Alfred P. Sloan Foundation

ANNUAL REPORTS

ALFRED P. SLOAN, JR.

May 23, 1875—February 17, 1966

Alfred P. Sloan Foundation

REPORT FOR 1966

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President's Review

The dawn of a new year seems to have done little so far to resolve the doubts, uncertainties and confusion of purpose which, in more than one aspect of the political, economic and social scene, marked the year under review. Youth in particular has become disenchanted by the gap between our vaunted productivity with its correspondingly high standards of living and the squalor of our urban slums; between expressions of high purpose and the awkward and sometimes unsavory facts. Indeed, the so-called 'credibility gap' has widened with each new revelation of unwise or irresponsible stewardship on the part of men to whom the public has a right to look for disinterested leadership—especially in marshalling the resources required to meet those admittedly complex but urgent problems on which time is running out.

No society, to be sure, is ever free of such built-in contradictions, and they need always to be viewed with a sense of proportion and perspective. Nevertheless, signs suggest that we may be approaching—if indeed not now experiencing—one of those crises of confidence which call for redefinition of purpose, redeployment of resources and rededication to the basic propositions on which a free society is built. Perhaps we need to remind ourselves of the extent to which our economy, our polity and our social bonds are built upon faith in ourselves and in each other; this we must maintain, and where it is eroded, restore.

It is within this frame that the policies and programs of the general purpose foundation have a special relevance. Its assets represent a portion

of our hard-won surplus, made expressly available for public purposes by the donor and by charter. The dimensions of the social deficit which have been accumulating over the years in the shape of environmental pollution, rural slums and congested and crime-haunted cities, require an attack greater than all private foundations together can mount; and government at all levels is beginning to move.

There are, however, key salients open to basic research or major studies, experimentation or demonstrations, in which individual initiative and independent funds can make all the difference. Here the alert individual or small family foundation may be able to respond more swiftly than the more generously endowed and professionally directed philanthropy, especially if the latter is heavily encumbered by forward commitments. On the other hand, such individual ventures, like the government's massive efforts, need critical scrutiny as well as wise direction. Thus foundations, large and small, must increasingly find as well as seek key opportunities for the productive 'investment' of the venture capital which it is their business to dispense. And the individual foundation will naturally give priority to those opportunities which fall within its own fields of interest and experience.

In dealing with the needs and possibilities of non-profit enterprise, available funds are never adequate even when government brings massive funds to bear. Profit-making enterprise is naturally quick to respond to the dynamic opportunities disclosed daily by science and technology, with consequences that we alternately cheer and deplore.

To neither set of consequences can foundations remain indifferent. On the one hand, they owe their very existence to profit-making enterprise; from its successes they derive not only their capital but also in great part their expendable income. On the other hand, their very *raison d'etre* resides in their mandate to devote their income exclusively to the uses of non-profit enterprise.

When we deplore, we cast about for scapegoats: the scientist for disturbing the *status quo*, the technologist for doing only that part of the job which he is told—and paid—to do, the industrial manager for

insisting on minimum costs and maximum profits. Each could reply that he was doing only what was expected of him, no more, no less. My own candidate is the political economist who might have conceived and brought forth—but didn't—the salutary theory that, as a matter of law and public policy, the cost of doing business must include adequate provision for eliminating noxious wastes, for restoring (insofar as possible) depleted resources, and for using all of our technological skills to prevent or minimize the detritus and harmful side-effects of industrial enterprise. If such a theory was ever in fact produced, it was certainly badly marketed. Yet its benefits to all of society, indeed to free competitive enterprise as well, could have been—might still be?—incalculably great.*

As matters stand, it may be that human ingenuity will one day discover profit incentives powerful enough to turn an effective part of our unmatched engineering and industrial capacity to the task of coping, for example, with urban blight. In the meantime, it is the non-profit sector, private and public, which must carry the brunt of the attack on these and less dramatic problems; and it is with this sector that foundations—in the old Quaker phrase—'have a concern.'

* * * *

Since the death of its founder, on February 17, 1966, the Alfred P. Sloan Foundation has itself been engaged in a major review of policy and program. The process, inevitably deliberate, is by no means complete, and the healthy ferment it engenders finds no quick or accurate reflection in the record of grants for the year. No doubt this ferment stimulated decision and action on certain major proposals which had long been under study, and thus helped to raise 1966 commitments (including expenses of $750,000) to the record figure of $21.3 million. Income, at

* Since this was written, my attention has been called to an interesting volume: "The Social Costs of Private Enterprise" by K. William Kapp (Harvard University Press, 1950). While the author does not develop a program for dealing with these costs, his analysis of the problem would seem to warrant greater public attention than it has had so far.

$13.2 million, also reached an all-time high; so did the excess of commitments and expenses over income, which, at $8.1 million, raised the cumulative total to $41.4 million.

Due notice of Mr. Sloan's death and the text of the memorial tribute adopted by the Board have already appeared in the last annual Report. Suffice it to say here that Mr. Sloan's characteristic eagerness to see the funds he had turned over to this philanthropic enterprise put to productive use was never more apparent than at the January (1966) Board meeting, the last at which he was to preside. Having made the Sloan Foundation his residuary legatee, he would have found it, I venture to say, no more than fitting that its total commitments should have reached their highest level in the year of his demise.

It is hardly surprising, however, that the trustees of the Foundation, with their high sense of responsibility for its future, should have adopted at their October meeting a declaration of policy normally equating grants to income over any given five-year period—without, however, abridging the Board's discretionary power to authorize additional and exceptional grants in the face of exceptional needs or opportunities. A second declaration of policy, also providing for similar exceptions, limited Sloan Foundation grants, as a matter of normal practice, to domestic needs and uses. This simply makes explicit an already familiar guideline, and echoes Mr. Sloan's insistence on the importance of having at least one major foundation free to concentrate on pressing domestic problems "of which [he once said to the writer] I happen to think we still have quite a few!"

Foundations, moreover, have an obligation to preserve some continuity of program even in the throes of a searching review. The definition of gratitude as the 'lively anticipation of favors yet to come' is not altogether irrelevant; extended support of any given project or institution does create expectations which cannot simply be tossed over the shoulder. Especially in situations involving grants already spanning longer periods than foundation practice applauds, agreement on just terminal arrangements is likely to involve an expenditure of time as well as money. Nor

can a foundation expect a small staff, accustomed to deal, for example, with the physical sciences, engineering and management—plus research in cancer and certain aspects of economics—to be equally at home with the performing arts or the sprawling field of medical services and education.

