively obsolete" in the American economy. Tools for Freedom also assists in shipping such equipment abroad although shipping charges are usually defrayed by other agencies, including the United States Government.

AMERICAN ARBITRATION ASSOCIATION, INC.

Funds totaling $10,000 were granted the American Arbitration Association, Inc. during 1964 to permit it to expand the services to labor and management of its new labor relations institute. The prime purpose of the institute is to identify some of the new or emerging issues and problems in labor-management relations with which the process of collective bargaining will have to cope in the years ahead; to determine where conventional techniques of bargaining may prove to be inadequate; and to explore new techniques of bargaining which may expedite solution of these issues and problems. The Association maintains offices in New York.

THE ROBERT R. MOTON MEMORIAL FOUNDATION, INC.

Some years ago the former home at Capahosic, Virginia, of the late Robert R. Moton, once President of Tuskegee Institute came into the possession of a group of philanthropists and educators who transformed it into an educational conference center. The non-profit foundation bearing Dr. Moton's name administers this center. During the last few years the center has provided an appropriate meeting place for many groups concerned with the improvement of race relations and especially with the expansion of the educational and cultural opportunities for the Negro in American society. The Foundation has made grants totaling $15,000 in support of the center.

Staff Grants

THROUGHOUT ITS EXISTENCE, the Foundation has made occasional grants to established philanthropic projects within the Greater New York area and to national philanthropic organizations with branches in New York. It has pursued this policy even though its funds are primarily intended to promote research and education on a national scale, to stimulate the search for "new knowledge," and to pioneer projects of potential usefulness to society in general. It has assumed this limited obligation to contribute to ongoing welfare activities within the community of which it is a part because it believes that, like other organizations, philanthropic and industrial, it shares the responsibility of all good citizens to the community. During 1963-1964, contributions of this type, authorized by the staff of the Foundation, have been made to the following organizations:

The American Assembly, Columbia University, New York, N.Y.	$10,000
The American National Red Cross, Washington, D.C.	$20,000
Community Council of Greater New York, New York, N.Y.	$ 5,000
Council on Foreign Relations, Inc., New York, N.Y.	$10,000
The English-Speaking Union of the United States, New York, N.Y.	$ 5,000
Foreign Policy Association, New York, N.Y.	$ 5,000

Greater New York Councils, Boy Scouts of America, New York, N.Y.	$ 5,000
Herald Tribune Fresh Air Fund, New York, N.Y.	$ 5,000
International House, New York, N.Y.	$ 4,500
The Legal Aid Society, New York, N.Y.	$10,000
National Information Bureau, New York, N.Y.	$ 2,000
National Recreation Association, New York, N.Y.	$ 5,000
Natural Science for Youth Foundation, Inc., New York, N.Y.	$ 2,500
New York Association of Senior Centers, Inc., New York, N.Y.	$ 5,000
New York Botanical Garden, Bronx, N.Y.	$10,000
The New York Public Library, New York, N.Y.	$10,000
Staten Island Mental Health Society, Staten Island, N.Y.	$ 5,000
USO of New York City, Inc., New York, N.Y.	$ 7,500
Vocational Advisory Service, New York, N.Y.	$ 3,000

Elsewhere in this *Report*, fairly detailed descriptions have been given of the major grants made by the Foundation during the biennium under review. Grants which have not been thus listed or described on the preceding pages are listed below together with a brief statement of their purpose and the amounts contributed to the respective donees. Normally these grants have been authorized under discretionary powers confided to the staff of the Foundation.

Akron, The University of, Akron, Ohio: To finance a study of economic and political conditions in Outer Mongolia during 1963, conducted by the University's President, Dr. Norman P. Auburn . $ 7,500

American Association of University Women Educational Foundation, Washington, D.C.: To support the preparation and maintenance of a roster of women holding advanced degrees . . . . . $ 9,000

American Cancer Society, New York, N.Y.: To assist the American Cancer Society in its support of the professional and related activities of the International Union Against Cancer . . $10,000

American Craftsmen's Council, New York, N.Y.: To defray the cost of revising and distributing a publication of the Council entitled *Crafts for the Aging* $10,000

American Law Institute, Philadelphia, Pa.: To defray in part the cost of the Second National Conference on the Continuing Education of the Bar, held at Arden House, Harriman, N.Y., December 14-17, 1963 . . . . . $10,000

American Society for the Prevention of Cruelty to Animals, The, New York, N.Y.: To finance in part the care, handling, and promotion of the health of laboratory animals, and for the training of laboratory attendants to handle such animals $10,000

Brooklyn College, Brooklyn, N.Y.: To enable a member of the faculty of the college to complete his manuscript on certain tension-area studies . . . . . $ 3,000

Case Institute of Technology, Cleveland, Ohio: To support an International Conference on Operational Research and the Social Sciences (funds to be spent on behalf of the Operational Research Society, Ltd. of London, England); also for the support of the Institute's faculty-student conference on engineering education held during the summer of 1963 . . . . . $15,000

Columbia University, New York, N.Y.: To supplement other contributions to defray the cost of a special seminar conducted by the Columbia University Faculty of Law at the University of Leyden, Holland . . . . . $ 2,950

Commission on Engineering Education, Washington, D.C.: For the distribution to prospective students of engineering of a volume entitled *Listen to Leaders in Engineering,* published by Tupper and Love, Inc. and David McKay Co., Inc. $10,000

Federation of American Societies for Experimental Biology, The, Washington, D.C.: To support in part the Sixth International Congress of Biochemistry held in New York, July 26-August 1, 1964 . . . . . $ 5,000

Florida, University of, Gainesville, Fla.: To assist the University's Department of Mathematics to finance the visits to Gainesville of mathematicians from outside the United States . . . . $ 1,300

Harvard University, The President and Fellows of, Cambridge, Mass.: For the support of the research activities of Professor George B. Kistiakowsky $10,000

Hofstra University, Hempstead, Long Island, N.Y.: For general support $10,000

Independent College Funds of America, Inc., New York, N.Y.: For the support of the general program of the donee $10,000

Michigan, The Regents of The University of, Ann Arbor, Mich.: To support stipends for fellowships for five secondary-school teachers at the University . . . . . $ 6,000

National Assembly on Teaching the Principles of the Bill of Rights, The, Washington, D.C.: To improve and extend teaching about the principles of the Bill of Right of the United States Constitution . . . . . $ 8,000

National Citizens Committee for the World Health Organization, Inc., New York, N.Y.: To defray part of the cost of the Third National Conference on World Health held in Washington, D.C., September 25-27, 1963; and to support the activities of the grantee during the year 1964 . . . . . $ 3,500

National Planning Association, Washington, D.C.: To support certain programs of the Association's Center for Priority Analysis $10,000

Notre Dame, University of, Notre Dame, Ind.: To support the research of Dr. F. O. Rice into the nature, formation, and reactions of free radicals in outer space . . . . . $ 5,000

Operations Research Society of America, Baltimore, Md.: To defray part of the cost of the Third International Symposium on the Theory of Road Traffic Flow to be held in New York in June 1965 $ 6,000

Pan American Development Foundation, Inc., Washington, D.C.: To assist the grantee in its efforts to encourage private philanthropy in Latin America . . . . . $ 5,000

Phelps-Stokes Fund, New York, N.Y.: To convene a conference of college executives and consultants at Holly Knoll, Capahosic, Va., to consider and develop further a project for cooperative development officers among groups of colleges and to consider a proposal for a college scholarship program for member colleges of the United Negro College Fund . . . . . $ 4,000

Polytechnic Institute of Brooklyn, Brooklyn, N.Y.: To provide fellowship assistance to a special student in engineering . . . . $ 5,200

Purdue University, Lafayette, Ind.: To support a two-week seminar (6th July to 18th July 1964) on economic education for teachers from the New York City school system . . . . . $ 4,726

Rip Van Winkle Foundation, Hudson, N.Y.: To support one of several experimental fellowships at the Rip Van Winkle Clinic . $ 5,000

Syracuse University, Syracuse, N.Y.: To finance a series of case studies on presidential leadership $10,000

United States Committee of the Dag Hammarskjold Foundation, New York, N.Y.: In support of the work of the grantee organization $10,000

Volunteers for International Technical Assistance, Inc. (VITA), Schenectady, N.Y.: For general support $10,000

Westminster College, Fulton, Mo.: For the creation of the Winston Churchill Memorial at Westminster College $10,000

World University Service, New York, N.Y.: For the support of the activities of the African Student Service of Cambridge, Mass., an adjunct organization of the World University Service . . . . $ 5,000

Xavier University, Cincinnati, Ohio: To enable Professor Boris Podolsky to devote the summer of 1964 to research on certain problems of physics . . . . . $ 4,000

The new United Engineering Trustees Center at 345 East 47th Street, New York. The Foundation made two grants, totaling $(150,000), towards the construction of this $10 million building. *(See page 41.)* Photograph courtesy of United Engineering Trustees, Inc.

F. Internal Administration and Finance

General History and Policies of the Foundation

The Alfred P. Sloan Foundation was established as a non-profit corporation under the laws of the State of Delaware on August 2, 1934. Hence the publication of this *Report* marks the 30th year of the Foundation's existence. Originally incorporated as the "Sloan Foundation," its name was later changed to "Alfred P. Sloan Foundation, Inc." A further amendment of its certificate of incorporation in 1958 established "Alfred P. Sloan Foundation" as the legal name.

The certificate of incorporation clearly imposes certain restrictions upon the activities of the Foundation. Operations are confined to those of a religious, charitable, scientific, literary, or educational nature; individuals having a personal interest in the affairs of the Foundation are forbidden to receive any benefit from its operations; and no activities designed to influence legislation are permitted.

Subject to these appropriate restrictions, considerable discretion is allowed in applying the Foundation's resources to charitable, educational, and related purposes. Grants, as well as other expenditures, may be made either from current income or from the capital funds of the Foundation. The Foundation may enter into contracts, employ staff personnel, establish offices and, in general, carry on all activities necessary or desirable properly to conduct its affairs.

On January 1, 1938, the Foundation's Trustees announced their intention to devote its resources primarily to the fields of American economic education

and research, and industrial management. Adherence to this limited policy continued until 1945 when a grant of major proportions was made for research in cancer. As indicated on the preceding pages, other fields have now been added. These include basic scientific research, engineering, and certain limited fields in medical research, including ophthalmology and otology. The expanded activities of the Foundation also embrace support of a fairly extensive undergraduate scholarship program in American colleges and universities.

With minor exceptions the Foundation acts as a grant-making agency. Occasionally it may finance certain surveys and special investigations for its own information; but as a rule it conducts no educational work on its own account; nor does it engage directly in research. Its grants are made to assist specific projects carried on by accredited educational and charitable institutions, the great majority of which are located within the United States; or to support scholarships and fellowships in specific educational institutions.

Commitments for projects are often made for a single year. They may, however, be made for a period of three years; and, in certain cases, for an even longer period. At the end of each year, or at the end of the period for which the Foundation's commitment is to run, an accounting is made—by the grantee, the Foundation, or both—and unused funds are returned to the Foundation. Requests for renewal are considered far enough in advance of the expiration date of an existing commitment to assure uninterrupted progress of activities if a renewal should be voted; or to permit of orderly liquidation if the Foundation's Trustees should decide not to renew.

The Foundation believes that one of its functions is that of assuming the risks of new enterprises which, because of their experimental character, would prove to be an unwarranted burden upon the regular administrative budgets of the sponsoring institutions. Hence, at the outset, the initial expenses of an acceptable project are absorbed and the necessary equipment may be furnished. Although the Foundation makes no promise, implied or otherwise, to assume a financial obligation for a longer period of time than is specified in its original commitment, the Trustees occasionally do vote to renew existing projects. This is done only after a careful examination of the project by appropriate Foundation staff members and consultants and after a recommendation to the Trustees that continuation of support for an additional period is clearly desirable.

RECOMMENDED PROCEDURE IN APPLYING FOR A GRANT-IN-AID

The Foundation welcomes constructive criticism and suggestions. Qualified institutions seeking grants within the fields of the Foundation's concern should feel free to submit to the Foundation proposals which fall within the scope of the Foundation's fields of activity and fit in with its various programs. Conscientious attention and careful thought are given to all such communications.

In the case of educational and research projects, the procedure of applying for assistance is normally informal. Except in special cases, the Foundation supplies no application forms. Specific projects which are to be submitted for consideration should first be definitely formulated in a brief memorandum and sent to the Foundation. The objectives of the project should be clearly stated, the proposed procedures outlined, and an estimate given of the probable expense involved. Action is greatly facilitated by settling as much as possible by correspondence. Conferences and field investigations, demanding, as they do, a considerable amount of time and expense, properly come last in the course of negotiations and, in any case, will not be undertaken unless it has first been established that the proposed project falls within an area of major concern to the Foundation, or is significantly related thereto.

Financial Review

DURING THE TWO-YEAR PERIOD ended December 31, 1964 the net worth of the combined Funds of the Foundation, based on market values, increased from $204,116,358 to $276,014,120 despite the fact that during the same period total grants and expenses exceeded income by $9,785,361. The enhancement of $71,897,762 in net worth may be accounted for as follows:

Increases:		
Unrealized appreciation in investment values		$ 81,294,208
Proceeds from sale of personal property received as a bequest		474,000
Total		$ 81,768,208
Decreases:		
Net loss on disposal of investments	$ 85,085	
Expenses in excess of income	9,785,361	9,870,446
Net increase		$ 71,897,762

The financial condition of the Foundation at the end of the years 1964 and 1963 is shown in a balance sheet on page 125 of this *Report*. At December 31, 1964 the distribution, among the individual Funds, of the combined net worth was as follows:

General Fund	$263,938,060
General Motors Dealers Appreciation Fund	11,960,915
Alfred P. Sloan Cancer Research Awards Fund	115,145
Total	$276,014,120

The General Fund, as the name implies, is the repository of all the contributions received from Mr. and Mrs. Sloan, except for gifts specified as being for a particular purpose, together with accumulations accruing to the General Fund assets subsequent to their receipt. All grants and expenses, except those designated for payment from the General Motors Dealers Appreciation Fund or the Sloan Cancer Awards Fund, are charged against the General Fund.

The origin of the General Motors Dealers Appreciation Fund is explained in the *Report for 1947-1948* and that of the Alfred P. Sloan Cancer Research Awards Fund in the *Report for 1961-1962*.

The operations of the Foundation and the status of the various Funds for the individual years 1964 and 1963 are shown in detail in the Statement of Income and Funds Adjusted to Market Quotation Values on pages 126 and 127 of this *Report*. The following summaries combine the operations and other changes for the two years:

	TOTAL	GENERAL FUND	GENERAL MOTORS DEALERS APPRECIATION FUND	SLOAN CANCER AWARDS FUND
Operating Account:				
Income:				
Dividends and interest	$ 20,177,958	$ 19,353,464	$807,479	$ 17,015
Grant refunds	$24,468	324,468		
Trusts	106,164	106,164		
Total	$ 20,608,590	$ 19,784,096	$807,479	$ 17,015
Expense:				
Grants authorized	$ 28,830,779	$ 27,998,779	$832,000	
Sloan Cancer Awards	183,589			$ 183,589
Administration	1,229,232	1,229,232		
Experimental projects	150,350	150,350		
Total	$ 30,393,950	$ 29,378,361	$832,000	$ 183,589
Income (deficit) for two-year period ended December 31, 1964	$ (9,785,360)	$ (9,594,265)	$(24,521)	$(166,574)
Income balance (deficit) December 31, 1962	(21,426,720)	(22,090,773)	687,779	(23,726)
Income balance (deficit) December 31, 1964	$(31,212,080)	$(31,685,038)	$663,258	$(190,300)

	TOTAL	GENERAL FUND	GENERAL MOTORS DEALERS APPRECIATION FUND	SLOAN CANCER AWARDS FUND
Principal Account:				
Balance December 31, 1962—ledger value	$170,008,485	$165,299,251	$ 4,459,234	$250,000
Gift	474,000	474,000		
Net (loss) on security disposals	(85,085)	(81,146)	(3,907)	(32)
Balance December 31, 1964—ledger value	$170,397,400	$165,692,105	$ 4,455,327	$249,968
Unrealized appreciation in security values	136,828,800	129,930,993	6,842,330	55,477
Balance December 31, 1964—market value	$307,226,200	$295,623,098	$11,297,657	$305,445
Income balance (deficit)	(31,212,080)	(31,685,038)	663,258	(190,300)
Net worth December 31, 1964—market value	$276,014,120	$263,938,060	$11,960,915	$115,145

Since January 1, 1962 all grants have been charged to expense when authorized. That policy is reflected in the foregoing compilations and in all financial statements in this *Report*. However, the following summary gives the operating results on a cash basis for the two-year period ended December 31, 1964:

Receipts:	
Investment income	$20,177,958
Grant refunds	324,468
Trust fund income	106,164
Total	$20,608,590
Expenditures:	
Administrative and experimental expense	$ 1,379,582
Grant payments	25,691,995
Sloan Cancer Awards	183,589
Total	$27,255,166
(Deficit) for period	$(6,646,576)

HASKINS & SELLS
CERTIFIED PUBLIC ACCOUNTANTS

TWO BROADWAY
NEW YORK 10004

March 5, 1965

ACCOUNTANTS' OPINION

ALFRED P. SLOAN FOUNDATION:

We have examined the balance sheet of Alfred P. Sloan Foundation as of December 31, 1964 and 1963 and the related statement of income and funds adjusted to market quotation values for the years then ended, and the supplemental schedules of investments and grants. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, such financial statements and supplemental schedules present fairly the financial position of the Foundation at December 31, 1964 and 1963 and the results of its operations for the years then ended, in conformity with generally accepted accounting principles consistently applied.