Thus, such significant special grants as were made in 1966 to Memorial Sloan-Kettering Cancer Center for the reconstruction and expansion of the Frank A. Howard Research Laboratory, to Yale for the further strengthening of its engineering facilities and program, and to Brown University for mathematics, represented no departure from the Foundation's traditional fields of interest and concern. This is true as well of the special grant to Sloan-Kettering Institute for research in Biomathematics, the grant to Cornell which is designed to make its Sloan Institute of Hospital Administration self-supporting over the next five years, and—except as it takes us abroad—of the three-year grant to the newly established London Graduate School of Business Studies, in support of its fellowship program for middle management.

Thus, too, while programs initiated and supervised by the Foundation—namely, the Sloan Fellowships for Basic Research and the Sloan National Scholarships—were subjected during the year to critical scrutiny by officers, consultants and trustees, it was the decision of all concerned to sustain them, at least for the immediate future. And if a beginning was made in the essential process of liquidating grants too long continued, completion of the task—and the consequent release of Foundation funds for fresh ventures and promising new experiments—has still to be accomplished.

In this connection, it should be said that there is no disposition whatever to reduce the current allocation of funds to projects designed to translate 'equal opportunity' from aspiration to reality. In the view of officers and trustees alike, what is often referred to as the Negro problem is, in fact, a problem affecting every aspect of American life; and such support as foundations may be able to provide in launching new and hopeful ventures in this field represents both an obligation and an oppor-

tunity. For the foreseeable future, at least, the Sloan Foundation intends to focus its support primarily on efforts to expand and strengthen *educational* opportunities for young Negroes and other disadvantaged youth. While the means which we choose may vary as experiments succeed or fail, the end—and the basic commitment—remains unchanged.

* * * *

But if continuity of purpose is important in a world of swift-paced change, so is the readiness to face new problems—not least those which confront us, in Devereux Josephs' felicitous phrase, 'with the consequences of our own ingenuity.' Columbia's new Institute for the Study of Science in Human Affairs represents a considered effort to draw upon the whole range of the University's intellectual resources—from physics to philosophy, from medicine and international affairs to journalism—for exploring the broad impact and specific implications of the continuing revolution in science. The Foundation was sufficiently impressed by the timeliness of Columbia's initiative, by the diverse interests and talents of the faculty members involved, and by the evident depth of their commitment, to authorize a launching grant of $1 million. While this will meet no more than a fraction of the Institute's foreseeable needs, our objective was to get things started, in the hope that the generous support required from other quarters would thereby be speeded.

The $7.5 million appropriated late in the year for the College Science Program was voted by the Board with full knowledge that our income for the year was already slightly over-committed. If this was a measure of the exceptional significance which trustees and officers alike had come to attach to this project, so long in the making, it is also an impressive indication of a readiness to adjust traditional programs to new and changing circumstances. Like the Columbia grant, which also took science as its point of departure, this venture was deliberately directed toward the peculiar problems created by the swift advance and changing characteristics of the scientific enterprise itself. In this case, of course, it was the independent colleges which were feeling the pinch and so were exploring

every possible means of coping with competitive pressures from the universities, government and industry which subjected their science faculties and programs to a continuous and debilitating 'brain drain.'

The rationale of this program, and the difficult process of choosing the twenty colleges named as participants, are described elsewhere in this Report. Suffice it to say here that, large as this appropriation is in terms of the Sloan Foundation's disposable income, it represents no more than a fraction of the sums required to mount and sustain an effective attack on the problem to which it is addressed. Far from finding in this circumstance, however, a convincing reason for doing nothing, the officers and trustees deliberately chose to take this initiative now, in the hope that it might serve to dramatize the problem and so encourage a vastly larger flow of supporting funds from other sources, public as well as private. In short, we preferred a gamble on hope to prudential inaction.

In the meantime, and thanks to the grants themselves, twenty laboratory experiments will be in operation over the next five years in as many different colleges, testing new and creative approaches to a problem that has become both general and increasingly acute. It is our hope and expectation that a fair number of these experimental programs will prove to be sufficiently exciting and rewarding to invite both emulation and the substantial grants from other sources needed to support it. If so, the traditional liberal arts college will remain a *college of science and the arts* instead of being reduced to a truncated existence as a college of arts and letters. And the Foundation itself will have been encouraged, as it presses its continuing review of program, to take a hard look at some of the tough new problems which impinge upon its province and its vision.

Everett Case

DEVEREUX C. JOSEPHS
Chairman of the Board

ALBERT BRADLEY
Honorary Chairman of the Board

At their meeting on April 19, 1966, the trustees of the Foundation elected Devereux C. Josephs, the Vice Chairman of the Board of Trustees, to succeed Mr. Sloan as Chairman. Albert Bradley, who had preceded Mr. Sloan as Chairman, was named Honorary Chairman.

Also at the April meeting, Walter S. Carpenter, Jr. and John L. Collyer, two trustees who had served the Sloan Foundation long and valiantly, retired from active service and were elected to the Trustee Advisory Committee. To fill the vacancies thus created, the Board elected W. Sam Carpenter, 3rd, General Manager of the International Department of E. I. du Pont de Nemours and Company, and Joseph C. Wilson, Chairman and Chief Executive Officer of Xerox Corporation. Frederic G. Donner, Chairman and Chief Executive Officer of General Motors Corporation, was elected a trustee of the Foundation on October 18, 1966.

The committee structure of the Board of Trustees was consolidated and simplified by action of the trustees at the October meeting. The Executive Committee and Policy Committee were merged into a single Executive and Policy Committee under the chairmanship of Mr. Bradley. Other standing committees of the Board, with the exception of the Investment Committee and the Trustee Advisory Committee, were abolished.

FREDERIC G. DONNER

New Trustees of the Foundation

W. SAM CARPENTER, 3RD

JOSEPH C. WILSON

College Science Program

At the close of 1966 the Foundation announced its largest appropriation for a single purpose in its 32-year history. This was its $7,500,000 College Science Program, designed to help twenty independent colleges demonstrate how science could be maintained and strengthened as a vital part of undergraduate education in a liberal arts setting.

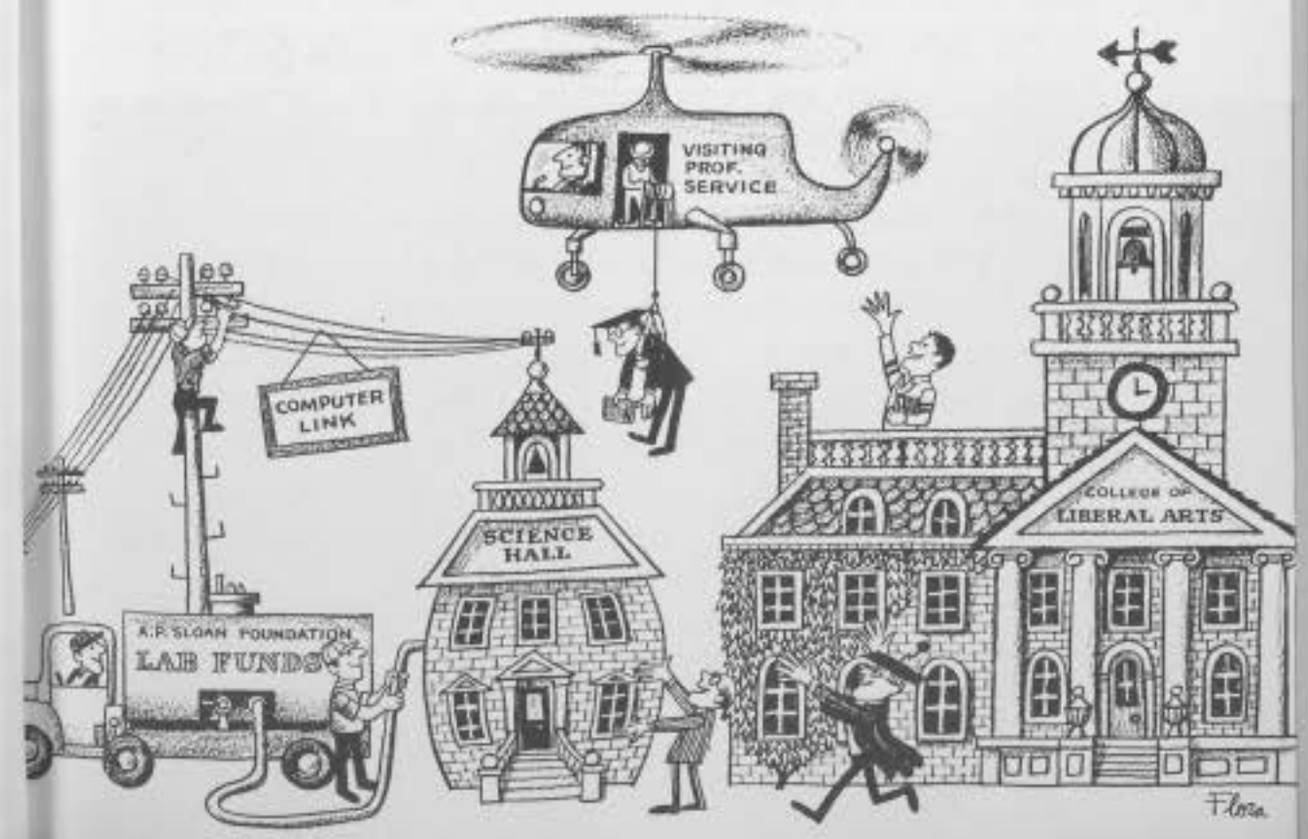
In announcing this program in behalf of the Foundation Mr. Case said:

> "One of the principal agents of change, perhaps the most powerful one now operating, is of course science. All of us know how science and its offspring, technology, have been remaking our world in the space of a generation or less. The Alfred P. Sloan Foundation, having invested heavily in science and technology as catalysts of presumably beneficent change, has become increasingly sensitive to some of the consequences or 'side effects' of this kind of change. Some of these 'side effects' are discernible in the small colleges, many of which have found it increasingly difficult to maintain their positions in science, given the unequal competition for top faculty with the large research-centered universities and with government and industry as well.
>
> "It thus appeared to the Sloan Foundation that, given its long-standing commitment to science and its concern for science education, the small colleges offered a unique opportunity for the Foundation to make a contribution to both science and higher education."

In order to maximize the impact of the program as a demonstration useful to other four-year institutions, colleges having a wide range of capacity and potential in science were invited to apply for grants. Some were among the strongest in science; others were relatively weak in science but had demonstrated quality in other areas. Still others occupied a broad middle range from which examples of excellence in science might be expected to emerge, given the necessary imagination and resources. The final selection, which was accomplished by the Foundation with the aid of nine educational consultants, included colleges from all three levels as defined by the Foundation. The twenty institutions chosen included colleges for men, colleges for women, and coeducational institutions.

A key consideration in the selective process and in the determination of the amount of the grant to each college, which ranged from $250,000 to $500,000 payable over a five-year period, was the college's probable ability to sustain an accelerated science program after expiration of the Sloan Foundation's grant. It was expected that each college would add other funds to its effort at upgrading science teaching and research, and no Foundation funds were provided for buildings.

A New York Times cartoonist's impression of the College Science Program.



COLLEGE SCIENCE PROGRAM

Participating Institutions

ANTIOCH COLLEGE $400,000	MIDDLEBURY COLLEGE $400,000
CARLETON COLLEGE $500,000	MOREHOUSE COLLEGE $300,000
COLGATE UNIVERSITY $400,000	MOUNT HOLYOKE COLLEGE $375,000
CORNELL COLLEGE $375,000	OBERLIN COLLEGE $500,000
DAVIDSON COLLEGE $250,000	OCCIDENTAL COLLEGE $400,000
GRINNELL COLLEGE $400,000	REED COLLEGE $375,000
HAVERFORD COLLEGE $400,000	SMITH COLLEGE $250,000
HOPE COLLEGE $375,000	SWARTHMORE COLLEGE $375,000
KALAMAZOO COLLEGE $400,000	WASHINGTON & LEE UNIVERSITY $250,000
KNOX COLLEGE $275,000	WILLIAMS COLLEGE $500,000

The variety of improvements to be supported at least in part by the Foundation's grants may be illustrated by the following excerpts from announcements of the individual grants by some of the colleges, chosen at random:

—Haverford College will select up to ten postdoctoral fellows per year for five years, each fellow to teach one-third time and undertake research work two-thirds time. President Hugh Borton explained that while the college expected that the trend of attracting postdoctoral fellows "through the scientific talent of our faculty" would continue to grow, development without the grant would have been "slow and uneven."

—Grinnell College plans to emphasize "student involvement with faculty in actual research undertakings, the establishment of a research study fund for support of summer research projects and faculty summer study programs, and the acceleration of instructional budgets."

—Occidental College expects to enlarge its science faculty and to improve facilities, equipment, and opportunities for both student and faculty research. It also hopes to improve its sabbatical leave arrangements, its travel-study opportunities, and its science library resources.

Other proposals which the Foundation regarded as especially hopeful involved a heightened level of cooperation among neighboring colleges and with nearby universities; and development of new courses and curricula in science for non-science majors. Some colleges argued persuasively that the much-discussed gulf between scientists and humanists could best be bridged in the atmosphere of the small college campus.