HASKINS & SELLS

BALANCE SHEET
(INVESTMENTS AT MARKET QUOTATION VALUES)
DECEMBER 31, 1964 AND 1963

	1964	1963
ASSETS		
Cash	$ 162,029	$ 311,518
Investments:		
Fixed income securities	31,795,586	32,632,835
Marketable stocks	263,024,371	227,055,551
New Castle Corporation common stock, proportionate ownership of underlying assets at market quotation values	2,769,574	2,283,668
TOTAL	$297,751,560	$262,283,572
LIABILITIES AND FUNDS		
Grants authorized but not due for payment	$ 21,737,440	$ 20,208,489
Fund Balances:		
General Fund	263,938,060	231,484,190
General Motors Dealers Appreciation Fund	11,960,915	10,396,652
Alfred P. Sloan Cancer Research Awards Fund	115,145	194,241
TOTAL	$297,751,560	$262,283,572

STATEMENT OF INCOME AND FUNDS

ADJUSTED TO MARKET QUOTATION VALUES FOR THE YEARS ENDED DECEMBER 31, 1964 AND 1963

	TOTAL		GENERAL FUND		GENERAL MOTORS DEALERS APPRECIATION FUND		ALFRED P. SLOAN CANCER RESEARCH AWARDS FUND	
	1964	1963	1964	1963	1964	1963	1964	1963
Income:								
Dividends and interest	$ 10,540,587	$ 9,637,371	$ 10,107,370	$ 9,246,094	$ 425,839	$ 381,640	$ 7,378	$ 9,637
Refunds of unexpended grants	164,559	159,909	164,559	159,909				
Trust income	96,403	9,761	96,403	9,761				
Total	$ 10,801,549	$ 9,807,041	$ 10,368,332	$ 9,415,764	$ 425,839	$ 381,640	$ 7,378	$ 9,637
Grants and Expenses:								
Grants authorized	$ 14,509,820	$ 14,320,959	$ 14,104,820	$ 13,893,959	$ 405,000	$ 427,000		
Sloan Cancer Awards	102,612	80,977					$ 102,612	$ 80,977
Administrative, including investment counsel and custodial services	600,310	628,922	600,310	628,922				
Experimental projects	75,298	75,052	75,298	75,052				
Total	$ 15,288,040	$ 15,105,910	$ 14,780,428	$ 14,597,933	$ 405,000	$ 427,000	$ 102,612	$ 80,977
Income (deficit)	$ (4,486,491)	$ (5,298,869)	$ (4,412,096)	$ (5,182,169)	$ 20,839	$ (45,360)	$ (95,234)	$ (71,340)
Income balance (deficit) at beginning of period	(26,725,589)	(21,426,720)	(27,272,942)	(22,090,773)	642,419	687,779	(95,066)	(23,726)
Income balance (deficit) at end of period	$ (31,212,080)	$ (26,725,589)	$ (31,685,038)	$ (27,272,942)	$ 663,258	$ 642,419	$ (190,300)	$ (95,066)
Principal:								
Balance at beginning of period, book value	$170,688,788	$170,008,485	$165,972,828	$165,299,251	$ 4,465,671	$ 4,459,234	$ 250,289	$250,000
Gift		474,000		474,000				
Profit (loss) on disposals of securities	(291,388)	206,303	(280,723)	199,577	(10,344)	6,437	(321)	289
Balance at end of period, book value	$170,397,400	$170,688,788	$165,692,105	$165,972,828	$ 4,455,327	$ 4,465,671	$ 249,968	$250,289
Unrealized appreciation in security values	136,828,800	98,111,884	129,930,993	92,784,304	6,842,330	5,288,562	55,477	39,018
Balance at end of period, market value	$307,226,200	$268,800,672	$295,623,098	$258,757,132	$11,297,657	$ 9,754,233	$ 305,445	$289,307
Total Funds	$276,014,120	$242,075,085	$263,938,060	$231,484,190	$11,960,915	$10,396,652	$ 115,145	$194,241

INVESTMENTS
DECEMBER 31, 1964

	PRINCIPAL AMOUNT	MARKET QUOTATION VALUE
Fixed Income Securities:		
Obligations of United States Government:		
Treasury Bills, discounted–1/14/65	$ 550,000	$ 546,385
Treasury Bonds,		
3⅞%–5/15/68	4,300,000	4,271,783
4%–8/15/70	3,000,000	2,975,625
4%–8/15/73	6,421,000	6,320,672
Treasury Notes,		
3¾%–8/15/67	2,400,000	2,383,500
Obligations of United States Government Agencies:		
Federal Home Loan Bank System Consolidated Notes, 4.05%–8/16/65	2,600,000	2,596,750
Total		$19,094,715
American Telephone & Telegraph Company, Debenture 4⅜%–4/1/85	1,500,000	$ 1,505,625
C.I.T. Financial Corporation, Notes 4⅛%–11/1/65	700,000	675,537
General Electric Credit Corporation, Notes 4.166667%–4/23/65	2,800,000	2,800,000
General Motors Acceptance Corporation, Debentures,		
5%–9/1/80	1,300,000	1,348,750
5%–3/15/81	1,500,000	1,556,250
Notes 4⅛%–3/26/65	1,650,000	1,633,929
International Harvester Credit Corporation, Notes 4⅛%–5/24/65	3,000,000	2,950,500
Public Service Electric & Gas Company, Debenture 4⅜%–3/1/77	228,000	230,280
Total		$12,700,871
Total Fixed Income Securities		$31,795,586

INVESTMENTS
DECEMBER 31, 1964
—CONTINUED—

	NUMBER OF SHARES	MARKET QUOTATION VALUE
Stocks–Common or Capital:		
American Cyanamid Company	16,500	$ 1,138,500
American Metal Climax Inc.	58,000	2,486,750
American Natural Gas Company	48,000	2,214,000
American Telephone & Telegraph Company	257,272	17,558,814
Babcock & Wilcox Company, The	70,000	2,485,000
Bankers Trust Co. (New York, N.Y.)	4,444	273,306
Broken Hill Proprietary Co. Ltd., The	90,000	564,975
Caterpillar Tractor Co.	64,800	2,673,000
Celanese Corporation of America	23,000	1,696,250
Central & South West Corporation	25,000	1,275,000
Chase Manhattan Bank, The (New York)	13,795	1,007,035
Continental Illinois National Bank & Trust Co. of Chicago	22,000	918,500
Corning Glass Works	10,050	2,020,050
Cutler-Hammer, Inc.	14,000	1,134,000
Dresdner Bank A.G.	10,300	661,775
E.I. duPont de Nemours & Company	5,700	1,372,988
Eastman Kodak Company	23,100	3,199,350
Falconbridge Nickel Mines Limited	33,000	2,550,557
Farbenfabriken Bayer A.G.	17,550	1,377,675
First National Bank of Boston, The (Mass.)	15,000	1,402,500
First National Bank of Chicago	10,850	642,862
First National City Bank of New York	7,726	911,668
Florida Power Corporation	32,000	1,516,000
General Electric Company	38,050	3,548,163
General Foods Corporation	21,800	1,757,625
General Motors Corporation	1,192,394	116,705,563
Gevaert Photo-Producten, N.V.	10,000	587,500
Gulf Oil Corporation	26,726	1,563,471

INVESTMENTS
DECEMBER 31, 1964
—CONTINUED—

	NUMBER OF SHARES	MARKET QUOTATION VALUE
Stocks—Common or Capital *(continued)*:		
Halliburton Company	28,000	$ 1,039,500
Hercules Powder Company	50,400	2,305,800
Household Finance Corp.	33,800	1,711,125
Idaho Power Company	32,000	1,272,000
Ingersoll-Rand Company	46,000	1,857,250
International Business Machines Corporation	19,125	7,831,688
International Nickel Company of Canada, Ltd.	43,000	3,612,000
Kennecott Copper Corporation	16,000	1,472,000
Koninklijke Nederlandsche Hoogovens en Staalfabrieken N.V.	250,000	387,500
Merck & Co., Inc.	30,000	1,488,750
Middle South Utilities, Inc.	30,300	1,484,700
Morgan Guaranty Trust Co. of New York	22,565	2,640,105
Northwest Bancorporation	15,000	690,000
Philips Gloeilampenfabrieken N.V.	75,569	3,211,682
Pittsburgh Plate Glass Company	20,808	1,430,550
Procter & Gamble Company, The	41,000	3,341,500
Public Service Electric & Gas Company	68,000	2,720,000
Royal Dutch Petroleum Company	74,400	3,375,900
Sears, Roebuck and Co.	44,750	5,783,937
Security First National Bank (Los Angeles)	8,049	658,006
Shell Oil Company	53,728	3,196,816
Singer Company, The	45,200	3,593,400
Smith Kline & French Laboratories	18,000	1,296,000
Socony Mobil Oil Company, Inc.	37,000	3,394,750
Southern Company, The	26,000	1,706,250
Standard Oil Company of California	27,452	2,014,290

INVESTMENTS
DECEMBER 31, 1964
—CONTINUED—

	NUMBER OF SHARES	MARKET QUOTATION VALUE
Stocks—Common or Capital *(continued)*:		
Standard Oil Company (a New Jersey Corporation)	48,947	$ 4,411,348
Texaco Inc.	54,249	4,753,569
Texas Utilities Company	24,600	1,500,600
Thompson Ramo Wooldridge Inc.	28,600	1,787,500
Travelers Insurance Co. (Hartford, Conn.)	36,000	1,444,500
Unilever N.V. New York	66,666	2,666,640
United Gas Corporation	35,000	1,264,375
Virginia Electric & Power Company	36,405	1,765,642
Wells Fargo Bank (San Francisco)	20,963	1,021,946
F. W. Woolworth Co.	75,000	2,071,875
Xerox Corp.	16,000	1,578,000
Total Marketable Stocks		$263,024,371
New Castle Corporation	75	2,769,574
Total Stocks		$265,793,945

SUMMARY

Total Fixed Income Securities	$ 31,795,586
Total Stocks	265,793,945
TOTAL INVESTMENTS	$297,589,531

SCHEDULE OF GRANTS

	BALANCE DECEMBER 31, 1962	AUTHORIZED 1963-64	PAYMENTS 1963-64	BALANCE DECEMBER 31, 1964
Adrian College		$ 4,700	$ 4,700	
Akron, The University of		7,500	7,500	
Albion College	$ 34,860	41,920	27,490	$ 49,290
American Academy of Arts and Sciences		50,000	50,000	
American Arbitration Association, Inc.		10,000	10,000	
American Assembly, The		10,000	10,000	
American Association for the Advancement of Science	111,650		111,650	
American Association of Junior Colleges		14,500	14,500	
American Association of University Women Educational Foundation		9,000	9,000	
American Cancer Society		10,000	10,000	
American Council for Emigrés in the Professions, Inc.		35,000	35,000	
American Council on Education		100,000	100,000	
American Craftsmen's Council		10,000	10,000	
American Law Institute, The		10,000	10,000	
American Mathematical Society		60,000	20,000	40,000
American National Red Cross		20,000	20,000	
American Society for the Prevention of Cruelty to Animals, The		10,000	10,000	
Amherst College	84,600	73,400	63,350	94,650
Antioch College	22,950	21,500	18,350	26,100
Arizona, University of	8,050	30,360	23,230	15,180
Association of College Admissions Counselors		10,000	10,000	
Automotive Safety Foundation, Inc.		37,000	37,000	
Bank Street College of Education		22,446	22,446	
Bard College		4,130	4,130	
Bassett Hospital, The Mary Imogene		10,000	10,000	
Baylor University		26,892	26,892	
Bowdoin College	51,200	47,000	39,950	58,250
Boy Scouts of America, Greater New York Councils		5,000	5,000	
Brandeis University	10,000	64,125	39,750	34,375

SCHEDULE OF GRANTS

	BALANCE DECEMBER 31, 1962	AUTHORIZED 1963-64	PAYMENTS 1963-64	BALANCE DECEMBER 31, 1964
Briarcliff College		$ 5,000	$ 5,000	
British Columbia, University of		47,725	32,775	$ 14,950
Brookings Institution, Inc., The		305,000	130,000	175,000
Brooklyn College		3,000	3,000	
Brown University	871,500	57,400	861,200	67,700
Bryn Mawr College		17,500	8,750	8,750
California, University of	82,264	370,959	364,823	88,400
California Institute of Technology	200,200	226,425	237,500	189,125
Carleton College	20,424	30,230	14,750	35,904
Carnegie Institute of Technology	132,200	136,200	104,750	163,650
Case Institute of Technology	94,700	119,000	101,750	111,950
Cazenovia College		2,310	2,310	
Chicago, The University of	33,750	463,672	293,172	204,250
Cincinnati, University of	9,775		9,775	
Colby College	19,800	23,100	15,950	26,950
Colgate University	46,150	73,225	53,425	65,950
Columbia University	101,750	643,440	620,452	124,738
Commission on Engineering Education, Inc.		10,000	10,000	
Community Blood Council of Greater New York, Inc.		1,100,000	600,000	500,000
Community Council of Greater New York, Inc., The		5,000	5,000	
Conservation Foundation, Inc.		30,000	15,000	15,000
Cornell University	1,519,275	354,350	1,358,100	515,525
Council for the Advancement of Science Writing, Inc.		50,000	25,000	25,000
Council on Foreign Relations, Inc.		10,000	10,000	
Dartmouth College	1,266,200	538,000	804,240	999,960
Davidson College		9,400		9,400
Deafness Research Foundation, The		268,750	125,000	143,750
Dillard University		10,000	10,000	
Duke University	6,250		6,250	

SCHEDULE OF GRANTS

	BALANCE DECEMBER 31, 1962	AUTHORIZED 1963-64	PAYMENTS 1963-64	BALANCE DECEMBER 31, 1964
Educational Foundation for Nuclear Science, Inc., The		$ 8,000	$ 8,000	
Educational Services, Inc.		10,000	10,000	
English Speaking Union		5,000	5,000	
Federation of American Societies for Experimental Biology		5,000	5,000	
Florida, University of		17,400	17,400	
Foreign Policy Association		5,000	5,000	
Foundation Library Center		200,000	150,000	$ 50,000
Foundation for Economic Education, Inc., The		15,000	15,000	
Foundation for Medical Technology		10,000	10,000	
Georgia Institute of Technology	13,000	11,200	10,400	13,800
Grinnell College		11,200		11,200
Hamilton College		11,200		11,200
Hartwick College		5,000	5,000	
Harvard University	182,150	367,802	366,732	183,220
Harvey Mudd College		20,000	20,000	
Herald Tribune Fresh Air Fund		5,000	5,000	
Hofstra University		10,000	10,000	
Illinois, University of	62,215	141,037	159,074	44,178
Independent College Funds of America, Inc.		10,000	10,000	
Indiana University		15,080	7,540	7,540
Institut des Hautes Etudes Scientifiques		10,000	10,000	
Institute for Advanced Study		15,000	15,000	
Institute for College and University Administrators, The		10,000	10,000	
International House		4,500	4,500	
Iowa State University	16,100	46,000	39,100	23,000
Johns Hopkins University, The	998,350	144,952	553,652	589,650
Joint Council on Economic Education		25,000	25,000	
Kansas, The University of	11,394	23,000	26,344	8,050
Knox College	22,480	23,620	14,715	31,385

SCHEDULE OF GRANTS

	BALANCE DECEMBER 31, 1962	AUTHORIZED 1963-64	PAYMENTS 1963-64	BALANCE DECEMBER 31, 1964
Knoxville College		$ 10,000	$ 10,000	
Legal Aid Society		10,000	10,000	
Lehigh University	45,700	44,000	30,700	$ 59,000
Liberian Government Hospital		10,000	10,000	
Lincoln University		17,880	10,000	7,880
Louisiana State University		16,100	8,050	8,050
Makerere University College		10,000	10,000	
Manhattan College		10,000	10,000	
Manhattan Eye, Ear and Throat Hospital		26,500	26,500	
Marlboro College		7,500	7,500	
Maryland, University of		15,640	7,820	7,820
Massachusetts Eye and Ear Infirmary		8,400	8,400	
Massachusetts Institute of Technology	4,575,975	11,758,250	6,875,225	9,459,000
Mathematical Association of America, Inc., The		35,000	35,000	
McMaster University		16,100	8,050	8,050
Medical Library Center of New York, Inc.		100,000	100,000	
Medical Research Foundation of Lakeland, Florida		10,000	10,000	
Memorial Hospital for Cancer and Allied Diseases		200,000	200,000	
Menninger Foundation, The	120,000	300,000	120,000	300,000
Michigan State University		16,100	16,100	
Michigan, University of	34,265	118,730	120,695	32,300
Minnesota, University of	45,310	73,500	89,635	29,175
Morehouse College		6,840		6,840
Moton Memorial Foundation		15,000	15,000	
National Academy of Sciences		96,200	71,200	25,000
National Assembly on Teaching the Principles of the Bill of Rights, Inc.		8,000	8,000	
National Bureau of Economic Research, Incorporated		680,000	160,000	520,000
National Citizens Committee for the World Health Organization, Inc.		3,500	3,500	
National Civil Service League		85,000	35,000	50,000

SCHEDULE OF GRANTS

	BALANCE DECEMBER 31, 1962	AUTHORIZED 1963-64	PAYMENTS 1963-64	BALANCE DECEMBER 31, 1964
National Fund for Graduate Nursing Education, The		$ 10,000	$ 10,000	
National Fund for Medical Education		75,000	50,000	$ 25,000
National Highway Users Conference		20,000	20,000	
National Information Bureau, Inc.		2,000	2,000	
National Medical Fellowships, Inc.	100,000	140,000	110,000	130,000
National Planning Association		10,000	10,000	
National Recreation Association, Inc.		5,000	5,000	
Natural Science for Youth Foundation, Inc., The		2,500	2,500	
New York Association for the Blind, The		36,500	36,500	
New York Association of Senior Centers, Inc.		5,000	5,000	
New York Botanical Garden, The		10,000	10,000	
New York Public Library, The		10,000	10,000	
New York University	2,473,125	665,875	2,803,500	335,500
North Carolina, University of	10,050	41,400	44,550	6,900
Northeastern University		100,000	50,000	50,000
Northfield and Mount Hermon Schools		17,715	17,715	
Northwestern University	8,050	28,125	36,175	
Notre Dame, University of	454,350	82,600	471,800	65,150
Oberlin College	91,050	74,000	59,450	105,600
Occidental College	20,800	21,550	17,845	24,505
Ohio State University, The	13,300	34,650	26,125	21,825
Oklahoma, University of	9,552	9,200	18,752	
Operations Research Society of America, The		6,000	6,000	
Oregon, University of		18,703	18,703	
Pan American Development Foundation, Inc.		5,000	5,000	
Pennsylvania State University, The		15,950	7,900	8,050
Pennsylvania, University of	10,000	67,900	77,900	
Phelps-Stokes Fund		4,000	4,000	
Polytechnic Institute of Brooklyn		5,200	5,200	

SCHEDULE OF GRANTS

	BALANCE DECEMBER 31, 1962	AUTHORIZED 1963-64	PAYMENTS 1963-64	BALANCE DECEMBER 31, 1964
Pomona College		$ 10,200		$ 10,200
Population Reference Bureau		20,000	$ 20,000	
Prince Edward Free School Association		50,000	50,000	
Princeton University	950,375	136,002	524,237	562,140
Purdue Research Foundation		13,800	13,800	
Purdue University	37,990	48,664	48,979	37,675
Radcliffe College		100,000	34,000	66,000
Recording for the Blind, Inc.		110,000	110,000	
Research Foundation of State University of New York, The	8,050	32,200	33,350	6,900
Rikkyo University		10,000	10,000	
Rip Van Winkle Foundation		5,000	5,000	
Rochester, University of	900,000	37,500	428,750	508,750
Rockefeller Institute, The		4,550	4,550	
Roosevelt Hospital		5,000	5,000	
Royal Society of Medicine, The		10,000	10,000	
Scientists' Committee for Radiation Information, Inc.		20,000	20,000	
Sloan-Kettering Institute for Cancer Research, The	2,070,000	997,000	1,067,000	2,000,000
Society for Industrial and Applied Mathematics		10,000	10,000	
Southern Research Institute		225,000	150,000	75,000
Stanford University	281,990	2,751,040	1,530,835	1,502,195
Staten Island Mental Health Society		5,000	5,000	
Syracuse University		10,000	10,000	
Tax Foundation, Inc.		20,000	20,000	
Texas, The University of	7,475		7,475	
Tools for Freedom		25,000	25,000	
Toronto, University of	8,050	9,200	17,250	
Tulane University		268,000	125,000	143,000
Tuskegee Institute		6,700		6,700
United Engineering Trustees, Inc.		50,000	50,000	

SCHEDULE OF GRANTS

	BALANCE DECEMBER 31, 1962	AUTHORIZED 1963-64	PAYMENTS 1963-64	BALANCE DECEMBER 31, 1964
United Negro College Fund, Inc.		$ 520,000	$ 420,000	$ 100,000
United States Churchill Foundation		100,000	40,000	60,000
United States Committee of the Dag Hammarskjold Foundation		10,000	10,000	
USO of New York City, Inc.		7,500	7,500	
Vanderbilt University, The	$ 36,500	301,640	154,900	183,240
Virgin Islands, College of the		10,000	10,000	
Virginia, University of	21,275		21,275	
Vocational Advisory Service, Inc.		3,000	3,000	
Volunteers for International Technical Assistance, Inc.		10,000	10,000	
Wabash College	41,700	42,400	28,850	55,250
Wake Forest College		16,000	16,000	
Washington, University of	13,187	69,100	55,562	26,725
Washington University		332,400	197,400	135,000
Waterloo, University of		13,800	6,900	6,900
Wayne State University		13,800	13,800	
Western Ontario, University of	8,750	8,050	16,800	
Westminster College		10,000	10,000	
Whitman College	18,000	19,200	15,350	21,850
Williams College	88,650	76,200	66,500	98,350
Wisconsin, University of	13,150	75,825	53,075	35,900
Woods Hole Oceanographic Institution		10,000	10,000	
World Federation for Mental Health	25,000	10,000	35,000	
World University Service		5,000	5,000	
Xavier University		4,000	4,000	
Yale University	17,500	91,750	76,250	33,000
Yeshiva University	6,250		6,250	
TOTAL	$18,598,656	$28,830,779	$25,691,995	$21,737,440

ALFRED P. SLOAN, JR.