The Foundation is aware that many colleges have done much to develop strength in the sciences, and also that the number of institutions striving to emulate them is so large that to attempt to assist all of them would be beyond the resources of this or any other private foundation. Principally for this reason and also because of the growing demands in

Everett Case, President of the Foundation, announcing the College Science Program at a news conference in New York. Behind him, presidents of the participating colleges.

other areas of Sloan Foundation concern, it will not be possible for the Foundation to expand its support of college science for the foreseeable future. The need for continued and increased support, such as the college science grants of the Research Corporation and the College Science Improvement Program of the National Science Foundation, remains urgent. Indeed, if the total problem is to be met, this support must clearly attain dimensions which would make the Sloan Foundation grants look in fact like the pump-priming operation which they were designed to be.

Thus Mr. Case's public announcement concluded as follows:

> "We mean by this action no 'crusade' to rescue the independent four-year colleges from whatever their fate may be. In our rapidly changing world their role as protagonists of liberal education for undergraduates will stand or fall on its own merits. What we mean to do is to give a few representative colleges the chance to demonstrate that in the important educational area of science, which is the area the Sloan Foundation knows best, the four-year college still has a significant contribution to make, given the imagination and the opportunity to make it."

Science and Society

During the past eight years the Alfred P. Sloan Foundation has supported a number of efforts to strengthen the communication and interpretation of science to the layman. Among these have been the Scientists' Institute for Public Information, the Council for the Advancement of Science Writing, and the Advanced Science Writing Program in the Graduate School of Journalism of Columbia University. In general these enterprises have been successful in increasing the amount of scientific information available to the public in language which it can understand. But the *meaning* of such information for the life of man and society usually has remained obscure, for the reason that the interaction of society and science has too seldom been studied or taught in a scholarly and systematic way. Under these circumstances, the full implications of science and technology for man and his institutions remain elusive. Yet there is hardly a more important question facing man and his increasingly technological society in the second half of the Twentieth Century.

Columbia University, recognizing the urgency of establishing studies at the highest intellectual levels to study the present and prospective interactions of science and society, decided to set up a broadly interdisciplinary institute for this purpose. The Institute for the Study of Science in Human Affairs came into being in 1966 with the help of a $1,000,000 founding grant, payable over a five-year period, from the Alfred P. Sloan Foundation.

The Institute will provide lively and continuing opportunities for

Pictured at the announcement of Columbia University's Institute for the Study of Science in Human Affairs are, from left, President Grayson Kirk of Columbia; Everett Case, President of the Sloan Foundation; Warren Weaver, consultant on scientific affairs to the Foundation; and Nobel laureates Dr. Dickinson W. Richards and Dr. Polykarp Kusch, both of whom were members of the development committee for the Institute.

physical and life scientists, engineers, social scientists, and humanists to work together in exploring the full implications of science in human affairs. Through seminars, research studies, and the creation of new courses and programs of study at the graduate and undergraduate levels, the Institute will seek new light on these implications and on the diverse and urgent problems to which they point.

As examples of questions which it will be possible to study at the Institute, the University cited the following: What are the major social and economic changes related to scientific and technological advances? How can the 'productivity' of science be measured? What political ethical, and general cultural considerations affect the direction of scientific effort? How has the scientific revolution shifted man's social expectations of continuity to expectations of change? How might advances in science alter the assumptions underlying the social science disciplines?

As it undertakes to study such multi-faceted problems, the Institute will draw upon faculty members from all departments and divisions at Columbia and from other institutions. It expects to establish endowed chairs for professors who would make the study of science in human

affairs 'their main intellectual commitment' within the context of their disciplines. It plans to appoint visiting scholars and award graduate fellowships. As an active participant in the Institute's program, the Graduate School of Journalism will share the benefits of the Sloan Foundation's grant. Thus the Advanced Science Writing Program, through which experienced journalists receive a year of special training in science communication at Columbia, is expected to develop fresh strength as an integral part of a broader Institute program in public understanding of science and human affairs.

For these and other purposes, the Institute is seeking additional grants both for expendable uses and for endowment. The Institute's operation is expected to involve the expenditure of several million dollars over the next ten years.

In keeping with its interdisciplinary character, the Institute is not under the control of any school at the University, nor will it award degrees. Its director, Christopher Wright, formerly was executive director of Columbia's Council for Atomic Age Studies, a precursor of the Institute itself. The new Institute is governed by an administrative committee of which President Grayson Kirk is chairman and Dr. David B. Truman, Dean of Columbia College, vice chairman. Other members are Edward W. Barrett, Dean of the Graduate School of Journalism; Dr. I. I. Rabi, physicist and University Professor; Dr. Andre F. Cournand, professor emeritus of medicine; Dr. William T. R. Fox, professor of international relations; Menelaos D. Hassialis, Henry Krumb Professor of Mining, and Mr. Wright.

Lesser grants for similar purposes were authorized in 1966 as follows:

Hall of Science of the City of New York, Inc., Fushing, N. Y.: To defray the cost of long-range planning and programming for the Hall of Science $10,000

University of Missouri, School of Journalism, Columbia, Mo.: For partial support of the School's graduate program in science communication 15,000

Oak Ridge Associated Universities, Inc., Oak Ridge, Tenn.: For partial support of a conference on the "Impact of Science on Society." 10,000

Program for Basic Research in the Physical Sciences

While the Foundation turned some of its attention in 1966 to the social implications of science, it continued also to encourage fundamental research through its Program for Basic Research in the Physical Sciences. Through this program young scientists on university faculties are given the opportunity to make full use of their research potential. One of the features which make the program distinctive is that a Sloan Research Fellow has complete freedom to carry out his creative activities in any direction he wishes to go; he may even, if he so desires, shift his field of research rather drastically.

Some evidence that the Program is achieving its objectives came with the announcement during 1966 of major scientific prizes awarded to nine former Sloan Research Fellows. The prizes, some of them shared by more than one former Sloan fellow, included the American Chemical Society Award in Pure Chemistry; the Ernest Orlando Lawrence Memorial Award of the Atomic Energy Commission; the Oswald Veblen Prize for Geometry, awarded by the American Mathematical Society; the 1966 National Medal of Science in Mathematics, awarded by the President of the United States; the Fields Medal in Mathematics, awarded by the International Mathematical Union; and the Steacie Prize, awarded by the E. W. R. Steacie Memorial Fund of Canada for outstanding work in the natural sciences by younger people. (The 1965 Nobel Prize in Physics was shared by a former Sloan Research Fellow.)

Primary credit for the selection of outstanding but still largely unrecognized young scientists for Sloan Research Fellowships must be accorded the distinguished Program Committee of the Program for Basic Research in the Physical Sciences. The six scientist-members of the Committee annually sift through some 500 or more nominations received from senior scientists throughout the nation, to arrive at the final selection of some ninety young scientists for fellowships. These include a number of one- or two-year renewals of fellowships, although the recent tendency has been to curtail rather sharply the number of renewals in order to accommodate more new Sloan Research Fellows. In consultation with Dr. Larkin H. Farinholt, the Foundation's Vice President for Scientific Affairs, the Committee also recommends a specific stipend, based on need, to accompany each fellowship. The average two-year stipend is currently about $17,500.

Physics, chemistry, and mathematics were represented in the 1966 membership of the Program Committee, as follows:

PHYSICS—Dr. Leonard I. Schiff, Stanford University, Committee chairman; Dr. Alfred O. C. Nier, University of Minnesota.

CHEMISTRY—Dr. Franklin A. Long, Cornell University; Dr. Nelson J. Leonard, University of Illinois.

MATHEMATICS—Dr. R. H. Bing, University of Wisconsin; Dr. Lipman Bers, Columbia University.

A breakdown of the 90 fellowships and renewals awarded by the Foundation in 1966 shows 35 in chemistry; 32 in physics, 13 in mathematics, and 10 others in interdisciplinary fields ranging from molecular biophysics to space science. An additional 79 were in the second year of two-year fellowships in 1966; thus the program was supporting a total of 169 Sloan Research Fellows, at 68 universities. (A list of Sloan Research Fellowships awarded in 1965 and 1966 will be found on Page 60.)

Geographically, although the fellowships and renewals are awarded solely on the basis of individual potential for creative research, the dis-

tribution within the major research areas of the nation was fairly uniform in 1966. There were 26 fellowships or renewals awarded to scientists in the Northeast (including Maryland); 25 in the Central region, 26 in the West, and eight in the South. Five fellowships were awarded to young scientists working in Canadian institutions.

A total of 511 scientists in 91 universities and colleges have shared in the $12,200,000 invested by the Foundation in the Program for Basic Research in the Physical Sciences since the program began in the 1955-1956 academic year. In recent years the Foundation has been allocating $1,400,000 annually for the Sloan Research Fellowships. Over the same period the Federal Government's obligations for basic research in the physical sciences and mathematics have risen from $126,000,000 to a point slightly exceeding $1 billion in the fiscal year 1966.

While the Government thus has emerged in a clearly dominant position in this field, as in some other fields of interest to foundations, certain considerations suggest the desirability of continued private support. One such consideration is the fact that the young academic scientists with great potential who are not yet well established are able to obtain very little support for their researches from government agencies, and during the past year this situation has even worsened. Another consideration was an increased emphasis by Government grant-making agencies in 1966 on a stricter accounting of time spent by individual scientists on Government-supported projects. This so-called "effort reporting" was regarded by many scientists as an onerous and even impossible demand. In this context the Sloan Fellowships were perhaps enhanced in value by the broad freedom and flexibility which they confer on their young recipients, whose average age at the time of award is twenty-nine.

"We believe," said the late Alfred P. Sloan, Jr., "that anyone engaged in basic research needs such freedom because creative thinking cannot be charted in advance or put on a schedule."

The 1966 Program Committee of the Program for Basic Research in the Physical Sciences: from left, Dr. Larkin H. Farinholt (standing), Vice President for Scientific Affairs of the Foundation; Dr. Leonard Schiff (seated), Chairman of the Committee; Dr. R. H. Bing; Dr. Alfred O. C. Nier; Dr. Nelson Leonard (seated); Dr. Lipman Bers; Dr. Franklin A. Long (seated).

Mathematics

The Foundation's special interest in mathematics is an outgrowth of its long-standing interest in the physical sciences, in cancer research, in management, and in engineering. "For," as Warren Weaver has stated,* "mathematics furnishes the absolutely fundamental rules, theories, and procedures for *any* activity which makes use of measurement, or (and this is a much more inclusive remark) which is concerned with numerical, geometrical, or purely logical relationships. This statement means that mathematics is essential to physics, chemistry, biology, medicine, astronomy, the earth sciences—indeed to *all* of science; but it also means that mathematics is essential to all of engineering and the technical industries, to the insurance industries, and, in ever-increasing degree, to banking, to government, to business in general, and so on."

Among the major beneficiaries of the Foundation's concern for mathematics in past years have been the Courant Institute of Mathematical Sciences of New York University, the California Institute of Technology, Stanford University, Cornell University, and Dartmouth College. Also, since 1955, 116 individual mathematicians have received grants totaling $2,345,378 through the Foundation's Program for Basic Research in the Physical Sciences (see Pages 18 and 60).

During 1966, two additional—and substantial—commitments were made to mathematics and its applications, bringing the Foundation's total grants for mathematics in the past twelve years to slightly more than $10 million.

* Warren Weaver, *Mathematics and Philanthropy*, Alfred P. Sloan Foundation, New York, 1965, Page 23.

Brown University

The Sloan Foundation has never looked with favor on barriers tending to separate "pure" mathematics from its practical application to the problems of the sciences and engineering. Brown University, which possessed strong faculties in many areas of mathematics and applied mathematics, recognized the desirability of more effective communication and cooperative effort between mathematicians working mainly in the realm of theory and those more directly involved as mathematicians in other disciplines. As a contribution toward Brown's effort in this direction, the Alfred P. Sloan Foundation granted the University $500,000 in expendable funds.

The new Brown mathematics program, involving a projected outlay of some $5,000,000, calls for additional fellowships to increase the number of graduate students and postdoctoral fellows in mathematics and applied mathematics; further strengthening of faculties in certain areas; and construction of a new "home" for the Department of Mathematics and the Division of Applied Mathematics, which are now scattered across several locations.

Sloan-Kettering Institute for Cancer Research

New uses of mathematics in biology are being explored in a Biomathematics Facility established in 1964 by the Sloan-Kettering Institute for Cancer Research and Cornell Medical College. The Alfred P. Sloan Foundation, in 1966, made a special three-year grant of $250,000 to the Institute for its part in this joint venture, and the Charles F. Kettering Foundation provided an equal amount. Support also is being provided by the International Business Machines Corporation.

Mathematics will in time, it is believed, make a contribution to biological research comparable to that now being made by chemistry and physics. The impact of mathematics in biology has been delayed until recently by the immense number of variables involved in the life processes. Now, however, the availability of large computers and of powerful mathematical concepts such as probability theory have made it feasible to bring the resources of mathematics to bear on the study of living matter, including cancer.

Research in biomathematics, compensation for visiting professors, stipends for graduate students and postdoctoral fellows, and necessary travel will be supported in part by the Foundation's grant.

Other grants in mathematics:

NATIONAL ACADEMY OF SCIENCES, Washington, D. C.: For partial support of the study program being conducted by the Academy's Committee on Support of Research in the Mathematical Sciences $12,000

NEW YORK UNIVERSITY, NEW YORK, N. Y.: To support an eight-week summer program in mathematics and science at New York University's Academic Computing Facility for high school students who have completed the eleventh grade 9,000

Toward support of the Governing Council of the Courant Institute of Mathematical Sciences for the year 1966-1967 12,000

Alfred P. Sloan National Scholarship Program

During 1966 the Alfred P. Sloan National Scholarship Program was the subject of a staff study which sought to reassess the program both in its national context of expanding student-aid resources and in terms of the program's impact on the forty-five institutions which participate in it.