May 23, 1875—February 17, 1966

April 19, 1966

To philanthropy, Mr. Alfred P. Sloan, Jr. brought the same dedication, zest and imaginative concern for the truly creative opportunity that marked his career as industrial leader. Like the Sloan-Kettering Institute for Cancer Research, the Foundation which he established is only one of the many monuments to his zeal for improving man's lot. His dynamic leadership and consideration for others will be cherished by his associates as long as the Sloan Foundation endures.

Since no formal resolution can do full justice to his qualities of mind and heart, the Trustees of the Alfred P. Sloan Foundation can signify their admiration for the founder and their grief at his passing in no more appropriate way than to pledge their best efforts to carry on faithfully and imaginatively this philanthropic enterprise which bears his name. This we here highly resolve.

—Resolution adopted by Trustees of the Alfred P. Sloan Foundation at their first meeting following Mr. Sloan's death.

Alfred P. Sloan Foundation

REPORT FOR 1965

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[1]Deceased February 17, 1966

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[2]Elected January 18, 1966

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*Deceased February 17, 1966

The President's Review

EVERETT CASE

This report for 1965 recounts the activities of the Alfred P. Sloan Foundation during the last full year of the life of its founder. It was a year in which the economy flourished, whether measured in terms of wages, employment, or profits. This was reflected in the Sloan Foundation's record income, in the continued growth of its assets, and in the dimensions of its new commitments, these latter again exceeding income.

It was also a year which underscored an issue which Mr. Sloan regarded as central: namely, the capacity of a free society to sustain prosperity and full employment without price inflation. Addressing itself to this issue, the National Bureau of Economic Research initiated early in 1965 a five-year research study under a grant which the Sloan Foundation made late in 1964.

Science-oriented as it is, the Foundation's commitments were seldom addressed to problems of such current topical importance in the politico-economic field. With respect, for example, to such urgent concerns as the pressure of world population on the food supply, or the strengthening of international agencies of conciliation, or the explosive and complex problems of our urbanized society, it has typically made no more than token contributions. The fact is, of course, that no single foundation can expect to cope with the entire spectrum of need; and experience suggests that, for most, the effort to equate limited funds with unlimited needs is likely to be most effective if major grants are focused on a few well-defined areas of fundamental and continuing concern.

Thus the Sloan Foundation's major grants and appropriations in 1965 continued to be directed to basic research in the physical sciences and cancer; to engineering and management education at various levels; to undergraduate scholarships for potential future leaders; and to public understanding of the scientific, technological, and economic enterprise. Supplementing this principle of strategic investment in limited but significant fields, the Foundation has consistently sought to strengthen the capacity of certain key institutions—and others with a strong potential for leadership—within these fields. At the same time, through such programs as the Sloan Fellowships for Basic Research and the Sloan Scholarship Program, it has sought to promote opportunities for the full development and exercise of uncommon individual talent.

It is no accident that these guides to action faithfully reflect Mr. Sloan's personal philosophy and philanthropic purpose. Nevertheless, even at age ninety, Mr. Sloan's mind was anything but static, and his restless concern for new and creative philanthropic opportunities remained a constant challenge to trustees and officers alike. At an age when most men's horizons tend to contract, his were expanding. Thus he was quick to respond to proposals which held promise of speeding the day

when something approaching equality of educational opportunity might become a reality for *all* young Americans.

Building, then, on previous experience with a rather limited program of fellowships for Negro medical students, the Foundation moved first to supplement this program and, second, to develop various means of strengthening the predominantly Negro colleges. The second of these included both direct grants for specified purposes, and incentive grants designed to encourage the participating institutions to broaden the base of their support, and so accelerate their capacity for genuine integration. At the same time the Foundation acted to strengthen its program of undergraduate scholarships, designed to recognize and encourage future leaders of exceptional promise without regard to race or economic background.

In the area of scientific research, the Foundation sustained its own well-tested program of unrestricted grants for young post-doctoral mathematicians, physicists, and chemists of unusual promise. It made grants to one major university for the development of its resources in computer science, and to another for a similar development in geophysics. Its most considerable grant, however, was made to establish a fund for basic research at the California Institute of Technology, a grant which paralleled earlier and similar ones for the same purpose to the Massachusetts Institute of Technology.

In the medical field, grants were again directed principally to the Sloan-Kettering Institute for Cancer Research and the complex of which it is a part. This great enterprise was for Mr. Sloan, as it is for the Foundation, a major concern and a source of continuing satisfaction. Certainly the support it has received both from the Foundation and from Mr. Sloan himself admirably illustrates the principle of strategic investment in action, for it has helped to build the broad base of public and private support which Memorial Sloan-Kettering Cancer Center now commands. Compelling, moreover, as the manifold needs and opportunities offered by the broad medical field undoubtedly are, this experience

has strengthened the conviction that here, too, a policy of 'scatteration' would, for us, be less productive than sustained support of one significant sector and institution. Thus, for 1965, only the modest sums made available for research in ophthalmology and otology suggest a flexible application of the rule.

* * * *

Aside from the task of selecting from a host of applications the most promising opportunities for productive grants in our fields of concern, special effort was devoted in 1965 to appraising the outcome of earlier and continuing grants. This should serve as a useful guide for the current review of policy and program which both the times and the facts of our situation suggest.

For one thing, the massive influx of federal funds for scientific research and development, and more recently for grants-in-aid to college students, inevitably raises searching questions about certain of the Foundation's current commitments. Certainly the government's new role has increasingly involved it in fields once largely the province of private initiative. More specifically, its sharply rising support for research and higher education shows a heavy degree of concentration in the very areas to which the Sloan Foundation's major commitments run.

Thus for 1965 the federal commitment in support of the physical sciences was approximately $3.5 billion, of which $1.6 billion has been allocated to the physical sciences proper, $1.7 billion to engineering, and about $100 million for mathematics. Research and development grants to institutions of higher education alone are currently estimated at $1.1 billion, $600 million of which is earmarked for basic research. For 1966, the federal commitment to higher education is scheduled to rise to some $4 billion, an increasing percentage of which is earmarked not only for graduate fellowships, but also for undergraduate scholarships and loans.

New Trustees of the Foundation

DR. JAMES B. FISK

ELLMORE C. PATTERSON

If it is futile for private philanthropy to compete against the government, these figures suggest that for the Sloan Foundation this is a time not for complacency, but rather for a hard-nosed as well as an imaginative reassessment of program. *For the moment*, at least, it seems clear that government provision for undergraduate aid still fails to do, either for our potential future leaders, or for their colleges, many of the significant things that the Sloan national scholarships now do. *For the moment*, it would seem that the Sloan Fellowship awards for basic research offer a stimulus and a degree of freedom to promising younger scientists at a crucial stage in their careers, which would be hard to duplicate through presently available government funds. The point is that if present trends continue this could conceivably cease to be true, and we must always be prepared to deal with such an eventuality.

As Mr. Sloan never tired of reminding his associates, it is the first duty of the responsible foundation to be alert to changing facts and,

indeed, to changing patterns in philanthropy itself. We accept this duty as peculiarly applicable to our times. We interpret it to mean, however, no quixotic decision to mount a white steed and ride off rapidly in all directions. For us, certainly, the place of beginning is an intensified exploration of familiar areas, in search of those *seminal* opportunities for the commitment of venture capital which may be disclosed by change itself. Where this exploration will lead us, I am not about to predict. It would not be surprising to find, however, that in the fields of which we have experience, as in others, the needs and problems of a dynamic society multiply more rapidly than the solutions that government or any other agency can come up with.

* * * *

Early in 1965, an ad hoc committee appointed by the Treasury reported its findings on abuses, actual and alleged, in the conduct of the private foundations and made certain recommendations for corrective legislation. While one or two of these recommendations would seem to be open to question, none would have any effect whatever upon the structure, conduct, or operation of the Sloan Foundation itself. On balance, moreover—and with minor changes—their general net effect could well be salutary. Thus, in accepting an invitation of the Ways and Means Committee to comment on this report and its major proposals, the Sloan Foundation made clear its interest in all constructive suggestions for the correction or prevention of abuse, and welcomed the Treasury report as a significant contribution toward this end. Writing in behalf of the Foundation, I observed by way of conclusion that, in any ideal code governing the conduct of foundations, "the principle of public accountability would surely constitute the first and great commandment, and abstention from all forms of self-dealing the second. These, in our view, constitute the law and the prophets."

The obligation of the trustees of the Sloan Foundation is therefore twofold: first, to balance in the public interest the conservation and the use of its full resources, intellectual as well as financial; and second, to respect the principle of public accountability. Thus, this report publishes not only the relevant financial data and the basic purposes to which our grants were committed, but also the nature of the needs and opportunities to which these grants were responsive. In further recognition of its responsibility for full and timely public disclosure, the Sloan Foundation with this *annual* report departs from its tradition of biennial reporting.

* * * *

In accordance with a resolution governing trustee retirement, adopted by the Board at its October meeting, the resignations of Mervin J. Kelly and Frank W. Abrams as Members and Trustees were accepted with regret. (At its meeting in January 1966, the Board unanimously adopted a suggestion of the Chairman that trustees retiring because of age be invited to serve as members of a Trustee Advisory Committee with a voice but not a vote at subsequent meetings. Thereupon, Messrs. Kelly and Abrams became charter members of this group.)

To fill these vacancies, Dr. James B. Fisk, President of Bell Telephone Laboratories, Inc., was elected at the October meeting, and Mr. Ellmore C. Patterson, Vice Chairman of the Morgan Guaranty Trust Company of New York and an active Trustee of Memorial Sloan-Kettering Cancer Center, at the next meeting thereafter.

* * * *

Robert N. Kreidler, who first joined the staff as director of educational affairs and assistant to the president on September 4, 1962, was elected a vice president of the Foundation on October 19, 1965.

In May 1965, Robert L. Hermann was added to the staff as director of reports and publications. He had previously worked as a science writer for *The National Observer* and as a reporter for *The Louisville Courier-Journal*. In October, Thomas E. Ford was appointed staff associate and director of scholarships. In his previous positions he had been an executive associate with Overseas Educational Service of New York and a member of the administrative staff of Teachers College, Columbia University.

* * * *

Overshadowing all of the changes here recorded for the year under review, was the death on February 17, 1966, of the founder, Mr. Alfred P. Sloan, Jr. As the depth and breadth of his philanthropic purpose grew with the years, so did the profound influence he exerted on all who labored with him, in whatever capacity, to make the Foundation a more effective instrument for the public good. His long tenure as President was voluntarily terminated at the end of June 1962 when, at his invitation and the Board's, I assumed that office. As Chairman thereafter, Mr. Sloan continued to play an active and significant role in the affairs of the Foundation until two days prior to his death. If ever a man earned the right to be considered irreplaceable, it is the unanimous view of his associates that Mr. Sloan was that man.

Everett Case

Science: Research

The Foundation's commitment to basic scientific research in 1965 followed familiar lines. Despite continuing overall expansion of federal support of research and development, the weight of the evidence still suggested that major federal emphasis was on development. Thus it appeared that the growth of basic knowledge could be accelerated by strategic infusions of private funds in two critical areas: in making available to major scientific institutions significant amounts of unrestricted, quickly accessible research funds; and in providing research fellowships for brilliant but still unrecognized young scientists at an early stage of their careers.

Leading research-centered universities continued to report pressing needs in these two areas. Competition for federal funds remained keen, and the funds allotted to the National Science Foundation for basic research and science education remained limited. As for research which did not fit into the "mission" or "program" of some other federal agency, private financing became of critical importance. Moreover, federal research and development programs in 1965 were coming under various kinds of pressures which promised to curtail their aggregate growth in fiscal 1967 and to force a broader geographical distribution of federal research grants and contracts. It thus appeared at the end of 1965 that opportunities for creative private support of basic research, particularly

in the physical sciences and mathematics, might be expanding rather than the reverse.

The Foundation's general approach to support of basic research has been to foster the optimum conditions under which independent and creative scientific thinking could take place, rather than to underwrite specific projects. The intent of its grants has been to confer on selected institutions and individuals the necessary freedom to undertake investigations which seem most important or interesting to them, including the freedom to terminate or alter the direction of their research. Certainly the history of science strongly suggests that basic advances in knowledge are far more likely to occur under such conditions than under the pressurized search for "quick solutions."

CALIFORNIA INSTITUTE OF TECHNOLOGY

Fund for Basic Research in the Physical Sciences

To sustain and enhance institutional excellence in science and to support the search for new knowledge by outstanding scientists, the Foundation trustees in 1965 approved a grant of $5,000,000 to the California Institute of Technology to establish an expendable fund for basic research in the physical sciences. While perhaps unusual in size and purpose, this grant to Caltech was not unprecedented. A similar fund, aggregating $15,000,000, had already been established at the Massachusetts Institute of Technology through gifts by the Foundation and by Mr. Sloan personally. (See the Foundation's Report for 1963-64, pp. 25-27.) The Caltech grant was based upon the conviction that a fund analogous to the MIT fund, subject to essentially the same terms of administration, could further strengthen a leading scientific and technological institution on the West Coast to the benefit of the entire nation.

Caltech was embarking, moreover, on a period of growth designed to

keep it in the forefront of accelerating developments in science and engineering, and President DuBridge had cited a number of scientific areas in which a major grant would significantly strengthen the Institute's basic research. Among them were optical and radio astronomy; nuclear physics; molecular biology; genetics; geochemistry and geophysics; and chemical physics. He also mentioned aeronautics and space science; applied mathematics; materials science and engineering; and computer technology.

By a deed of gift between the Foundation and Caltech, administration of the fund was vested in three fund administrators (the Chairman, President and Provost of Caltech) acting under the ultimate authority of the Caltech board of trustees. While it is intended primarily for research in the physical sciences, including mathematics and engineering, the fund may also be used where basic developments in the physical sciences impinge on other disciplines such as the life sciences. The fund administrators thus are given broad discretion as to the uses to which the fund will be put and may, for example, make grants from the fund to recognized scientists at institutions other than Caltech when they consider it appropriate.

Mr. Sloan said of the grant:

"It has long been my conviction that if this nation is to keep ahead in the competitive race for survival there must be not only greatly increased funds for basic research, but also competent and imaginative management of such funds. With this grant, the Foundation is seeking to help the California Institute of Technology further strengthen its already considerable efforts to advance American scientific knowledge and train young scientists. It is my hope that this fund will stimulate other private sources to make support available for these purposes, at Caltech and elsewhere."

Within a short time after receiving the first payment on the grant, President DuBridge advised the Foundation that preliminary allocations

had been made from the fund for some twenty individual research projects in fields ranging from biophysics to plasma dynamics.

The Foundation's Program For Basic Research in the Physical Sciences

Since the academic year 1955-56, the Foundation has provided, on a gradually expanding scale, essentially unrestricted support for young scientists of exceptional promise on university faculties. Today this Program for Basic Research in the Physical Sciences is the Foundation's largest single continuing activity in dollar terms. Through annual grants totaling $1,400,000, the program is supporting 173 Sloan research fellows at 63 institutions in the United States and Canada in the 1965-66 academic year. Of this number 63 were *new* fellows chosen from a total of 465 nominees early in 1965; the remainder were in the second year of their two-year fellowships, or had received one- or two-year renewals of earlier fellowships.

The origin and development of the Program for Basic Research in the Physical Sciences has been amply documented in earlier Reports of the Foundation. (See especially the Report for 1963-1964, pp. 13-24.) It is enough to note here that the Foundation in 1953 turned its attention to what many saw as a growing erosion of scientists' intellectual freedom resulting from an increasing dependence on contract and sponsored research. A special study committee of distinguished scientists was appointed; it recommended that the Foundation, in order to counterbalance in some measure the increasing direction of research aims by sponsoring agencies, establish research fellowships for "young scientists of marked promise" who would be free to determine their own research goals. This was done.

Consistent with the aim to assist young and highly creative scientists on university faculties at a time when unencumbered research funds could

be of maximum use, the ages of the new fellows appointed in 1965 averaged 30 and ranged from 24 to 35 years. Occasionally an older scientist is supported in special circumstances, such as a change of career.

In view of the support available from other sources (including government) for the biological and medical sciences and the fact that the Foundation indirectly provides some support for these fields through its contributions to Sloan-Kettering Institute for Cancer Research, the Sloan Foundation program in basic research has been largely confined to the physical sciences. Included under this designation are physics, chemistry, mathematics, and certain interdisciplinary fields such as geochemistry and astrophysics.