As a result of this study the Board of Trustees reached a decision to stay the thirteen-year growth of the National Scholarship Program and to stabilize it for the present at a level slightly below the amount appropriated in 1965 for the class of scholars entering in 1966.

The Alfred P. Sloan National Scholarship Program, conceived as a means of helping young men of exceptional promise to capitalize their potential for future roles of leadership, was inaugurated with a modest twenty-five scholarships in four institutions in 1953. By 1965 it had grown to a level of over 500 undergraduate scholarships in thirty-seven private and eight public institutions,* and was claiming about 9 per cent of the Foundation's total expenditures. The rising cost of the program

* The Alfred P. Sloan National Scholarships are administered by the participating colleges and universities under conditions set by the Foundation. Each participating institution selects its own Sloan scholars and awards each scholar a stipend based on need. The amount of the stipend may vary during the four-year undergraduate course as the student's need changes. (A number of nominal $200 stipends, 54 in the current year, are awarded as honorary scholarships, without regard to need, to outstanding students who simply merit recognition.) The average regular stipend at participating private institutions during 1966-1967 is about $1,700. At participating state institutions the average stipend in the current year is $750. Each private institution receives, in addition to funds for stipends, a cost-of-education allowance for each scholarship student; this allowance helps the institution to make up the difference between its tuition charges and its actual higher cost of educating the student.

was a result of both the growth in number of scholarships supported and the rising tuition charges, particularly at private institutions, to which the program outlay was annually adjusted.

This rising curve of expenditure, considered along with the new student-aid resources provided by new federal, state, and private programs, especially the federal Higher Education Act of 1965, and with the pressing claims upon the Foundation's resources for other needs in higher education, suggested that the time had come for the reappraisal of the Scholarship Program which was carried out in 1966. The study was conducted primarily by Robert N. Kreidler, Vice President of the Foundation, and by Thomas E. Ford, Director of Scholarships.

It was evident at the outset that no letup could be expected in the continually increasing demand for funds for higher education in general. Enrollment, which stood at 2.5 million in 1954, rose to 5.0 million in 1964-1965 and was expected to increase to 8.7 million by 1974-1975. The costs of running the higher-educational enterprise are continuing to rise at about 10 per cent a year, from an estimated $9.7 billion for current expenditures in 1964-1965 (in 1963-1964 dollars) to an expected $20.1 billion in 1974-1975. A four-year undergraduate education for a student in residence at a public or private institution today costs between $6,000 and $14,000—the latter figure being twice the median annual income of American families in 1966. One survey* estimates that each year 100,000 high-school graduates with high aptitudes and academic interests fail to continue their education beyond high school because they lack the funds.

Clearly a sizable gap remains to be filled by student aid funds, even for many of those who do gain admission to college. Approximately 1.4 million undergraduates (or 30 per cent of the total undergraduate enrollment) are receiving some form of financial aid—scholarships, loans, and/or employment—in 1966-1967. The total amount of available student financial aid from all sources cannot be precisely measured; but

*The American High School Student, Project Talent, Volume 6, University of Pittsburgh, 1964.

Sloan scholars at Case Institute of Technology talk with Thomas E. Ford, Director of Scholarships for the Foundation.

it appears to be in the range of $1.1 billion to $1.4 billion in 1966-1967. Much of this aid is concentrated in a relatively small number of institutions; one study indicated, for example, that 10 per cent of the 1,200 institutions canvassed awarded nearly 50 per cent of the total student aid disbursed by all 1,200 institutions during 1963-1964.

While support of student aid from state, private, and voluntary sources has increased notably in recent years, the most significant growth has been in the federal sector. In 1966-1967 the federal government is providing approximately $388 million in financial aid funds of which 60 per cent will be for loan programs, 25 per cent for student employment programs, and 15 per cent for scholarships.

The forty-five colleges and universities which award Alfred P. Sloan

National Scholarships appear to have held their own in the race to obtain and provide increasing amounts of student financial aid. Questionnaires returned by thirty-six of the institutions indicated that they had been able to increase their student-aid funds more than enough to keep up with rising enrollments and the increased costs of attending college. (As with nearly all other institutions, their most significant new source of support for student aid has been the federal government.) But they testified that student financial aid remained a high-priority need, comparable in urgency to the need for support of faculty salaries; and they pointed out that the new federal (and state) programs are intended primarily to assist students who are not being helped by existing programs.

Against the factual background sketched above, the Foundation's study reached the following conclusions:

> "First, both the enrollment factor and the cost factor continue to generate a need for more student aid; second, each of these factors differs in its impact on the public and private institutions in the Sloan program; and third, while there will be continuing need for more student aid, all of the institutions in the Sloan program have benefited greatly from the dramatic growth of financial aid resources over the past decade.
>
> "It is the state universities, of course, who are experiencing, and will continue to experience, the major impact of the rapid rise in enrollment. While these institutions have the lowest student costs of all the institutions with which the Sloan Foundation is concerned, their costs continue to rise, especially for out-of-state students, and the number of their students requiring financial aid is increasing steadily. At the same time, it is clear that the state universities are major beneficiaries of public student aid resources which are distributed largely on the basis of enrollment.
>
> "The private colleges, on the other hand, have not been affected significantly by increases in enrollment, but they have felt much more heavily the impact of the substantial increase in college costs. Within the last decade, most of the independent colleges have had to double their tuition charges, yet the revenue from tuition still covers only half the cost of educating each student. Despite their cost problem

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

these colleges have been able to expand their student aid programs so as to more than keep abreast of rising costs, and by and large, they have been able greatly to increase the number of students to whom they offer financial aid.

"It would be unwarranted to assume, however, that the private colleges have solved the cost problem in the student aid area. If college costs continue to rise—and this certainly can be expected—these colleges will have to increase their student aid resources at an even faster rate than they have in the past just to stay even. For as tuitions rise, a new increment of students, who previously may have been able to pay their own way, becomes eligible for financial assistance and those already receiving aid need correspondingly higher stipends.

"The private colleges also face another consequence of increasing their tuitions which, though far more subtle, is of no lesser significance. As costs go up, the independent colleges are finding it increasingly difficult to attract talented students to apply for admission. And unless they are able to offer their special educational opportunity without an *undue* self-help burden on the student—as compared to the burden he would assume at a high quality state or other good public institution—these colleges will find it more and more difficult to attract the diversity of talent *they* must have to maintain their positions as high quality institutions.

"The presidents of the private institutions participating in the Sloan program are very much concerned with all these needs and have attested, therefore, to the continuing importance of the Sloan scholarship program—an importance, they claim, which extends beyond the financial resources the program provides."