Candidates for Sloan research fellowships do not themselves apply for the fellowships. Normally their names are brought to the attention of the Foundation by older colleagues or by former Sloan research fellows who have reason to know of their creative potential and the quality of their work. The hundreds of nominations thus received each year are reviewed by a program committee of distinguished scientists from outside the Foundation, and the final selections, as approved by the Foundation trustees, are announced in March of each year for the following academic year. The fellowships are granted for two years, with renewals of an additional year or two being granted in a number of cases. The number of nominations of top quality has been such, however, that only a relatively small percentage can be accommodated in any given year.

Because the intent of the fellowships is to afford young scientists maximum freedom for professional growth, the fellows are given wide latitude in the use of Foundation funds. The funds may be used for purchase of equipment and supplies, support of technical and scientific assistance, professional travel, summer support, computer time, support of predoctoral and postdoctoral fellows, relief from teaching where this does not conflict with the needs of the fellow's department, and other purposes. The Sloan research fellow does not submit a research proposal to the

Professor Maurice Ewing (left center), director of Columbia University's Lamont Geological Observatory, examines a freshly opened deep-sea sediment core with other scientists and students.

Students in Cornell University's new Department of Computer Science attack a problem with modern electronic aids.

Foundation, nor is he required to file anything more than a brief annual progress report with the Foundation. If he has published scientific articles as a result of the work supported by the grant, reprints of such articles will serve in lieu of an annual report.

The individual grants to Sloan research fellows range widely in amount, depending on each fellow's needs and the type of research he is conducting. The average grant, however, has been about $17,000 over the two-year period of the fellowship. The grant is paid to the fellow's institution for his use in accordance with the institution's policies. The university receives a fixed percentage of the grant for indirect costs and retains ownership of all supplies and equipment purchased under the grant.

The Program for Basic Research in the Physical Sciences is administered for the Foundation by Dr. Larkin H. Farinholt, who is vice president for scientific affairs.

CORNELL UNIVERSITY

Department of Computer Science

The advent of electronic data processing, vastly multiplying and even to some extent reshaping man's powers of logical thought, can properly be considered one of the several "revolutions" of the past two decades. While the electronic computer has found applications in nearly every realm of organized knowledge, it has also begun in recent years to generate a body of knowledge which has come to be known as "computer science."

To explore this new development, Cornell University proposed to draw together many of its existing resources, both human and mechanical, and to add new resources to constitute a new inter-college Department of Computer Science. The Alfred P. Sloan Foundation granted Cornell $1,000,000 to begin this undertaking in 1965.

The new department will have direct links to both the College of Arts

and Sciences and the College of Engineering; programs in computer science will be available to graduates and undergraduates in both colleges. In addition, a field of computer science will be instituted in the Cornell Graduate School.

The Department of Computer Science will cooperate directly with such evident areas of interest as mathematics and electrical engineering. But its resources also will be available in fields where the use of computers, though now limited, is likely to grow, such as linguistics, philosophy, biology, and psychology. The new department also will work closely with various Cornell professional schools in the areas of business and public administration, hospital administration, and hotel administration where computer applications are expected rapidly to increase.

Cornell's interest in computer science dates back more than a decade. The Cornell Computing Center, established in 1953, houses a large digital computer, and there are other digital and analog computer installations on the campus. The College of Engineering for some time has required introductory computing courses for all freshmen, and elective courses in computing enrolled more than 400 students in the fall of 1964. The new Department of Computer Science, then, represents a consolidation and expansion of Cornell's past activity in this field. The Foundation's grant is intended to assist Cornell in creating a new center for training the increasing number of broadly educated computer scientists which the future will require.

COLUMBIA UNIVERSITY

Lamont Geological Observatory

Much of the history of the planet earth can be "read" by scientists studying solidified sediments taken from the ocean's bottom. These sediments are brought up in the form of long, cylindrical cores obtained through advanced deep-sea drilling techniques.

The largest collection in the world of such cores is at Columbia University's Lamont Geological Observatory at Palisades, New York. By 1965 the Observatory's collection of more than 5,000 cores had far exceeded the space available and the Observatory found itself in urgent need of more storage and laboratory space. The National Science Foundation agreed to make a grant of $313,000 toward construction of a new laboratory, contingent upon the University's raising an additional $112,000 for construction costs and laboratory equipment. The Alfred P. Sloan Foundation granted Columbia $112,000 to complete the financing.

The preservation and proper accessibility of the unique collection of ocean-sediment cores at Lamont Geological Observatory has world-wide significance. Scientists come from all over the world to study the cores, and the Observatory provides samples and information to interested investigators in many countries. Information extracted from the cores is important to geophysicists, geochemists, geologists, botanists, mineralogists, and scientists in other fields.

Alfred P. Sloan National Scholarship Program

The thirteenth and largest class of Alfred P. Sloan national scholars enrolled in 45 institutions of higher learning in the fall of 1965. Under an expansion of the scholarship program approved in 1964 by the Board of Trustees, 155 male students took up their studies with the assistance of stipends from the Foundation. Together with 378 students in course on scholarships granted in prior years, they brought to 533 the number of college undergraduates of exceptional promise being assisted through the Alfred P. Sloan National Scholarship Program.

This program is one of the oldest and largest now supported by the Foundation. At its current level it requires an outlay of about $1,275,000 a year, or about 9% of the Foundation's total expenditures in 1965. It has expanded to its present scope from an initial twenty-five scholarships at four institutions in 1953. Its growth has been stimulated by the Foundation's conviction that, given rigorous selection of applicants on the basis of ability, integrity, and a high sense of responsibility, the program could contribute significantly to the nation's indispensable pool of future leaders in all professions. That conviction was reaffirmed by the Board of Trustees on October 19, 1965, when the board voted to underwrite a new class of Sloan national scholars in 1966.

The program was carried forward essentially unchanged into 1966,

after incorporating the expansion and adjustments approved by trustees in 1964 and put into effect in 1965. Under these recent changes, ten private colleges and universities were added to the program and the scholarships were extended to a full four years at all participating state universities. As before, the participating institutions continued to select their own Sloan scholars, assign each student a stipend based on need, and oversee the scholars' progress through the course of undergraduate study. The Foundation maintained liaison through correspondence and through periodic visits by its director of scholarships, Thomas E. Ford, and its vice president, Robert N. Kreidler, to each campus.

The scholarship program continued to feel the impact of the steadily rising costs of higher education, inasmuch as the scholarship grant to each private institution is based on its tuition charge. By the end of 1965, eleven private participating institutions had announced tuition increases, thirteen were expecting a rise before the end of the academic year, and only thirteen foresaw no change at the present time. The average tuition in 1965 at 35 private institutions (excluding three participating predominantly Negro institutions where tuitions are lower than the national average) was $1,646. The average Sloan scholarship stipend at these institutions was $1,685. But the average *cost* to the student of attending these institutions, including room, board, and tuition but not travel, was $2,595. Thus it is apparent that Sloan scholars at private institutions were finding additional assistance in the form of loans, jobs, savings, parental contributions, or a combination of these.

Because tuition charges at private institutions, high as they are, do not cover anything like the full cost of a student's education, the Sloan scholarship program continues to provide a cost-of-education allowance to assist such institutions in filling this gap.

At the eight participating state universities, under the program change effected in 1965, the Foundation's scholarship grant is now a standard $750 per student per year. It is clear, of course, that low or nominal

tuitions at such institutions constitute a form of "scholarship" assistance to all their students. Moreover, the Foundation assumes that the cost-of-education gap at state institutions is filled by state funds. The state universities, like the private institutions, allot varying stipends to Sloan scholars on the basis of need, and their scholars, too, find additional support through jobs or other means.

As of June, 1965, the Foundation had invested more than $10,600,000 in the Sloan scholarship program. The program had assisted 884 young men in completing their undergraduate work. Of this total, 82% had entered graduate study or indicated their intention of doing so. In their career objectives or actual professional status, 28% had chosen

Alfred P. Sloan National Scholarship Program

Sloan scholars examine a model at the California Institute of Technology bookstore.

ALFRED P. SLOAN NATIONAL SCHOLARSHIP PROGRAM

Participating Institutions

ALBION COLLEGE
Albion, Michigan

AMHERST COLLEGE
Amherst, Massachusetts

ANTIOCH COLLEGE
Yellow Springs, Ohio

BOWDOIN COLLEGE
Brunswick, Maine

BROWN UNIVERSITY
Providence, Rhode Island

CALIFORNIA INSTITUTE OF TECHNOLOGY
Pasadena, California

CALIFORNIA, UNIVERSITY OF
Berkeley, California

CARLETON COLLEGE
Northfield, Minnesota

CARNEGIE INSTITUTE OF TECHNOLOGY
Pittsburgh, Pennsylvania

CASE INSTITUTE OF TECHNOLOGY
Cleveland, Ohio

COLBY COLLEGE
Waterville, Maine

COLGATE UNIVERSITY
Hamilton, New York

COLUMBIA UNIVERSITY
New York, New York

CORNELL UNIVERSITY
Ithaca, New York

DARTMOUTH COLLEGE
Hanover, New Hampshire

DAVIDSON COLLEGE
Davidson, North Carolina

GEORGIA INSTITUTE OF TECHNOLOGY
Atlanta, Georgia

GRINNELL COLLEGE
Grinnell, Iowa

HAMILTON COLLEGE
Clinton, New York

HARVARD COLLEGE
Cambridge, Massachusetts

ILLINOIS, UNIVERSITY OF
Urbana, Illinois

JOHNS HOPKINS UNIVERSITY
Baltimore, Maryland

KNOX COLLEGE
Galesburg, Illinois

LEHIGH UNIVERSITY
Bethlehem, Pennsylvania

LINCOLN UNIVERSITY
Lincoln University, Pennsylvania

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Cambridge, Massachusetts

MICHIGAN, UNIVERSITY OF
Ann Arbor, Michigan

MINNESOTA, UNIVERSITY OF
Minneapolis, Minnesota

MOREHOUSE COLLEGE
Atlanta, Georgia

NOTRE DAME, UNIVERSITY OF
Notre Dame, Indiana

OBERLIN COLLEGE
Oberlin, Ohio

OCCIDENTAL COLLEGE
Los Angeles, California

OHIO STATE UNIVERSITY
Columbus, Ohio

POMONA COLLEGE
Claremont, California

PRINCETON UNIVERSITY
Princeton, New Jersey

PURDUE UNIVERSITY
Lafayette, Indiana

STANFORD UNIVERSITY
Stanford, California

TULANE UNIVERSITY
New Orleans, Louisiana

TUSKEGEE INSTITUTE
Tuskegee Institute, Alabama

VANDERBILT UNIVERSITY
Nashville, Tennessee

WABASH COLLEGE
Crawfordsville, Indiana

WHITMAN COLLEGE
Walla Walla, Washington

WILLIAMS COLLEGE
Williamstown, Massachusetts

WISCONSIN, UNIVERSITY OF
Madison, Wisconsin

YALE UNIVERSITY
New Haven, Connecticut

engineering or other careers in industry; teaching had claimed 24%, research 16%, law 9%, and medicine 6%; and 16% had chosen careers in government and other fields, or had still to make a choice. This and other information seems to indicate that the program is succeeding in its purpose of preparing young men to assume leadership roles in key professions.

At the same time, the Foundation cannot ignore contemporary forces and currents which are acting to alter the entire structure of student aid and the financing of higher education in general. Chief among these forces is, of course, the Higher Education Act of 1965, with its new programs of federal scholarships and expanded student loans and work-study plans, among other provisions. The amount appropriated for federal "Educational Opportunity Grants" (scholarships) alone in fiscal 1966 is about $58,000,000 and the act authorizes federal expenditures for many purposes of higher education of $640,100,000 in the current fiscal year, although the full amount has not yet been appropriated by Congress.

For the Foundation this development, coming as it did just before the annual renewal time for the Sloan scholarship program, raised important questions which had to be answered, at least tentatively, rather quickly. In the light of the substantial new amounts available through the federal act, and of the competing claims upon the Foundation's resources, would the scholarship program continue to justify what is, for the Foundation, a major expenditure of funds and administrative capacities?

The staff of the Foundation, after a preliminary analysis of the federal act, was able to advise the trustees that any immediate changes in the Sloan scholarship program would be premature. The full impact of the federal scholarship program, in the light of growing college enrollments and of rising educational costs, particularly at private institutions, remained to be assessed. Moreover, the Sloan program's emphasis on leadership capabilities appeared to set it somewhat apart from the more broadly based federal program. Thus the trustees decided to maintain the program unchanged pending further study.

No early and final conclusion can be ventured as to the future implications of the massive infusion of federal funds into the complex structure of higher education. It seems certain that the impact will be substantial, and that it may take years to assess it fully. In the meantime, it seems not unlikely that an important place will remain for strategically placed private funds. Where and how they can be most productive, only continuing study can disclose.

Extending Educational Opportunity

While the Foundation's most substantial contribution to undergraduate education continues to be the Sloan National Scholarship Program, special and major attention was directed in 1965 to programs and activities designed to extend and broaden educational opportunities for Negro youth. Grants in this general area came to $2,053,475 or approximately 14.5% of the Foundation's total grants for the year. This amount constitutes a fivefold increase over the average of the Foundation's grants for this purpose in each of the preceding two years.

This sharp expansion was based on several years of previous experience by the Foundation with programs designed to strengthen educational opportunity for Negro students. Since 1959, for example, the Foundation has made regular grants to National Medical Fellowships to enable talented young Negroes to enter leading schools of medicine. This experience has demonstrated a shortage of qualified applicants for such opportunities and the consequent need to develop more such talent. In 1963 the Foundation contributed substantially to a major capital fund drive for member colleges of the United Negro College Fund, and in the following year, three predominantly Negro colleges became participants in the Sloan scholarship program. Various other grants to individual predominantly Negro colleges and universities over the years have afforded the Foundation a deeper understanding of the needs and possibilities for strengthening educational opportunities in these institutions.

A number of programs in recent years have aimed at increasing opportunities for able Negro high-school graduates to attend leading colleges and universities which have predominantly white student bodies. While such efforts are certainly to be viewed with favor, the Sloan Foundation determined that, rather than duplicate them, it would experiment with what could be done in two other areas: strengthening certain predominantly Negro colleges, and expanding the pool of qualified applicants from which they draw their students.

This decision was based in part on the fact that, in an era of slow but increasing racial integration, the nation's predominantly Negro colleges still educate about two-thirds of the 180,000 American Negroes enrolled in higher education. For many Negro students, particularly in the Southeastern United States, the best or only hope for a college education continues to rest—and probably will for a generation or longer—in the predominantly Negro colleges and universities. Programs which attempt to identify and reinforce the growing strength of many of these institutions appear, therefore, to be very much worth the attention of foundations and the nation. And substantial help now from all available sources can assist them to become more valuable and fully integrated resources in the nation's array of institutions of higher education.

ALFRED P. SLOAN OPPORTUNITY AWARDS

One of the immediate pressures besetting the predominantly Negro colleges is the growing competition for the most able students who, in increasing numbers, are receiving attractive offers from predominantly white institutions. Yet if these colleges are to maintain and improve the quality of education they offer, they must be helped in their efforts to recruit students of high quality.

Competition for outstanding students on the basis of generous scholarships is beyond the resources of most predominantly Negro col-

These Alfred P. Sloan Opportunity Award winners spent eight weeks in pre-college remedial courses at Dillard University in the summer of 1965. Another group studied at Morehouse College.

Quadratic equations in a mathematics class.

Speech improvement training with the aid of a Voice Master recording device.

Learning to write effective English.

leges and is probably undesirable anyway at a time when the total resources for student aid are all too scarce. It thus appeared to the Sloan Foundation that a more constructive—and probably more difficult—approach might be to help selected Negro colleges uncover the valuable reservoir of untapped talent that surely exists among our disadvantaged youth. If these colleges could be encouraged to experiment with accepting a "high risk" kind of student, seldom touched by other scholarship offers, and if such a student could be given special help to prepare him for college, then competition for the ablest few could be avoided to the lasting benefit of others previously overlooked.

Accordingly, the Foundation's trustees in January of 1965 allocated $500,000 for a new and experimental program of scholarship awards for Negro male students. The program, which provides for student grants known as Alfred P. Sloan Opportunity Awards, is designed to help ten leading Negro colleges extend the opportunity of a higher education to promising male applicants who could expect to qualify for college only with the benefit of *both* remedial and financial assistance. The Sloan Opportunity Awards program incorporates two summers of remedial

ALFRED P. SLOAN OPPORTUNITY AWARDS
Participating Institutions

BETHUNE-COOKMAN COLLEGE
Daytona Beach, Florida

BISHOP COLLEGE
Dallas, Texas

DILLARD UNIVERSITY
New Orleans, Louisiana

FISK UNIVERSITY
Nashville, Tennessee

HAMPTON INSTITUTE
Hampton, Virginia

KNOXVILLE COLLEGE
Knoxville, Tennessee

MOREHOUSE COLLEGE
Atlanta, Georgia

TALLADEGA COLLEGE
Talladega, Alabama

TOUGALOO COLLEGE
Tougaloo, Mississippi

TUSKEGEE INSTITUTE
Tuskegee Institute, Alabama

work for thirty high school students of junior-year standing selected annually by the participating colleges. Mathematics and communications skills—English, speech, reading, listening, and composition—are emphasized in these eight-week summer sessions, which are conducted on the campuses of Dillard University, New Orleans, and Morehouse College, Atlanta. Upon successful completion of the remedial instruction, the student is eligible for admission to that college which originally selected him, and is awarded a scholarship, based on need, to carry him through the four-year course leading to the Bachelor's degree. Renewal of any scholarship after the freshman year is, of course, contingent upon the student's maintaining a satisfactory level of performance.

Experience with the Alfred P. Sloan Opportunity Awards has been too limited to warrant any predictions as to results. It may be expected, however, that this experimental program, in conjunction with others of a similar nature, will help not only the predominantly Negro colleges but also those undiscovered scholars who could become one of their important resources.

COOPERATIVE COLLEGE DEVELOPMENT PROGRAM

A new effort to strengthen financially a group of predominantly Negro colleges, launched at about the same time as the Alfred P. Sloan Opportunity Awards, is the Cooperative College Development Program. It seeks to assist its twenty-three member colleges in establishing or expanding their own development offices and in improving their capacity to bid effectively for the financial aid potentially available from their alumni, from interested citizens and organizations in their own geographic regions, and in increasing volume from government, industry, and foundations. In 1965, the Foundation granted $177,000 to finance half the cost of the first three years of this program; participating colleges pay the other half of the costs.

The colleges and universities participating in the CCDP include both private and public land grant institutions. All are in the South except for one in Oklahoma. Collectively, they enroll 32,600 full-time students, at an average annual student expense of $888, and their physical plants are valued at over $150,000,000.

The Cooperative College Development Program, with offices at the Phelps-Stokes Fund in New York, is directed by two men with development and fund-raising experience. Each of these co-directors works with a group of eleven or twelve colleges, assisting them in identifying sources of potential aid, in planning development campaigns, and in drawing up presentations to potential donors. The co-directors also do extensive research among federal grant-making agencies and among private sources of funds to gain information for the cooperating colleges.

The two co-directors are Dr. William E. Cope, former dean of students at Dillard University and director of educational services for the United Negro College Fund; and Clifford F. Welch, former executive director of the Arthritis and Rheumatism Foundation of New York. In addition to the co-directors, the Cooperative College Development Program has the part-time services of two consultants, Edgar Gemmell and John P. Davis. Mr. Gemmell is a former vice president and development officer of Princeton University; Mr. Davis is editor of publications of the Phelps-Stokes Fund, and assists in the preparation of CCDP publications, including a monthly CCDP Report.

The work of the Cooperative College Development Program is assisted by an advisory council drawn from the areas of finance, philanthropy, education, government, college development, and business. This council meets monthly in New York City or elsewhere. Its chairman is Dr. Frederick D. Patterson, president of the Phelps-Stokes Fund. Other members of the council are Dr. Broadus N. Butler, Special Assistant to the Associate Commissioner, Higher Education Projects, U. S. Department of Health, Education, and Welfare; Dr. Rufus E. Clement, Presi-

dent of Atlanta University; Mr. George H. Colton, Director, Office of Development, Dartmouth College; Mr. Kenneth M. Spang, Vice President, First National City Bank of New York and Treasurer, Phelps-Stokes Fund; Mr. John C. Steers, Manager, Educational Relations, International Business Machines Corporation; and Dr. Arnold J. Zurcher, Vice President and Executive Director, Alfred P. Sloan Foundation.

To stimulate fund-raising efforts by these colleges, the Foundation late in 1965 allocated $1,000,000 for "matching grants" to the 23

COOPERATIVE COLLEGE DEVELOPMENT PROGRAM
Participating Institutions

AGRICULTURAL & TECHNICAL COLLEGE OF NORTH CAROLINA
Greensboro, North Carolina

ALABAMA A. & M. COLLEGE
Normal, Alabama

ATLANTA UNIVERSITY
Atlanta, Georgia

BENNETT COLLEGE
Greensboro, North Carolina

BISHOP COLLEGE
Dallas, Texas

CLARK COLLEGE
Atlanta, Georgia

DILLARD UNIVERSITY
New Orleans, Louisiana

FLORIDA A. & M. UNIVERSITY
Tallahassee, Florida

FORT VALLEY STATE COLLEGE
Fort Valley, Georgia

HAMPTON INSTITUTE
Hampton, Virginia

KNOXVILLE COLLEGE
Knoxville, Tennessee

LANGSTON UNIVERSITY
Langston, Oklahoma

LE MOYNE COLLEGE
Memphis, Tennessee

LIVINGSTONE COLLEGE
Salisbury, North Carolina

MOREHOUSE COLLEGE
Atlanta, Georgia

NORTH CAROLINA COLLEGE AT DURHAM
Durham, North Carolina

PAINE COLLEGE
Augusta, Georgia

SOUTHERN UNIVERSITY
Baton Rouge, Louisiana

SPELMAN COLLEGE
Atlanta, Georgia

TALLADEGA COLLEGE
Talladega, Alabama

TUSKEGEE INSTITUTE
Tuskegee Institute, Alabama

VIRGINIA STATE COLLEGE
Petersburg, Virginia

XAVIER UNIVERSITY OF LOUISIANA
New Orleans, Louisiana

member colleges of the Cooperative College Development Program. The formula for the matching feature of the grant was deliberately contrived to yield the highest rewards for funds raised from the colleges' alumni and their local communities—traditional sources of major support for the stronger private institutions of higher education. Thus the Foundation agreed to match alumni contributions at a ratio of $1 for $1; private contributions from within the college's state at $1 for $2; and all other private contributions at $1 for $3. For seven of the institutions a maximum limit of $66,666 was placed on the Foundation's contribution; for the sixteen others, the maximum was set at $33,333. The colleges have two years from December 1, 1965, to match the Foundation money.

If the Foundation's funds are matched at an average ratio of $2 for $1, as is expected, the $1,000,000 grant will be multiplied to a total of $3,000,000 in new funds for the 23 colleges over the next two years. More important, perhaps, the colleges will have acquired new skills in seeking out funds which should do much to assure their future as viable resources for meeting the higher educational needs of their region.

ROBERT R. MOTON MEMORIAL FOUNDATION

Both the Alfred P. Sloan Opportunity Awards program and the Cooperative College Development Program have relied on the availability of Holly Knoll, a "leadership retreat" at Capahosic, Virginia, as a place where discussions of the needs of Negro education in transition could take place in an informal and unhurried atmosphere. This handsome old house, the summer home of the late Robert Russa Moton, former president of Tuskegee Institute, has served for nearly a quarter century as the scene of important conferences among leaders of all races and from all walks of life. It is now owned by the Robert R. Moton Memorial Foundation.

Trustees of the Moton Foundation set out in 1965 to raise a substantial sum to remodel and improve the center and to place it on a firmer financial footing. The Alfred P. Sloan Foundation made the initial grant of $56,000 to begin this effort. The Moton Foundation subsequently was able to secure from other foundations and organizations an additional $366,000, which with the Sloan Foundation gift gave the Moton Foundation a total of $422,000 for plant improvement and maintenance, and support of future conferences.

OTHER GRANTS FOR EXTENDING EDUCATIONAL OPPORTUNITY

A number of other Foundation grants made during 1965 may be included under the purpose of extending educational opportunity inasmuch as the projects supported were designed to broaden or strengthen educational activities which serve Negro youth.

As already noted, the Foundation since 1959 has made annual grants to **National Medical Fellowships, Inc.,** in support of the National Medical-Sloan Foundation Scholarships for Negro medical students. In 1965 the Foundation granted $80,000 to this organization to finance four-year scholarships for ten new students. The sum also includes provision for grants-in-aid totaling $10,000 for non-scholarship students presently in course who are in need. Forty medical students are currently being supported by the National Medical-Sloan Foundation Scholarships.

To **Dillard University** in New Orleans, trustees of the Foundation granted $131,347 to complete the financing of a new science and nursing wing being added to an existing building, and for air-conditioning of the entire structure to make it usable the year round. Dillard had raised the balance of the $846,868 total cost before applying to the Foundation for the final 16%. The new science facilities will help Dillard to accommodate the planned expansion of its student body from its current 900 students to 1,200 by 1970. The new wing, which will replace a 20-year-old Army surplus building, will also make possibe an increase in nursing graduates from the present 20 a year to 48 a year.

Atlanta University, the graduate school of the complex of colleges known as the Atlanta University Center, has established the first Ph.D. program in biology at any predominantly Negro institution in the South. The Foundation in 1965 granted $48,129 for an important piece of equipment for this program, an electron microscope, which will be useful also to the physics and chemistry departments of other colleges in the Center.

Mention should also be made of the grants listed below:

Tuskegee Institute, to provide stipends for interns in Tuskegee's program to train administrative assistants and business managers for college positions, $10,000.

United Negro College Fund, for general expenses, $10,000.

Lincoln University (Pennsylvania), toward improvement of facilities for science research and instruction, $10,000.

National Urban League, Inc. for extension of the League's educational activities, $10,000.

National Association for the Advancement of Colored People, for support of educational activities, $10,000.

Polytechnic Institute of Brooklyn, N.Y., to provide a fellowship in engineering for a graduate of a Southern predominantly Negro college, $8,000.

Education in Science and Public Understanding of Science

The need for improved and expanded formal scientific training is taken to be self-evident in our scientific age; less obvious is the means by which this may be accomplished. The same may be said of the necessity for enlarging the scientific interests and information of people who have passed beyond the formal educational system to the responsibilities of work and citizenship.

The problem of formal education in science is twofold. First, there is the necessity of educating the increasing numbers of specialized scientists and science teachers who will be needed to meet the nation's scientific and technological commitments. Hopefully the education of these scientists will include enough study of the humanities and social sciences to enable them to view their work in a perspective of social and humane values. Secondly, there is the matter of "science for the non-scientist"—the problem of exposing future leaders of business, government, law, and education to enough of the unfolding knowledge and spirit of science so that their future decisions will be grounded in an awareness of the scientific facts of modern life. Through such a twofold approach to education in science, the gulf between scientist and non-scientist may hopefully be lessened, and decisions of importance to society may increasingly be taken in the objective and dispassionate spirit which has advanced science to its present eminence in many aspects of human affairs.

The educational problem changes when the student moves beyond the structures of formalized schooling. In the case of science, the inadequate preparation of most of today's adults and the vast increase in scientific knowledge since these adults left school, have created a lag in public understanding which poses an adult-educational problem of the first magnitude. Widespread scientific illiteracy in a democratic society as heavily dependent on science as ours raises some disturbing prospects: insufficient critical evaluation of costly "scientific" undertakings and an undue reliance on "expert" advice are a part of the potential price of scientific ignorance. On the other side of the coin, the full development of applied science in attacking pressing human problems and the creative mission of "pure" science (the quest for knowledge for its own sake—which has resulted indirectly in so much human progress to date) may be hampered by inadequate public understanding and support.

Evidence suggests that the amount of science information which a person will seek out and understand in his later life is directly related to the amount of science instruction he received in school and college. Clearly the problem of advancing the understanding of science by all citizens is, therefore, best attacked in the schools and colleges, and recent science curriculum reforms are increasingly meeting this challenge, for many students at least, at the secondary and elementary school levels. But for members of earlier generations, many of whom now occupy positions of great responsibility, other means to an understanding of contemporary science must be explored, and one of the foremost of these is, of course, the mass media. As the young beneficiaries of the new science curricula take their places in society, the problem of adult incomprehension of science may well diminish—especially if they have learned how to keep abreast of new developments. In the meantime, efforts to increase and deepen the understanding of science must proceed along any channel open to the public, adult and young student alike.

EDUCATIONAL SERVICES INCORPORATED

Facilities to Produce Films for Training Teachers

The modifications in the teaching of science in the schools which began in 1956 with the work of the Physical Science Study Committee (supported by the Sloan Foundation and others) inevitably created major problems in teacher preparation. The introduction into the classroom of new educational materials in science and mathematics required special efforts to help train teachers to use the new materials most effectively and led rather promptly to the development of a program of summer institutes at colleges and universities to train practicing teachers.

The next step was to move beyond special programs for instructors presently teaching and into the area of pre-service preparation of new teachers. But in this area the number of potential teachers involved is very large, and bold new methods are called for to reach as rapidly as possible all of the prospective teachers who could benefit from learning *how* to teach freshly structured courses. One such method was proposed by Educational Services Incorporated of Watertown, Massachusetts, a nonprofit educational corporation, which had carried on and extended the work of the Physical Science Study Committee. ESI proposed to develop new course materials for teachers' colleges and schools of education which would stress both content and pedagogical techniques. The content would be built, at least initially, around the new curricula in science and mathematics that had already gained wide acceptance in the nation's school systems.

A central element of the ESI approach was motion picture films of real classroom situations showing children being taught the new materials by master teachers, and preliminary tests of the concept indicated its exciting potentialities for depicting in vivid form the spontaneous interplay of teacher and pupils in the classroom. ESI could not pursue such a film program, however, without satisfying an urgent need for special studio facilities and for supplementary support to experiment in both a technological and methodological sense with ways to go about it. Convinced of the potentialities of ESI's program and recognizing the opportunity to contribute to teacher education in science and mathematics, the Sloan Foundation made a grant to ESI of $280,000 in partial support of the program. To complete the financing, the Carnegie Corporation of New York subsequently provided an equal amount.

GRADUATE SCHOOL OF EDUCATION, HARVARD UNIVERSITY

Fellowships for Future Science and Mathematics Teachers

Beginning in 1958, the Foundation undertook support of a number of fellowships for unusually gifted students of science and mathematics working toward the degree of Master of Arts in Teaching in the Harvard Graduate School of Education. Partly through this assistance, the school was able nearly to double the number of prospective teachers of mathematics and science enrolled in its Master of Arts in Teaching Program. Students entering the program were typically graduates of liberal arts colleges, and, in general, they went on to build careers as mathematics and science instructors in the secondary schools.

With the advent of federal funds for support of science-teacher-training programs, the Foundation arranged with Harvard to terminate its support. The expected federal assistance was, however, held up by certain legal and administrative restrictions on the funds available to the National Science Foundation. To permit continuation of the Harvard program at its present level while these problems were being resolved, the Sloan Foundation in 1965 granted $50,000 for an additional year of fellowship support.

MATHEMATICAL ASSOCIATION OF AMERICA

Summer Seminar for College Mathematics Teachers

The problem of updating mathematics instruction at the level below doctoral study is being approached by the Mathematical Association of America through a series of summer seminars for mathematics professors from colleges offering a Bachelor's degree, but not a Ph.D., in mathematics. The Alfred P. Sloan Foundation contributed partial support of the 1965 seminar at Cornell and, with the National Science Foundation, is supporting the forthcoming 1966 seminar to be held at Bowdoin College. The Sloan Foundation's contribution to the 1966 seminar is $30,000.

At these seminars some thirty college professors are given eight weeks of exposure to some of the latest advances in mathematics. (Topics in analysis and in applied mathematics will occupy the 1966 seminar.) A condition of the professors' admission to the seminar is that, upon returning to their home institutions, they in turn will conduct a series of seminars for colleagues from their own and neighboring institutions. The effects of the summer seminar thus are multiplied through some thirty college communities annually. The high level of ability and interest of the summer participants appears to make this an effective means of diffusing new mathematical knowledge among a number of college faculties.

PACIFIC SCIENCE CENTER

Regional Learning Center in Mathematics

At the end of the Seattle World's Fair in 1962, the strikingly beautiful and successful United States Science Pavilion, a $10,000,000, five-building complex, was taken over by the Pacific Science Center Foundation, a nonprofit educational institution formed for the purpose of turning the Pavilion into a permanent science center for the Pacific

Northwest. After a period of vigorous development, the Pacific Science Center Foundation presented to the Alfred P. Sloan Foundation a proposal for partial support of a Regional Learning Center in Mathematics which would serve both to develop better public understanding of mathematics and to explore better ways of teaching mathematics. The Foundation provided $100,000 toward this purpose in 1965.

The Pacific Science Center will function as a curricular resource for the Pacific Northwest and will provide facilities for fostering research on ways of communicating mathematical information to the public and to students. As part of this effort, it will encourage research on instructional methods and the development of new teaching aids in mathematics. And it will provide the physical plant and the experimental situation where evaluation of the results of new techniques in teaching mathematics may be carried out. It is the hope of the Alfred P. Sloan Foundation that the Pacific Science Center will make important contributions to public understanding of science and to education in science, including the fundamental science of mathematics.

NATIONAL EDUCATIONAL TELEVISION

Science Film Series: *Experiment*

In one of its efforts to enhance scientific literacy, the Foundation in 1965 turned to the medium of educational television, which serves an audience of several million viewers in more than 100 communities. National Educational Television, a primary source of programs for its 100 affiliated stations, proposed to develop a series of eight educational films dramatizing various aspects of scientific research in such a way as to stimulate interest and understanding by lay viewers. A "pilot" film on phagocytosis (the engulfing of minute alien particles by white blood cells) proved unusually effective for this purpose. The Alfred P. Sloan Foundation responded by granting $250,000 to National Educational Tele-

"The Secret of the White Cell" is discussed by Don Herbert in one of eight films in the National Educational Television series, *Experiment*.

"Attack Patterns of Sharks" in the *Experiment* series features Professor Perry W. Gilbert of Cornell University.

Filming a class at Educational Services Incorporated—an experiment in producing a new kind of teacher training films.

vision, and the National Science Foundation granted an additional $238,220 in support of the series, titled *Experiment*.

National Educational Television assigned production of the science film series to Prism Productions of New York City, whose executive producer, Don Herbert, conducted the "Watch Mr. Wizard" science series on NBC television for 14 years. An advisory council of distinguished scientists headed by Dr. Warren Weaver, consultant on scientific affairs to the Sloan Foundation, was organized to confer with the producers on selection and treatment of subjects for the series.

Experiment will be available for showing on National Educational Television affiliates during the fall season of 1966. Thereafter it will be available through the NET Film Service to schools, colleges, universities, industries, and other adult training and community groups.

SCIENTISTS' INSTITUTE FOR PUBLIC INFORMATION

One of the most ambitious efforts on the part of scientists themselves to impart scientific information to the public is the Scientists' Institute for Public Information, established by a group of scientists in October 1962. Its purpose is to strengthen and reinforce more than a score of local science-information committees, and to foster the formation of more such committees. Small grants from the Alfred P. Sloan Foundation and a number of other foundations sustained the organization through its formative period, while program plans were being developed.

By the end of 1964, the executive board of SIPI decided to broaden the Institute's program from an initial focus on problems of nuclear radiation to embrace major problems of environmental conservation such as air and water pollution, pesticides, and radiation. Marked for future information programs were such areas as genetics and eugenics, automation, population control, and space exploration. The Alfred P. Sloan

Foundation early in 1965 made a grant to SIPI of $150,000 (to be paid over a three-year period) to launch this expanded effort.

The basic communication process which SIPI seeks to encourage is that of the individual scientist speaking objectively and understandably to a group of lay citizens about matters in which technical data are needed for intelligent public discussion. The scientist (who receives no pay for this service) is expected to confine himself to presenting scientific facts, and to refrain from expressing his opinions on political or social issues. Some local science information committees also provide panelists for broadcast discussions, and give scientific advice to writers, editors, and broadcasters on request. In a few instances the local committees initiate research projects where important data are lacking. But perhaps the most impressive aspect of SIPI's work is the recognition by so many busy and distinguished scientists of their obligation to use part of their time to enlighten the public about scientific issues.

PUBLIC UNDERSTANDING OF SCIENCE: OTHER ACTIVITIES

Two significant projects for training journalists and others to communicate science information to the public continued to progress in 1965 with the aid of grants made earlier by the Alfred P. Sloan Foundation. The **Council for the Advancement of Science Writing, Inc.,** reported new high levels of activity in its programs in science writing for working journalists. The Council arranges seminars for science writers and in general serves as a catalyst and stimulus for arousing interest in science communication among the various communications media and other concerned groups. During 1965 the Council was able sufficiently to broaden its base of support among corporations and other foundations so that further grants from the Sloan Foundation for direct operations

probably will not be required. The Sloan Foundation has granted a total of $110,000 in prior years to the Council for the Advancement of Science Writing.