As indicated earlier, the Foundation's trustees elected to stabilize and slightly reduce the program expenditure, to $1,200,000 a year from the previous $1,275,000 a year. Because of changes designed to afford greater flexibility in the administration of funds provided by the program, this slight reduction in funds probably will not affect the total number of Sloan Scholarships.

Extending Educational Opportunity

In the area of extending educational opportunity the Foundation in 1966 renewed or continued its support of programs inaugurated in 1965 and earlier, and devoted increased attention to evaluating their results in the light of changing circumstances. Two of these programs have centered on strengthening a group of Southern, predominantly Negro colleges, in the belief that such colleges at this time represent the primary higher-educational opportunity for the majority of young Southern Negroes. Also there is reason to hope that as these colleges are strengthened, they will play an increasingly important role in the higher education of all young people of the region, regardless of color.

Alfred P. Sloan Opportunity Awards

Initiated as an experiment in helping ten predominantly Negro colleges to recruit promising students from disadvantaged backgrounds, the Alfred P. Sloan Opportunity Awards program received renewed financial support of $275,000 for its second year of operation in 1966. This program provides two summers of remedial instruction for "underachievers" believed to be of college potential and, for those who qualify, four-year scholarships (contingent on satisfactory performance) to the colleges which selected them for the program. Thirty high-school postjuniors are admitted to the program each year.

For the students selected, intensive eight-week summer remedial

sessions are conducted in two centers at Dillard University, New Orleans, and Morehouse College, Atlanta. The curriculum emphasizes communication skills (English, reading, composition, speech) and mathematics. The students are given expanded cultural and social experiences, close personal supervision in their studies, and every encouragement to meet the exacting demands of college-level work. Their progress and their probable ability to meet college standards of performance are evaluated frequently, and this information is made available to the colleges which they plan to attend.

As might be expected, the first year's operation revealed areas in which improvements could be effected as well as certain features of strength deserving greater emphasis. Of the first twenty-nine students eligible to enter college in 1965 after the initial remedial summer, twenty-six entered and six of them were dropped or withdrew from college. This fact pointed up the high element of risk involved in identifying high-potential students from deprived circumstances, and the need for extreme care in selecting such students. It is fair to note, however, that the initial group of college freshmen received only one summer of remedial work, whereas subsequent groups will have had two; and that nine of the first twenty-six freshmen performed at an above-average to excellent level in their first year of college. Among the group who entered college in 1966, after two summers of remediation, fourteen were judged to have the capacity to do above-average to excellent work and thirteen others were believed to have the ability to complete four years of college.

Increasing selectivity by the participating colleges, along with increasing experience in operating the summer remedial phases of the program, brought about encouraging gains for the Alfred P. Sloan Opportunity Awards during 1966. This was evident in reports from the two remedial centers, as well as in comments from the students themselves. The future of the program, however, must be viewed in the light of the similar and vastly larger "Upward Bound" program started by the Federal Office of Economic Opportunity in 1965. Some 760 students who were enrolled in Upward Bound entered college in 1965, and the reported

first-year dropout rate was only 12 per cent.

Taking full account of the numerical impact of Upward Bound and of its parallel goals of motivating and preparing deprived teenagers to attend college, it yet appeared that the Foundation's program might yield some lessons useful to all programs of this nature. Perhaps the most immediate lesson is the enhanced motivating effect of the possibility of the four-year scholarship, which Upward Bound does not provide. With this kind of reward in prospect for the student, the summer remedial faculties in the Sloan program were in a position to demand exceedingly high performance, and most of the Sloan summer scholars found themselves to be capable of meeting more exacting academic demands than they had ever before encountered.

Whether the knowledge and experience thus being gained from the Sloan program may be transferable to larger and more impersonal programs of this type, remains an open question. For the time being, the Alfred P. Sloan Opportunity Awards provide an interesting laboratory in which techniques of possible wider applicability may be explored and refined.

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

Cooperative College Development Program

The insecure financial base upon which most of the predominantly Negro colleges exist has been a major obstacle to their taking and maintaining places in the mainstream of American higher education. The Cooperative College Development Program (CCDP), founded in 1965 with assistance from the Alfred P. Sloan Foundation, appeared to be helping to improve this situation in 1966. This program, with offices at the Phelps-Stokes Fund in New York, assists its twenty-three member colleges, all in the South, in building and expanding comprehensive development programs similar to those in effect at the stronger predominantly white institutions of higher education.

While it is too early to claim success for the CCDP, a number of indicators of progress can be cited. When the program began, only two of the twenty-three member colleges had functioning development offices; a year and a half later the other twenty-one all had appointed development officers, or were about to. Similarly, only seven colleges had alumni officers in the beginning; by the end of 1966, fifteen had alumni officers. Most of the participating colleges had initiated comprehensive development plans as spelled out by CCDP officers in conferences, in official visits, and in special publications.

The most tangible evidence of progress by CCDP member colleges, however, came in the colleges' response to an offer of $1,000,000 in matching funds made by the Sloan Foundation late in 1965. The colleges were given two years in which to match the $1,000,000 in varying ratios specified by the Foundation; within the first six months they had matched about $650,000 of the total amount. Seven colleges qualified for their full matching amounts within this period; one qualified within a month. The maximum matching amounts available from the total Foundation grant were $66,666 for each of seven specified colleges, and $33,333 for each of the other sixteen. Each college conducts its own individual fund-raising operation, with advice and support from the CCDP staff.

By December 1, 1966, after one year of matching efforts, the colleges had qualified for about 90 per cent of the $1,000,000 available from the Foundation under the matching-grant program. If any colleges fail to match their maximum amounts by the end of the second year, the unmatched funds will be divided among the institutions which did meet their quotas.

Contributions matched by the Foundation fall into three categories: alumni contributions, which the Foundation matches $1 for $1; contributions from within the college's state and local communities, matched $1 for each $2 raised; and all other private contributions, matched $1 for $3.

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

LEMOYNE 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

Government funds, not matched by the Sloan Foundation, also flowed in increasing amounts to the CCDP member colleges in 1966 as the colleges gained increasing experience in availing themselves of the many new federal programs of aid to higher education. As one example, twenty-one of the member colleges obtained grants totaling $97,048 from the United States Office of Education for expanding their libraries. Individual institutions scored other successes in financing new programs with federal aid.

While the dollar amounts cited above are not large in comparison with amounts raised by more securely established institutions, for most of the CCDP member colleges they represent significant gains over previous levels of achievement. Programs of faculty improvement, equipment purchases, expanded student aid, and construction of badly needed buildings are under way at many of the colleges. Given a continued growth of support such as has occurred in the past year—especially as it develops strong patterns of Annual Giving—the CCDP colleges, which enroll about one-sixth of all Negro college students in the nation, should be able to strengthen and expand their contribution to higher education for young Americans of all races.