A related program in the **Columbia University Graduate School of Journalism** entered its eighth year with continuing support from the Alfred P. Sloan and Rockefeller Foundations. Through this **Advanced Science Writing Program,** experienced journalists (and an occasional scientist) are awarded fellowships for a year of advanced study in science communication at the School. Since the program's inception, 58 fellows have completed the year of study, and six more are enrolled in the 1965-66 academic year. While their number is not large, their subsequent output of books and articles interpreting science to the public has been impressive. The Sloan Foundation's support of this program has totaled $220,000.

A grant of $9,900 was made during 1965 to assist with certain interim expenses of a new science-communication program at the **Boston University School of Public Communication.** This program is designed to train holders of baccalaureate science degrees as science writers, broadcasters, or journalists.

EDUCATION IN SCIENCE: OTHER ACTIVITIES

While the educational interests of the Alfred P. Sloan Foundation normally are confined to higher education, an occasional small grant is made for an imaginative project of unusual interest at the pre-college level. In recent years the Foundation has contributed $10,000 toward the preparation of a culturally oriented secondary-school physics course at Harvard University, and $50,000 toward the establishment of a research center in science-teaching devices at the Lawrence Hall of Science, University of California at Berkeley.

During 1965 the Foundation granted $10,000 to the **American Institute of Physics** for partial support of a pilot program for strengthening the teaching of high-school physics and encouraging greater student enrollment in physics courses. The Institute is attempting to overcome the apparently declining interest of high-school students in physics as it is presently being taught at the secondary level. To this end the Institute's project director arranges conferences between high-school and university physics teachers, assigns professional physicists as "resource persons" for groups of high-school teachers, conducts seminars for physics teachers, and engages in related activities. The pilot operation is limited to the states of New Jersey and Delaware.

A program for introducing chemistry experiments into schools of a remote area which cannot afford laboratories received a grant of $4,450 from the Alfred P. Sloan Foundation in 1965. The project will be carried out in the Anatolian region of Turkey by students of **Robert Academy** of Istanbul, an American-sponsored school having a predominantly Turkish student body. The students will construct simplified overhead projectors, devised by Dr. Hubert Alyea of Princeton University, by means of which chemical experiments performed by a teacher are greatly magnified for viewing by an entire class. Translation by Robert Academy students of the accompanying English-language manual into Turkish is a part of the project.

Two signal honors for distinguished contributions to public understanding of science came during 1965 to the Alfred P. Sloan Foundation's consultant on scientific affairs, trustee, and former vice president, Warren Weaver. He was the recipient of both the thirteenth Kalinga Prize, awarded by the United Nations Educational, Scientific and Cultural Organization, and the first Arches of Science Award, presented

by the Pacific Science Center Foundation. The awards were given in recognition of Dr. Weaver's extensive writings interpreting science to the layman, his long advocacy of greater efforts in this direction, his service to science and the nation as a leader in numerous organizations and agencies, and his record (during his long service with the Rockefeller Foundation) of overseeing grants that laid much of the groundwork for the current revolution in the biological sciences. The Alfred P. Sloan Foundation takes pleasure in joining in this salute to its distinguished consultant and trustee.

DR. WARREN WEAVER

Economic Research and Education

The Foundation's programs in economics have paralleled in many respects its programs in science, described earlier in this report. Much remains to be learned about the nation's rapidly evolving economic structure, and the Foundation thus has continued to support considerable research in this field. It also has made grants to improve the teaching of economics and has supported programs in public education designed to enhance economic understanding which is quite as important in its implications for democracy as improved public understanding of science, referred to earlier. Finally, as a contribution toward advanced training of the business leadership upon which economic progress so heavily depends, the Foundation has supported two parallel academic programs of executive development for professional management personnel.

The interests embraced under the general heading of "Economic Research and Education" are among the oldest concerns of the Foundation, having had an especial appeal in the early thirties when the Sloan Foundation was established. While the postwar challenges of science and technology and the urgent problems of higher education have made increasing claims on the Foundation's resources during the past two decades, the Foundation has nevertheless maintained its interest in the economic aspects of our national life in the belief that independent research and public enlightenment are still imperative.

JOHNS HOPKINS UNIVERSITY

Research in Problems of Large-Scale Enterprise

Since 1947 the Foundation has supported continuing studies of the role of the large corporation in the American economy. These were carried out primarily by Dr. A. D. H. Kaplan of the Brookings Institution of Washington, D. C., and resulted initially in the publication of Dr. Kaplan's *Big Enterprise in a Competitive System* in 1954. A revised edition, in which Dr. Kaplan had the collaboration of Dr. Charles H. Berry of the Brookings senior staff, was completed in 1964 and published early in 1965. (See the Foundation's Report for 1963-64, pp. 90-91.)

In order to examine the subject of Dr. Kaplan's study in a broader context, the Foundation early in 1965 granted $100,000 for a new five-year study to be directed by the economic historian, Dr. Alfred D. Chandler, director of the Center for Recent American History at Johns Hopkins University. The five-year project at Johns Hopkins will attempt, in Dr. Chandler's words, "to trace the evolution of the large corporation in the United States during the latter part of the 19th and first part of the 20th Century and to trace this development in terms of the constantly changing social, intellectual, and economic context in which this development has taken place."

CONTINUING RESEARCH IN ECONOMICS

National Bureau of Economic Research, Inc.
The Brookings Institution

Work continued in 1965 on two major economic research projects financed by earlier grants from the Sloan Foundation. One of these, for which the Foundation granted $500,000 in 1964, is an investigation by the National Bureau of Economic Research, Inc., of the possibilities in a free society of achieving significant increases in productivity, reaching

and maintaining reasonably full employment, and yet avoiding inflation. According to a recent Bureau announcement, one study in this project, directed by Professor George J. Stigler of the University of Chicago, is seeking to secure better measurements than are now available of the actual behavior of industrial prices. Another study, headed by Professor John W. Kendrick of the University of Connecticut, is exploring the possibility of broadening the concept of the gross national product to include such outputs as those created by governmental activity and the voluntary and "do-it-yourself" activities of consumers. A third study, under the direction of Professor Solomon Fabricant of New York University, will examine the historical relationships among trends in general price levels, in productivity, and in rates of employment. Dr. Fabricant will also expand his earlier work on the effect of automation on employment in American manufacturing industries to include the effect of automation in other industries and in other countries. Other studies are being planned to contribute to answering the project's basic question which, restated rather simply, is: Can a free society achieve and sustain prosperity and rising productivity without inflation?

The second major research project in progress is an extension in a new direction of Dr. A. D. H. Kaplan's work on large-scale enterprise. Dr. Charles H. Berry, of the senior staff of the Brookings Institution, is directing a detailed analysis of the role of product diversification in contributing to the growth of the nation's largest manufacturing corporations in the past fifteen years. This project is supported by a grant of $250,000 made by the Sloan Foundation to Brookings in 1963 of which the third payment was made in 1965. It will examine, among other questions, the extent to which growth of an individual large manufacturing firm is related to the overall growth of its industry; the relative responses, as reflected in expansion of facilities, of large firms and of small firms to the incentives offered by growth in their industries; and patterns of change in the products of individual manufacturing plants.

EDUCATIONAL FILMS IN ECONOMICS

In an effort to bring to a wider audience some of the results of the economic research it has helped to support, the Foundation began in 1962 an experimental film project which, if initial public reaction warrants, may become a new series of films on economics for students and interested adults. The first film, entitled *Productivity: Key to America's Economic Growth* and based partly on Professor John W. Kendrick's *Productivity Trends in the United States*, was well received by the academic community. A second film, underwritten in 1965 and scheduled for production in 1966, will deal with large corporate entities and the general structure of our industrial economy. Its present title is *The Modern Corporation*. Much of its basic material will be drawn from Dr. A. D. H. Kaplan's studies of large-scale enterprise referred to above and from the work of other students of this subject. (For a description of the *Productivity* film, see the Foundation's Report for 1963-1964, pp. 98-100.)

The film on corporate enterprise, like its predecessor, is being produced for the Foundation by Sutherland Educational Films of Los Angeles. Its script was reviewed by leading economists and by social studies teachers in various school systems. Advice has also come from the National Association of Secondary School Principals which is collaborating with the Foundation in distributing this film, as it has done for the *Productivity* film.

GRANTS IN ECONOMIC EDUCATION

The Foundation in 1965 made two $10,000 grants to improve the teaching of economics at the elementary and secondary school levels. A second year of support was provided for a two-week summer seminar at Purdue University which introduced teachers from recently integrated

A scene from the film, *The Modern Corporation*, illustrates the growth of industrial assets from 1909 to 1960.

Construction for the Graduate School of Business, Stanford University.

New York City schools to newly developed course materials in elementary economics. The Foundation also renewed its earlier supporting grant to the **Joint Council on Economic Education** of New York City, an organization which has long been working to promote and improve economic education in the nation's schools.

EXECUTIVE DEVELOPMENT

Massachussetts Institute of Technology
Stanford University

A program of the Foundation which is older than the Foundation itself is the Sloan Fellowship Program for Executive Development at the Massachusetts Institute of Technology. Mr. Sloan personally provided the first of these fellowships in 1931; the Sloan Foundation (established in 1934) began its support in 1938. Since 1938 some 562 "middle management" executives have spent a full twelve months at MIT in a broad academic program which includes work in the social sciences and the humanities as well as in management.

Those chosen for this program—about forty-five each year—usually range in age from thirty-two to thirty-eight, the average age being thirty-six. They have already assumed managerial responsibilities in their own companies and have demonstrated the skill and judgment to assume more. Typically their duties have been rather specialized; the year at MIT is intended to prepare them for broader and more general responsibilities in the future. The MIT-Sloan Fellowship program frees these young executives from their regular responsibilities for a full year of intensive exposure to the most advanced management theory and practice at a point in their careers when this experience can be of maximum value to them and to their organizations. The fact that their wives and families share with them this period of advanced education lends, in MIT's judgment, additional value to the program.

The Foundation's annual contribution of $312,500 to the MIT-Sloan Fellowship program supports somewhat less than one-fourth of its cost. Most of the balance is paid by the organizations which send the fellows to the program. The Foundation also continues to provide MIT with general support in the amount of $220,000 a year for the Alfred P. Sloan School of Management.

A parallel program of executive development fellowships at the Stanford University Graduate School of Business enrolled its eighth class of Stanford-Sloan fellows in 1965. The Stanford-Sloan program, established in 1958, has given advanced management education to 127 fellows since that time. Though modeled after the program at MIT, it incorporates certain features of its own. Perhaps the most significant is the inclusion in each class of fellows from industry and government of six candidates working for the Ph.D. in management. The resulting cross-fertilization of ideas between practicing managers and future professors of management adds another dimension to the program.

Beginning in 1966, Stanford plans to double the annual number of Stanford-Sloan fellows from approximately twelve to twenty-four. Most of the resulting increase in costs will be borne by industry. The Graduate School of Business is making available increased space for the program in its new building, scheduled for completion in 1966, toward the construction of which the Sloan Foundation granted $1,000,000 in 1964.

As is the case with the MIT program, about one-fourth of the annual cost of the Stanford-Sloan Fellowship program is supported by the Foundation, the remainder being paid by the fellows' sponsoring organizations. The Foundation's support, which amounted to about $135,000 per year in the most recent financing period, has totaled $1,002,000 since the program was established.

Medical Research and Education

The Foundation's medical interests in 1965 continued to focus on research in cancer and certain educational programs in that field, although limited support was also made available for research in ophthalmology and otology. A few grants were made to assist in meeting certain special needs in medical education. Funds expended in these specialized medical areas during 1965 approximated $1,340,000, a decline of about one-third from the average of new medical commitments in each of the preceding two years.

CANCER RESEARCH

As in prior years, the Foundation's support of cancer research and education was limited to the program of the Sloan -Kettering Institute for Cancer Research or to activities related to that program. The Institute, which was established with a grant from the Foundation in 1945, and the closely-related Memorial Sloan-Kettering Cancer Center have, in recent years, greatly expanded their support from federal and other sources; thus the Sloan Foundation's annual grant of $400,000 for the Institute now amounts to less than five per cent of the latter's operating budget.

While the Foundation's support of the Institute therefore is modest in terms of the Institute's total requirements, it has the advantage of

being unrestricted in nature and thus is available for needs not met by specific research grants from governmental and private agencies. The research capacity of the Institute has been expanding, both through the opening of the new Kettering Laboratory in 1964 and through the projected remodeling of the Institute's original laboratory building, now named the Howard Laboratory in honor of the late Frank A. Howard, a co-founder of the Institute. The search for causes of the various types of cancer is carried on by the Institute's research staff through advanced techniques of virology and cell cytology, and through the newer approaches of immunology, among other means. At the same time, through its educational programs, the Institute gives advanced training at both the pre-doctoral and post-doctoral levels to investigators specializing in basic scientific disciplines which have a bearing on the problem of cancer.

Alfred P. Sloan, Jr., at the presentation of Alfred P. Sloan Cancer Awards on May 18, 1965—his last public appearance. With him are award-winning Doctors Henry T. Randall, C. Chester Stock, and Irwin H. Krakoff.

Supplementing its grants to the Sloan-Kettering Institute, the Sloan Foundation has also provided annual support to the Southern Research Institute of Birmingham, Alabama. The Southern Research Institute conducts research in chemotherapy and other aspects of the cancer problem in cooperation with the Sloan-Kettering Institute. The Foundation's support of the Southern Research Institute has amounted to $75,000 a year, which has been matched by the Charles F. Kettering Foundation.

With the collaboration of the Sloan-Kettering Institute and the Memorial Sloan-Kettering Cancer Center, the Foundation also continued during 1965 a program of awards known as the Alfred P. Sloan Awards in Cancer Research. This program had been established in 1962 and was initially financed by a special gift which Mr. Sloan made to the Foundation at that time. The awards are intended to honor significant achievements by physicians and scientists engaged in cancer research, and carry a cash prize of $10,000. In addition the awards encourage the recipient to spend as much as a year in other research centers, either within the United States or abroad.

The Alfred P. Sloan Awards in Cancer Research for 1965 went to the following physicians and scientists:

IRWIN H. KRAKOFF, M.D., associate member, Sloan-Kettering Institute for Cancer Research; associate attending physician, Memorial Hospital for Cancer and Allied Diseases; and assistant professor of Medicine at Cornell University Medical College. Dr. Krakoff's award recognizes his contributions to the care of patients with advanced cancer and to scientific understanding of the biochemical mechanisms involved in responses to chemotherapy.

HENRY T. RANDALL, M.D., chairman of the Departments of Surgery, Memorial Hospital for Cancer and Allied Diseases and

the James Ewing Hospital of the City of New York; professor of Surgery, Cornell University Medical College; and member of the Sloan-Kettering Institute for Cancer Research. Dr. Randall was recognized as a leading surgeon, administrator and educator in the cancer field and for his contributions on the effects of surgical procedures on metabolic processes.

C. CHESTER STOCK, Ph.D., member and vice president, Sloan-Kettering Institute for Cancer Research and director of the Donald S. Walker Laboratory; and professor of Biochemistry, Sloan-Kettering Division, Graduate School of Medical Sciences, Cornell University Medical College. Dr. Stock received his award in recognition of his role as one of the principal architects of the cancer chemotherapy program in the United States.

OPHTHALMOLOGY AND OTOLOGY

In ophthalmology most of the Foundation's grants supported studies on the incidence and treatment of glaucoma and the related disease of uveitis. The ophthalmological grants are recommended to the Foundation by a group of advisors known as the Council for Research in Glaucoma and Allied Diseases, which has headquarters at 111 East 59 Street, New York City. The group's Chairman is Dr. John H. Dunnington, professor emeritus of Ophthalmology at Columbia University. Expenditures in this program in 1965 approximated $175,000 and brought the total of the Foundation's thirteen-year support of the ophthalmological program to more than $1,300,000. The grants were made in support of some eleven projects at eight institutions. Additionally approximately $12,000 was distributed in the form of fellowship stipends for students at three institutions.

The specific grants in 1965 were as follows:

The Johns Hopkins University School of Medicine: to develop and evaluate new procedures for the measurement of the ocular pulse in normal and glaucomatous eyes $18,350

The Johns Hopkins University School of Medicine: for research on the pathogenesis of recurrent non-granulomatous uveitis $15,700

The Eye Bank for Sight Restoration: for a study of the behavior of the optic nerve in glaucoma $18,000

Cornell University Medical College: for a radioautographic study of catecholamine localization in the eye $11,546

University of Chicago: for fine microscopy and radioautography of the trabecular area in the glaucomatous eye $25,000

Columbia University College of Physicians and Surgeons: for investigations of mast cells in the uvea $10,685

Institute of Ophthalmology, Columbia University: for research in cryosurgery in cases of glaucoma $10,000

Institute of Ophthalmology, Columbia University: for a study of the relative effect of different qualities of radiation (RBE) and different dosage schedules on the mammalian lens $10,010

The Mount Sinai Hospital, Department of Ophthalmology: for pharmacogenetic studies in ophthalmology $10,900

University of California, Francis I. Proctor Foundation: for expansion of research facilities $20,000

New York Association for the Blind: for the Council for Research in Glaucoma and Allied diseases $12,100

Otological activities of the Foundation are limited to support of the research program of the Deafness Research Foundation. This body, established in 1958, is professionally staffed and equipped to distribute funds for ear and hearing research to physicians and scientists in leading university medical schools in the United States. Fourteen grants, made by the Deafness Research Foundation in 1965, were charged to the proceeds of a major grant of $258,750 which the Sloan Foundation had made to the Deafness Research Foundation in 1964.

CORNELL UNIVERSITY MEDICAL COLLEGE

To assist in financing the projected William Hale Harkness Medical Research Building, the Foundation in 1962 made a grant of $500,000 to the Cornell University Medical College. The contribution toward the construction of this research building was made primarily because of the long-standing collaboration between Cornell Medical College and the Sloan-Kettering Institute in certain graduate teaching and research programs. The plan for the new Harkness building was reviewed in the spring of 1965 and the needs of the College reappraised. At that time it was decided to add another floor and make available additional space. For these reasons and because of other increases in costs the Foundation's Trustees, in 1965, authorized an additional grant of $500,000, thus bringing the Foundation's contribution to $1,000,000. The total cost of the new facility is expected slightly to exceed $9,000,000.

SKIDMORE COLLEGE

Expansion of Nursing Education

Related to its specific interests in the medical field was a grant which the Foundation made in 1965 to assist Skidmore College in improving and expanding its program of education for nurses. The grant for this purpose was $100,000. The Skidmore program is conducted in cooperation with the New York University Medical Center. The grant will assist in financing a combined educational and residential building in New York City across First Avenue from the Medical Center. There the student nurses will live and study during their sophomore and junior college years, at the same time receiving clinical training at the Medical Center, before returning to the Skidmore campus at Saratoga Springs, New York, for their senior year and their baccalaureate degrees. The new facilities will enable Skidmore to expand its annual output of professional nurses from twenty-five to fifty.

Engineering and Engineering Education

As is well known, a significant lag often exists between advances in scientific knowledge and their translation into meaningful improvements in the human environment. While part of the lag may be attributed to a lack of social and political instruments needed for useful applications of new knowledge, it is also true that a major brake on progress is the shortage of manpower trained to make a searching analysis of what it is possible to create with the knowledge available and how to go about it. Projections of the need for this kind of technical manpower indicate that the shortage will grow serious unless increased efforts are made to overcome it. The grants described in this section are all designed to create, often in indirect ways, greater strength in the nation's capacity to put its expanding scientific knowledge to work for human benefit through the techniques of engineering.

The Alfred P. Sloan Foundation has had an historic interest in engineering—its founder was trained as an engineer—and has expressed this interest partly through major grants designed to strengthen private institutions which are leading producers of engineers. Over the years the Foundation has observed and encouraged the transformation of the best formal engineering education from "training" in relatively narrow engineering disciplines to broader and deeper education not only in fundamentals of science but also in the new and vastly more complex disciplines

of engineering, which, together with the humanities and social sciences, enable the modern engineer to use his technical abilities in a context of economic, social, and political realities.

Some concomitants of this trend in engineering education have been an increasing rigor in course content, increasing selectivity in top-ranking institutions' admissions policies, and increasing average length of time spent in engineering study, with more and more future engineers enrolling for study at the graduate level. It is, in short, becoming harder to become a competent engineer—and to remain one—at a time when the demand for highly trained engineers is rising sharply. Several activities supported by the Alfred P. Sloan Foundation are addressed to resolving this national problem.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Center for Advanced Engineering Study

The Center for Advanced Engineering Study, established under a $5,000,000 grant by the Alfred P. Sloan Foundation in 1963, successfully completed in 1965 the first full year of its Practicing Engineer Advanced Study Program. This program is a part of the Center's pioneering effort at keeping selected professional engineers and professors of engineering abreast of rapidly expanding new frontiers in engineering and science. (See the Foundation's Report for 1963-64, pp. 36-39.) The Center was established in response to clear indications of a special problem confronting many of the nation's mid-career and senior engineers and engineering professors; namely, the emergence since World War II of powerful new technologies—nuclear engineering, automation and feedback controls, information theory, computer technology, solid-state physics, and plasma physics, to name a few—for which their own education had signally failed to prepare them.

A five-week summer course in solid state physics was given in 1965 at MIT's Center for Advanced Engineering Study.

The summer course in solid-state physics at MIT was attended by fourteen engineers from industry and fourteen college and university faculty members.

Engineers and engineering professors relax over lunch during a break from advanced studies at MIT.

The ten men chosen for the first year of the Practicing Engineer Advanced Study Program each followed a specially tailored program at MIT, making use of research facilities, formal classroom study, seminars, and tutorial services as each man's interests and needs indicated. Some of them spent part of their time at the Alfred P. Sloan School of Management, with emphasis on management of technological activities. Their programs varied in this way because of the wide variations in their technical backgrounds, professional fields, and future responsibilities in their companies. Though a small group, their key positions in their companies promised to spread the benefits of their year at the Center for Advanced Engineering Study through a wide circle of their associates. A second group of fifteen men, also from industry, enrolled at MIT for the 1965-66 academic year.

The Center in 1965 also completed its first five-week summer program. The initial program was in solid-state physics, and it will be repeated in the summer of 1966. It was attended by fourteen engineers from industry and fourteen college and university faculty members. A grant from the National Science Foundation provided support for the faculty members attending this program.

NATIONAL ACADEMY OF ENGINEERING

Recognition for Distinguished Engineers

A significant step toward enhancing the stature of engineering as a profession was taken late in 1964 with the establishment of the National Academy of Engineering. Membership in the new Academy is intended to confer on certain outstanding engineers the kind of high honor and prestige that attaches to scientists who are members of the National Academy of Sciences.

The National Academy of Engineering was established by the National Academy of Sciences and has its headquarters at the National

Academy of Sciences building in Washington, D. C. The new Academy shares with the Congressionally-chartered National Academy of Sciences the responsibility for advising the federal government, upon request, in all matters of science and technology. It is, however, autonomous in its organization and in its election of members. It is also to be independently financed. The Alfred P. Sloan Foundation in 1965 granted the National Academy of Engineering $100,000 for support of its initial operations.

MICHIGAN STATE UNIVERSITY

Study of Retention and Attrition Among Students of Engineering

The percentage of freshman engineering students who actually complete degrees in engineering has been declining, and this high rate of attrition has been a cause of concern to engineering educators and to all who are interested in seeing the nation's capacity for technological advancement preserved and enhanced. Thus in 1965 the Sloan Foundation granted $4,882 to Michigan State University for a study of freshman and sophomore students in three Midwestern engineering schools who changed to another major subject, the object being to discover what, if any, common factors influenced their decision. The study is being carried out cooperatively by Michigan State University, Northwestern University, and the University of Wisconsin.

COMMISSION ON ENGINEERING EDUCATION

Motivation Toward Careers in Engineering

In an effort to interest more high school students in taking up careers in engineering, the Commission on Engineering Education is preparing a book depicting the fascination and challenge of engineering through

a series of case studies of great engineering achievements. The Boeing 707 jet, the International Business Machines 7090 computer, and the nuclear-powered submarine are examples of engineering accomplishments to be recounted in the book, for which the Sloan Foundation granted $10,000 toward production costs in 1965.

During 1965, the Sloan Foundation also granted $10,000 to the Commission on Engineering Education for selective distribution to high school guidance counselors and others of 3,390 copies of a book, *Listen to Leaders in Science*, containing articles by leading scientists having a parallel purpose of interesting young people in careers in science. The Foundation earlier granted $10,000 to the Commission on Engineering Education for similar distribution of a companion volume, *Listen to Leaders in Engineering*.

Other Grants

A number of grants were made in 1965 for purposes other than those described in preceding sections of this report. Some of them impinged in direct or peripheral ways on various interests of the Foundation, and some were rooted in historic associations of the Foundation. While the amounts involved were not large, experience has shown that such grants often yield an unusually high return on the philanthropic dollar.

AUTOMOTIVE SAFETY FOUNDATION

Alfred P. Sloan Awards for Highway Safety

Since 1947 the Sloan Foundation has provided annual support for a program of awards honoring outstanding efforts through radio and television to encourage safer driving. The program is administered by the Automotive Safety Foundation, which appoints a panel of experts to judge the various entries. Bronze plaques and citations were presented in 1965 to three commercial radio stations and one radio network; to two commercial television stations; to two educational radio stations and one educational television station; and to five advertising sponsors of broadcast safe-driving appeals. In addition, $1,000 cash awards were pre-

sented to one television writer and one television producer for exceptionally creative efforts to reduce the traffic toll in their regions.

STANFORD UNIVERSITY

Hoover Institution on War, Revolution, and Peace

A collection of documents at Stanford University serves as an important storehouse of information for scholars, authors, and researchers studying the conduct of war and the communist revolution. This collection, housed in the Hoover Institution on War, Revolution, and Peace in Stanford's Hoover Tower, began with a gift of World War I documents by the late President Herbert Hoover to his alma mater. It has been augmented over the years by documents obtained by various means from communist and other nations. To help meet the Hoover Institution's growing budgetary and space needs the Sloan Foundation granted Stanford $50,000 in 1959; it provided an additional $25,000 in 1965.

AIR FORCE MUSEUM FOUNDATION, INC.

A collection of aircraft portraying the history of an important element in the nation's evolving technology is currently housed in temporary quarters at the National Air Force Museum at Wright-Patterson Air Force Base, Dayton, Ohio. The Sloan Foundation in 1965 contributed $50,000 to a national campaign to raise $10,000,000 for construction of a permanent home for the Museum.

COUNCIL ON FOREIGN RELATIONS

Since 1953 the Foundation has made modest annual supporting grants to the Council on Foreign Relations, which was founded after World War I to stimulate public awareness of the new responsibilities of the United States as a major world power. One of the Council's activities is its publication of the influential quarterly, *Foreign Affairs*. The Council's activities have expanded with the widening involvement of the United States in international affairs. Accordingly, the Sloan Foundation increased its support of the Council to $25,000 in 1965.

Listed below are grants approved in 1965 under discretionary authority confided to the staff of the Foundation by the trustees. Some of these grants represented exploratory investments to help the Foundation determine whether a particular area or project should become a major interest of the Foundation. Others helped underwrite experimental or demonstration projects, or were designed to help launch or initiate new activities which promised to become self-sustaining. Still others were for community activities, principally in greater New York, the community of which the Foundation is a part.

University of Alaska, College, Alaska: To support for one academic year a visiting-professor program in the University's Department of Chemistry $10,000

American Association of Junior Colleges, Washington, D. C.: To support an internship in technical education in the Association's Washington Internships in Education $10,000

American Council on Education, Washington, D. C.: For support of the Association of Governing Boards of Universities and Colleges $ 7,000

American Geographical Society, New York, N.Y.: General support of the program of the Society $10,000

American-Philippine Science Foundation, Inc., New York, N.Y.: To meet the cost of the visit for one year of an American scholar to the Philippines to assist in the development of a program at the Philippine Science High School, Manila $10,000

Aspen Institute for Humanistic Studies, Aspen, Colorado: For support of the activities of the Institute's Physics Division for 1965 . . $10,000

Association of American Colleges, Washington, D. C.: For general support of the Association $10,000

Bank Street College of Education, New York, N.Y.: Supplementary grant for the Yorkville-East Harlem educational project directed by the College . . . . . $ 673

University of Cambridge, England: Partial support of research in the history of mathematics by Dr. Derek T. Whiteside $10,000

Children's Hospital of Michigan, Detroit, Michigan: Toward the building and maintenance fund of the Hospital $10,000

Cleveland Commission on Higher Education, Cleveland, Ohio: For an Opinion Research Study of corporate giving to higher education $10,000

Columbia University, New York, N.Y.: Terminal grant in support of annual seminar for administrative personnel of municipal hospitals in the New York metropolitan area . . . . . $ 6,000

Columbia University, New York, N.Y.: Toward replenishing scholarship-loan fund for students in hospital administration in the School of Administrative Medicine . . . . . $ 7,500

Columbia University, College of Physicians and Surgeons, New York, N.Y.: Contribution to the building fund for the alumni auditorium of the College of Physicians and Surgeons $10,000

Columbia University Press, New York, N.Y.: To complete storyboard and script for a film biography of Galileo $10,000

To provide, in part, the publication deficit of one volume of *The Papers of Alexander Hamilton* $10,000

Eastern Nazarene College, Quincy, Massachusetts: For the purchase of equipment for the College's Department of Physics . . . . . $ 5,000

Educational Broadcasting Corporation, New York, N.Y.: For general support of the donee organization which operates Channel 13, WNDT $10,000

The Foundation of the Federal Bar Association, Washington, D. C.: For the purchase and distribution of lawbooks and books on the American legal system to lawyers and specialists in the law in selected newer or emerging nations, program to be carried out by Lawbooks U.S.A. $ 2,500

Foundation for Medical Technology, New York, N.Y.: To support activities in medical electronics and biological engineering $10,000

University of Hartford, West Hartford, Connecticut: To finance a study of the need for engineering education in the Hartford, Connecticut area $10,000

Harvard University, Cambridge, Massachusetts: To the George Packer Berry Fund of the Harvard Medical School . . . . . $ 5,000

The Institute of Living, Hartford, Connecticut: To support the Institute's program of research and training of student nurses in the care of psychiatric patients $10,000

Istituto e Museo di Storia della Scienza, Florence, Italy: Toward the general expenses of the Institute . . . . . $ 5,000

Interdenominational Theological Center, Atlanta, Georgia: Toward the Center's student aid funds or other activities of the Center . . $10,000

London School of Economics and Political Science, London, England: To finance American participation in the colloquium on the philosophy of science held in London, July 11-17, 1965 . . . . . $ 7,000

To edit proceedings of the colloquium . . . . . $ 1,500

The Mary Imogene Bassett Hospital, Cooperstown, New York: To support the investigations of Dr. John H. Powers in the preparation of a book tentatively entitled, Surgery of the Aged and Debilitated Patient $10,000

National Academy of Sciences, Washington, D. C.: Toward the cost of a study on the application of scientific and technological research to the economic and social development of emerging nations $10,000

To provide honoraria for authors preparing resource papers for a conference on the formation of policy for biomedical research, held in Williamsburg, Virginia, February 28-March 3, 1965 . . . . . $ 2,350

National Council on Radiation Protection and Measurements, Washington, D. C.: Partial support of the program of the donee organization $10,000

National Fund for Graduate Nursing Education, New York, N.Y.: For general support of the Fund $15,000

National Institute of Public Affairs, Washington, D. C.: To support a series of government-industry seminars on the use of advanced scientific, technical, and system capabilities to increase effectiveness of public programs in such areas as education, environmental pollution, regional economic development, and transportation $10,000

The New York Academy of Sciences, New York, N.Y.: For partial support of a conference on "Medical Schools and Teaching Hospitals: Curriculum, Programming and Planning," held under the joint auspices of The New York Academy of Sciences, the Association of American Medical Colleges, and the New York Chapter, American Institute of Architects . . . . . $ 3,000

For a conference on Axenic Cultures and Defined Media . . . . $ 2,100

New York Medical College, New York, N.Y.: To assist the College's Institute for Developmental Studies to meet certain critical space and equipment needs $10,000

New York University, New York, N.Y.: For partial support of the Governing Council of the Courant Institute of Mathematical Sciences for the years 1964-1965 and 1965-1966 . . . . . $ 3,000

New York University, Institute of Fine Arts, New York, N.Y.: To support research on the deterioration of stone sculpture and architecture exposed to the atmosphere $10,000

Northfield and Mount Hermon Schools, East Northfield, Massachusetts: Additional contribution toward the support of a summer Institute on psychiatric counselling of students in selected private secondary schools . . . . . $ 9,763

Population Reference Bureau, Inc., Washington, D. C.: For general support $10,000

Rutgers—The State University, New Brunswick, New Jersey: To support designated research in the University's School of Chemistry . $-1,100

Smithsonian Institution, Washington, D. C.: For the support of the observance of the 200th anniversary of the birth of the founder of the Smithsonian Institution . . . . . $ 5,000

The Taft School, Watertown, Connecticut: To support a pilot summer program in mathematics and science for elementary school children and teachers $10,000

United States Military Academy, West Point, New York: Contribution toward a research program of the Academy's Admissions Office which seeks to develop a measure of values on the part of applicants and students . . . . . $ 6,000

Vassar College, Poughkeepsie, New York: Contribution toward the purchase of a spectrophotometer for the College's Chemistry Department $ 5,000

Volunteers for International Technical Assistance, Inc., Schenectady, New York: For general support in strengthening this program . . $10,000

Washington University, St. Louis, Mo.: Staff grant to supplement earlier commitment of the Foundation for strengthening the University's science faculty and program of instruction. Proceeds of the supplementary grant are to be used to improve the University's mathematics library . . $10,000

World Federation for Mental Health, New York, N.Y.: For general administrative support . . . . . $ 5,000

World University Service, New York, N.Y.: Terminal grant for support of the African Student Service of Cambridge, Massachusetts . . $ 2,500

Young Women's Christian Association of Brooklyn, Brooklyn, New York: Contribution toward the support of the Brooklyn YWCA School of Practical Nursing . . . . . $ 2,500

The staff of the Foundation also approved grants for general support of the following organizations:

American Arbitration Association, Inc., New York, N.Y. $10,000

The American National Red Cross, Washington, D. C. $10,000

Freedom House, New York, N.Y . . . . . $ 5,000

International House, New York, N.Y.. . . . . $ 3,500

The Legal Aid Society, New York, N.Y. $10,000

National Board of Young Men's Christian Associations, New York, N.Y. $10,000

National Information Bureau, New York, N.Y. . . . . $ 1,000

The New York Public Library, Astor, Lenox and Tilden Foundations, New York, N. Y. . . . . $ 7,500

USO Fund of New York, Inc., New York, N.Y. . . . . $ 2,500

Financial Review

The financial condition of the Foundation at December 31, 1965 is set forth in a balance sheet on page 75 of this report. The net worth of the Foundation at that date, based on market values, was divided as follows:

General Fund	$275,842,328
General Motors Dealers Appreciation Fund	12,654,149
Total	$288,496,477

The Alfred P. Sloan Cancer Research Awards Fund established in 1962 by a gift from Mr. Alfred P. Sloan, Jr. was merged with the General Fund in December 1965.

All grants and expenses except those specifically designated as payable from the General Motors Dealers Appreciation Fund are charged to the General Fund. Grants paid from the Dealers Fund are devoted to cancer research.

The operations of the Foundation for the year and the status for the various Funds at the end of the year are shown in the Statement of Income and Funds Adjusted to Market Quotation Values on pages 80 and 81 of this report. This statement shows an operating deficit of

$2,074,058. The operating accounts reflect the policy, adopted in 1962, of charging grants to expense when made rather than when paid. Commitments of the Foundation, representing grants payable but not due, at December 31, 1965 were $20,826,508.

The following summary shows what the year's operating results would have been had a policy of charging grants to expense when paid been in effect for the year:

Receipts:	
Investment income	$11,849,979
Grant refunds	110,571
Trust accounts	101,745
Total	$12,062,295
Expenditures:	
Grants and awards paid	$14,156,040
Sloan cancer awards	125,009
Administrative and experimental expense	766,236
Total	$15,047,285
Expenditures in excess of income	$(2,984,990)

HASKINS & SELLS
CERTIFIED PUBLIC ACCOUNTANTS

TWO BROADWAY
NEW YORK 10004

February 9, 1966

ACCOUNTANTS' OPINION

ALFRED P. SLOAN FOUNDATION:

We have examined the balance sheet of Alfred P. Sloan Foundation as of December 31, 1965 and the related statement of income and funds adjusted to market quotation values for the year then ended, and the supplemental schedules of investments and grants. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, such financial statements and supplemental schedules present fairly the financial position of the Foundation at December 31, 1965 and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

HASKINS & SELLS

BALANCE SHEET

DECEMBER 31, 1965

ASSETS	LEDGER VALUES	MARKET VALUES
Cash	$ 270,330	$ 270,330
Investments:		
Fixed income securities	38,093,785	37,512,672
Marketable stocks	120,779,330	268,598,449
New Castle Corporation common stock, proportionate ownership of underlying assets	1,744,861	2,941,534
TOTAL	$160,888,306	$309,322,985

LIABILITIES AND FUNDS		
Grants authorized but not due for payment	$ 20,826,508	$ 20,826,508
Fund Balances:		
General Fund	134,745,206	275,842,328
General Motors Dealers Appreciation Fund	5,316,592	12,654,149
TOTAL	$160,888,306	$309,322,985

NOTES:

(1) In accordance with the policy of the Foundation, no effect has been given to income accrued but not due at December 31, 1965.

(2) See note to statement of income and funds adjusted to market quotation values.

(3) The Foundation commenced a matching fund program in 1965 under which it may be required to contribute $1,000,000 during the two years ended November 30, 1967. No liability was incurred or provided for this program through December 31, 1965.

INVESTMENTS
DECEMBER 31, 1965

	PRINCIPAL AMOUNT	MARKET QUOTATION VALUE
Fixed Income Securities:		
Obligations of United States Government:		
Treasury Bills, discounted–3/31/66	$1,175,000	$ 1,161,800
Treasury Bonds,		
3⅞%–5/15/68	4,300,000	4,192,500
4% –8/15/70	3,000,000	2,887,500
4% –8/15/73	6,421,000	6,111,957
Treasury Notes,		
4% –2/15/70	2,400,000	2,316,000
Federal National Mortgage Association		
4.70%–12/1/71	2,000,000	1,960,000
Total		18,629,757
American Telephone & Telegraph Company,		
Debenture 4⅜%–4/1/85	1,500,000	1,415,625
Commercial Credit Corporation Notes:		
4.35%–2/7/66	1,760,000	1,760,000
4.57%–5/25/66	2,875,000	2,875,000
First National City Bank of New York		
Certificate of Deposit,		
4½%–11/9/66	1,640,000	1,640,000
General Motors Acceptance Corporation:		
Debentures,		
5%–9/1/80	1,300,000	1,316,250
5%–3/15/81	1,500,000	1,507,500
Notes:		
4½%–3/21/66	1,350,000	1,350,000
4½%–8/11/66	2,500,000	2,500,000
James Talcott Inc.,		
Note 4½%–1/18/66	2,800,000	2,800,000
Morgan Guaranty Trust Co. of New York		
Certificates of Deposit:		
4¾%–6/13/66	500,000	500,000
4.80%–6/27/66	1,000,000	1,000,000
Public Service Electric & Gas Company,		
Debenture 4⅝%–3/1/77	223,000	218,540
Total		18,882,915
Total Fixed Income Securities		$37,512,672

INVESTMENTS
DECEMBER 31, 1965
–CONTINUED–

	NUMBER OF SHARES	MARKET QUOTATION VALUE
Stocks–Common or Capital:		
American Cyanamid Company	25,000	$ 2,162,500
American Metal Climax Inc.	58,000	2,776,750
American Natural Gas Company	60,000	2,985,000
American Telephone & Telegraph Company	257,272	15,629,274
Avon Products, Inc.	17,000	1,221,875
Babcock & Wilcox Company, The	70,000	3,027,500
Bankers Trust Co. (New York, N. Y.)	4,444	275,528
Broken Hill Proprietary Co. Ltd., The	90,000	492,210
Caterpillar Tractor Co.	64,800	3,223,800
Celanese Corporation of America	23,000	1,949,250
Central & South West Corporation	25,000	1,231,250
Chase Manhattan Bank, The (New York)	13,795	879,431
Continental Illinois National Bank & Trust Co. of Chicago	24,200	925,650
Corning Glass Works	10,050	2,296,425
Cutler-Hammer, Inc	28,000	1,627,500
Dresdner Bank A.G.	10,300	525,300
E.I. duPont de Nemours & Company	9,700	2,320,725
Eastman Kodak Company	57,000	6,690,375
Falconbridge Nickel Mines Limited	33,000	3,322,902
Farbenfabriken Bayer A.G.	26,325	1,085,906
First National Bank of Boston, The (Mass.)	22,500	1,445,625
First National Bank of Chicago	10,850	632,012
First National City Bank of New York	15,452	830,545
Florida Power Corporation	32,000	1,488,000
General Electric Company	38,050	4,489,900
General Foods Corporation	10,900	899,250

	NUMBER OF SHARES	MARKET QUOTATION VALUE
Stocks–Common or Capital *(continued)*:		
General Motors Corporation	1,192,394	$123,412,779
Gulf Oil Corporation	26,726	1,550,108
Hercules Powder Company	50,400	2,123,100
Household Finance Corp.	33,800	2,264,600
Idaho Power Company	32,000	1,180,000
International Business Machines Corporation	21,125	10,541,375
International Nickel Company of Canada, Ltd.	43,000	3,880,750
Kennecott Copper Corporation	11,000	1,348,875
Merck & Co., Inc.	30,000	2,115,000
Middle South Utilities, Inc.	30,300	1,602,113
Morgan Guaranty Trust Co. of New York	24,821	2,575,179
Northwest Bancorporation	15,000	675,000
Procter & Gamble Company, The	41,000	2,844,375
Public Service Electric & Gas Company	68,000	2,669,000
Royal Dutch Petroleum Company	74,400	3,162,000
Sears, Roebuck and Co.	89,500	5,907,000
Security First National Bank (Los Angeles)	12,073	540,267
Shell Oil Company	53,728	3,458,740
Smith Kline & French Laboratories	18,000	1,401,750
Socony Mobil Oil Company, Inc.	37,000	3,579,750
Southern Company, The	26,000	1,735,500
Standard Oil Company of California	13,700	1,094,288
Standard Oil Company (a New Jersey Corporation)	48,947	3,934,115
Texaco Inc.	54,249	4,360,263
Texas Utilities Company	24,600	1,515,975
Travelers Insurance Co. (Hartford, Conn.)	36,000	1,552,500

	NUMBER OF SHARES	MARKET QUOTATION VALUE
Stocks–Common or Capital *(continued)*:		
TRW, Inc.	57,200	$ 2,767,050
Unilever N.V. New York	66,666	2,133,312
Virginia Electric & Power Company	36,405	1,802,048
Wells Fargo Bank (San Francisco)	20,963	833,279
F. W. Woolworth Co.	75,000	2,371,875
Xerox Corp.	16,000	3,232,000
Total Marketable Stocks		268,598,449
New Castle Corporation	75	2,941,534
Total Stocks		$271,539,983

SUMMARY

Total Fixed Income Securities	$ 37,512,672
Total Stocks	271,539,983
TOTAL INVESTMENTS	$309,052,655

STATEMENT OF INCOME AND FUNDS

ADJUSTED TO MARKET QUOTATION VALUES

FOR THE YEAR ENDED DECEMBER 31, 1965

	TOTAL	GENERAL FUND	GENERAL MOTORS DEALERS APPRECIATION FUND
Income:			
Dividends and interest	11,849,979	$ 11,354,650	$ 495,329
Refunds of unexpended grants	110,571	110,571	
Trust accounts	101,745	101,745	
Total	12,062,295	11,566,966	495,329
Grants and Expenses:			
Grants authorized	13,245,108	12,845,108	400,000
Sloan Cancer Awards	125,009	125,009	
Administration, including investment counsel and custodial services	679,539	679,539	
Experimental projects	86,697	86,697	
Total	14,136,353	13,736,353	400,000
Income (deficit)	(2,074,058)	(2,169,387)	95,329
Income balance (deficit) at beginning of period	(31,212,080)	(31,875,338)	663,258
Income balance (deficit) at end of period	(33,286,138)	(34,044,725)	758,587
Principal:			
Balance at beginning of period, ledger value	170,397,400	165,942,073	4,455,327
Profit on disposals of securities	2,950,537	2,847,859	102,678
Balance at end of period, ledger value	173,347,937	168,789,932	4,558,005
Unrealized appreciation in security values	148,434,678	141,097,121	7,337,557
Balance at end of period, market value	321,782,615	309,887,053	11,895,562
Total Funds	288,496,477	$275,842,328	$12,654,149

NOTE: The Sloan cancer awards fund was merged with the general fund during 1965 and has been merged with the general fund in the above statement.

SCHEDULE OF GRANTS

	BALANCE DECEMBER 31, 1964	AUTHORIZED 1965	PAYMENTS 1965	BALANCE DECEMBER 31, 1965
Air Force Museum Foundation, Inc., The		$ 50,000		$ 50,000
Alaska, University of		10,000	$ 10,000	
Alberta, University of		16,100	6,440	9,660
Albion College	49,290	16,120	15,650	49,760
American Arbitration Association, Inc.		10,000	10,000	
American Association of Junior Colleges		10,000	10,000	
American Council on Education		7,000	7,000	
American Geographical Society of New York		10,000	10,000	
American Institute of Physics, Inc.		10,000	10,000	
American Mathematical Society	40,000		40,000	
American National Red Cross, The		10,000	10,000	
American-Philippine Science Foundation, Inc.		10,000	10,000	
Amherst College	94,650	28,950	31,350	92,250
Antioch College	26,100	9,300	10,100	25,300
Arizona, University of	15,180		15,180	
Aspen Institute for Humanistic Studies		10,000	10,000	
Association of American Colleges		10,000	10,000	
Atlanta University		48,129	48,129	
Automotive Safety Foundation, Inc.		18,500	18,500	
Bank Street College of Education		673	673	
Bassett Hospital, The Mary Imogene		10,000	10,000	
Bethune-Cookman College		37,200	4,650	32,550
Bishop College		37,200	4,650	32,550
Boston University		9,900	9,900	
Bowdoin College	58,250	19,450	20,250	57,450
Brandeis University	34,375	53,750	61,875	26,250
British Columbia, University of	14,950	17,250	23,575	8,625
Brookings Institution, Inc., The	175,000		75,000	100,000
Brown University	67,700	49,250	31,500	85,450
Bryn Mawr College	8,750		8,750	
California, University of	88,400	205,885	202,820	91,465

	BALANCE DECEMBER 31, 1964	AUTHORIZED 1965	PAYMENTS 1965	BALANCE DECEMBER 31, 1965
California Institute of Technology	$ 189,125	$ 5,142,258	$ 1,116,733	$ 4,214,650
Cambridge, University of		10,000	10,000	
Carleton College	35,904	18,873	9,700	45,077
Carnegie Institute of Technology	163,650	53,500	58,450	158,700
Case Institute of Technology	111,950	39,700	37,100	114,550
Chicago, The University of	204,250	100,000	266,750	37,500
Children's Hospital of Michigan		10,000	10,000	
City University of New York, The		21,275	7,360	13,915
Cleveland Commission on Higher Education		10,000	10,000	
Colby College	26,950	10,800	10,350	27,400
Colgate University	65,950	27,600	21,800	71,750
Colorado, University of		44,195	24,645	19,550
Columbia University	124,738	252,133	282,297	94,574
Columbia University Press		20,000	20,000	
Commission on Engineering Education, Inc.		20,000	20,000	
Community Blood Council of Greater New York, Inc.	500,000		500,000	
Conservation Foundation, Inc., The	15,000		15,000	
Cornell University	515,525	1,645,761	834,900	1,326,386
Council for the Advancement of Science Writing, Inc.	25,000		25,000	
Council on Foreign Relations, Inc.		25,000	25,000	
Dartmouth College	999,960	89,140	387,450	701,650
Davidson College	9,400	8,600	2,220	15,780
Deafness Research Foundation, The	143,750		143,750	
Dillard University		170,947	70,627	100,320
Eastern Nazarene College		5,000	5,000	
Educational Broadcasting Corporation		110,000	110,000	
Educational Services, Incorporated		280,000	160,000	120,000
Eye-Bank for Sight Restoration, Inc., The		18,000	18,000	
Fisk University		42,000	5,250	36,750
Florida, University of		11,500	5,750	5,750
Florida State University		16,330	3,910	12,420

SCHEDULE OF GRANTS

	BALANCE DECEMBER 31, 1964	AUTHORIZED 1965	PAYMENTS 1965	BALANCE DECEMBER 31, 1965
Foundation for Medical Technology		$ 10,000	$ 10,000	
Foundation Library Center	50,000		50,000	
Foundation of the Federal Bar Association, The		2,500	2,500	
Freedom House		5,000	5,000	
Georgia, University of		13,800	13,800	
Georgia Institute of Technology	13,800	21,485	13,150	$ 22,135
Grinnell College	11,200	10,800	2,450	19,550
Hamilton College	11,200	11,200	1,534	20,866
Hampton Institute		42,000	5,250	36,750
Hartford, University of		10,000	10,000	
Harvard University	183,220	114,670	141,770	156,120
Illinois, University of	44,178	40,537	50,220	34,495
Indiana University	7,540	16,100	15,590	8,050
Institute of Living		10,000	10,000	
Interdenominational Theological Center		10,000	10,000	
International House		3,500	3,500	
Iowa State University	23,000		23,000	
Istituto e Museo di Storia della Scienza		5,000	5,000	
Johns Hopkins University, The	589,650	185,400	307,975	467,075
Joint Council on Economic Education		10,000	10,000	
Kansas, The University of	8,050		8,050	
Knox College	31,385	9,705	8,275	32,815
Knoxville College		37,200	4,650	32,550
Legal Aid Society, The		10,000	10,000	
Lehigh University	59,000	17,100	17,800	58,300
Lincoln University	7,880	17,080	11,970	12,990
London School of Economics and Political Science		8,500	8,500	
Louisiana State University	8,050		8,050	
McMaster University	8,050		8,050	
Maryland, University of	7,820		7,820	
Massachusetts Institute of Technology	9,459,000	691,740	3,558,745	6,591,995

	BALANCE DECEMBER 31, 1964	AUTHORIZED 1965	PAYMENTS 1965	BALANCE DECEMBER 31, 1965
Mathematical Association of America, Inc., The		$ 30,000	$ 30,000	
Menninger Foundation	$ 300,000		100,000	$ 200,000
Michigan State University		22,796	22,796	
Michigan, University of	32,300	3,250	19,800	15,750
Minnesota, University of	29,175	49,250	46,575	31,850
Morehouse College	6,840	62,200	8,710	60,330
Moton Memorial Foundation		56,000	56,000	
Mount Sinai Hospital, The		10,900	10,900	
NAACP Special Contribution Fund		10,000	10,000	
National Academy of Sciences	25,000	117,350	142,350	
National Bureau of Economic Research, Incorporated	520,000		160,000	360,000
National Civil Service League	50,000		25,000	25,000
National Council on Radiation Protection and Measurements		10,000	10,000	
National Educational Television and Radio Center		250,000	250,000	
National Fund for Graduate Nursing Education, The		15,000	15,000	
National Fund for Medical Education	25,000		25,000	
National Information Bureau		1,000	1,000	
National Institute of Public Affairs		10,000	10,000	
National Medical Fellowships, Inc.	130,000	90,000	70,000	150,000
National Urban League, Inc.		10,000	10,000	
New York Academy of Sciences, The		5,100	5,100	
New York Association for the Blind		12,100	12,100	
New York Medical College, Flower and Fifth Avenue Hospitals		10,000	10,000	
New York Public Library		7,500	7,500	
New York, University of the State of		10,000	10,000	
New York University	335,500	13,000	198,500	150,000
North Carolina, University of	6,900	8,050	14,950	
Northeastern University	50,000		50,000	
Northfield and Mount Hermon Schools		9,763	9,763	
Northwestern University		35,000	17,500	17,500
Notre Dame, University of	65,150	28,800	26,000	67,950

	BALANCE DECEMBER 31, 1964	AUTHORIZED 1965	PAYMENTS 1965	BALANCE DECEMBER 31, 1965
Oberlin College	$ 105,600	$ 23,700	$ 27,650	$ 101,650
Occidental College	24,505	10,550	9,550	25,505
Ohio State University	21,825	28,100	28,375	21,550
Oklahoma, University of		9,200	9,200	
Oregon, University of		16,100	8,050	8,050
Pacific Science Center Foundation		100,000	100,000	
Pennsylvania State University, The	8,050	31,750	23,700	16,100
Pennsylvania, University of		33,750	26,250	7,500
Phelps-Stokes Fund		177,000	59,000	118,000
Pittsburgh, University of		12,500	6,250	6,250
Polytechnic Institute of Brooklyn		8,000	8,000	
Pomona College	10,200	10,200	1,650	18,750
Population Reference Bureau, Inc.		10,000	10,000	
Princeton University	562,140	50,140	246,050	366,230
Purdue University	37,675	46,898	56,723	27,850
Radcliffe College	66,000		33,000	33,000
Research Foundation of State University of New York, The	6,900	32,200	23,000	16,100
Rice University		17,500	6,250	11,250
Robert College of Istanbul		4,450	4,450	
Rochester, University of	508,750	25,000	221,250	312,500
Rutgers—The State University		1,100	1,100	
San Jose State College		16,100	8,050	8,050
Scientists' Institute for Public Information, Inc.		150,000	50,000	100,000
Skidmore College		100,000	50,000	50,000
Sloan-Kettering Institute for Cancer Research	2,000,000	400,000	400,000	2,000,000
Smithsonian Institution		5,000	5,000	
Southern California, University of		17,500	8,750	8,750
Southern Research Institute	75,000		75,000	
Stanford University	1,502,195	171,203	1,028,593	644,805
Taft School Corporation, The		9,723	9,723	
Talladega College		24,800	3,100	21,700

	BALANCE DECEMBER 31, 1964	AUTHORIZED 1965	PAYMENTS 1965	BALANCE DECEMBER 31, 1965
Texas, University of		$ 17,250	$ 8,625	$ 8,625
Tougaloo College		24,800	3,100	21,700
Tufts University		15,000	7,500	7,500
Tulane University	$ 143,000	19,600	129,500	33,100
Tuskegee Institute	6,700	65,800	17,875	54,625
United Negro College Fund, Inc.	100,000	77,850	177,850	
United States Churchill Foundation	60,000		20,000	40,000
United States Military Academy		6,000	6,000	
USO Fund of New York, Inc.		2,500	2,500	
University Corporation for Atmospheric Research		6,598	6,598	
Vanderbilt University	183,240	27,820	143,920	67,140
Vassar College		5,000	5,000	
Vermont, University of		16,100	8,050	8,050
Virgin Islands, College of the		10,000	10,000	
Virginia, University of		18,400	9,200	9,200
Volunteers for International Technical Assistance, Inc.		10,000	10,000	
Wabash College	55,250	16,300	16,650	54,900
Washington, University of	26,725		26,725	
Washington University	135,000	25,000	152,500	7,500
Waterloo, University of	6,900		6,900	
Wayne State University		16,100	8,050	8,050
Whitman College	21,850	8,600	8,100	22,350
Williams College	98,350	30,750	31,150	97,950
Wisconsin, University of	35,900	51,501	56,701	30,700
World Federation for Mental Health, Inc., The		5,000	5,000	
World University Service		2,500	2,500	
Xavier University (Cincinnati, Ohio)		12,500	6,250	6,250
Yale University	33,000	71,530	29,355	75,175
Young Men's Christian Associations, National Board of		10,000	10,000	
Young Women's Christian Association of Brooklyn		2,500	2,500	
TOTAL	$21,737,440	$13,245,108	$14,156,040	$20,826,508

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