In terms of its operating budget, the CCDP is financed half by the Sloan Foundation and half by the participating colleges. The Foundation made a three-year grant of $177,000 early in 1965, and a supplementary grant of $15,000 for operations in 1966. Another supplementary grant of $15,000 for 1967 has been approved by the Foundation.

United Negro College Fund

During 1966 the United Negro College Fund, through which the Foundation has contributed to the operating as well as capital needs of predominantly Negro colleges in past years, undertook the purchase jointly with the National Urban League of a headquarters building at 55 East 52nd Street in New York City. The Foundation contributed $150,000 toward the Fund's share of the cost of this building.

The Foundation also renewed its annual contribution of $10,000 to the Fund, through which thirty-three member colleges cooperate in fund-raising and other activities.

National Medical Fellowships, Inc.

For the eighth consecutive year, the Foundation renewed its support of a program of scholarships for Negro medical students administered by National Medical Fellowships, Inc. The Foundation's grant of $80,000 will finance ten more four-year medical scholarships for Negroes, as well as grants-in-aid totaling $10,000 for non-scholarship medical students who are in need. Since the Foundation's support began in 1959, seventy-seven medical scholarships have been awarded and the total of the Foundation's grants (including the 1966 grant) has risen to more than half a million dollars. These students have attended, and have been graduated from, an increasingly representative group of medical schools in every section of the country.

Woodrow Wilson National Fellowship Foundation

One of the more interesting new proposals in the area of extending educational opportunity came to the Foundation from the Woodrow Wilson National Fellowship Foundation, which annually awards 1,000 first-year graduate fellowships to prospective college teachers. The Wilson Foundation also supports a limited number of students in a post-baccalaureate "qualifying year" of study which often enables them to qualify for a Wilson Fellowship or other graduate-level support the following year. It was proposed that this "qualifying year" opportunity be expanded for graduates of Southern predominantly Negro colleges, to provide for them a post-baccalaureate year at a major university in their own region. With the aid of an initial grant of $20,000 from the Alfred P. Sloan Foundation, five students are attending Emory University in Atlanta under this arrangement.

Washington University

How to remedy the lack of qualified Negro applicants for managerial positions potentially open to them was the subject of a major conference of white and Negro educators, leaders of industry, and government officials at Washington University in August of 1966. The conference, supported by a $20,000 grant from the Sloan Foundation, led to a decision by a consortium of the graduate business schools of Washington University, Indiana University, and the University of Wisconsin to establish a cooperative program of recruiting, counseling, graduate training, and placement in management positions for up to 100 qualified Negroes a year. To help implement the program, the Ford Foundation subsequently granted $300,000 to the consortium, to be matched by contributions from industry.

Other grants for extending educational opportunity:

LeMoyne College, Memphis, Tenn.: To assist in financing a pre-freshman summer orientation program . . . . . $ 5,000

NAACP Legal Defense and Educational Fund, Inc., New York, N. Y.: For general support $10,000

NAACP Special Contribution Fund, New York, N. Y.: For general support $10,000

Cancer and Other Medical Research

The Foundation gave renewed or continued support in 1966 to certain of its established—but limited—interests in medical research, beginning with cancer. While cancer research has, of course, long held first place among these limited concerns, the Foundation has provided modest support from time to time for research in otology, ophthalmology, and more recently, a special area of hematology. Not unrelated to these concerns are two others described elsewhere in this Report: the Foundation's special five-year grant in further support of a program in hospital administration (see Page 49, Cornell University) and its continuing support of scholarships for Negro medical students (see Page 37, National Medical Fellowships).

Cancer Research

The Foundation's regular annual support of the Sloan-Kettering Institute for Cancer Research was augmented in 1966 by a special grant of $3,000,000 to enable the Institute to reconstruct and remodel its original laboratory building. This grant, together with a grant from the National Institutes of Health, will enable the Memorial Sloan-Kettering Cancer Center, of which the Institute is a part, to expand and completely renovate the laboratory, in keeping with the needs of a modern research institution. The laboratory is named the Howard Laboratory, in honor of the late Frank A. Howard, who was instrumental in founding

the Institute and who was until his death in 1964 a trustee of the Sloan Foundation.

The Sloan-Kettering Institute, founded in 1945 by a grant of $4,000,000 from the Foundation, continued in 1966 to probe the secrets of the cell which may hold the knowledge needed for the eventual defeat of cancer as a major menace to human health and well-being. The most recent Report of the Institute states that in 1965 the Institute expended in this endeavor the sum of $8,601,856, of which $400,000 represented the annual supporting grant from the Foundation. Memorial Sloan-Kettering Cancer Center, which includes the Institute and Memorial Hospital for Cancer and Allied Diseases, spent $22,948,678 in 1965 for cancer treatment, research, and training.

The Foundation also renewed a three-year grant of $75,000 a year to the Southern Research Institute of Birmingham, Alabama, for support of cancer research which is conducted in cooperation with the Sloan-Kettering Institute.

Because of the death of Mr. Sloan, in February of 1966, the Alfred P. Sloan Awards in Cancer Research, which normally were presented by him in May of each year, were not awarded in 1966.

The Sloan-Kettering Institute also was the recipient during 1966 of a $250,000 grant in support of a new Biomathematics Facility, which is discussed in greater detail on Page 23.

Community Blood Council of Greater New York

The New York Blood Center, founded in 1963 by the Community Blood Council of Greater New York with the immediate objective of bringing some order out of a local blood-banking situation that bordered on the chaotic, has emerged since that time as a major national center of research on matters related to human blood. The Center's growth as a research agency, staffed by an outstanding group of blood scientists, has in fact occurred with such rapidity as to outstrip available facilities and financing.

At the New York Blood Center Dr. Fred H. Allen, Jr., senior research investigator, uses blood samples for genetic studies.

The Howard Laboratory of the Sloan-Kettering Institute for Cancer Research.

As an early supporter of the New York Blood Center, the Alfred P. Sloan Foundation, along with other foundations and the public, was called upon to help meet the new needs arising from the Center's remarkable record of success. Trustees of the Foundation in October 1966 approved a grant of $250,000 for this purpose.

Earlier grants by the Foundation to the Community Blood Council and the Blood Center included contributions of $50,000 in 1961, of $100,000 in 1963, and of $1,000,000 in 1964. The grant made in 1966 raised the total of such allocations to $1,400,000.

The research program of the New York Blood Center includes studies not only of flash-freezing and other new blood-preservation techniques, but also work in serology, genetics, plasma proteins, the cardiovascular system, and other subjects at basic levels of hematology. Concurrently, the Center has established a major new blood-collection program for New York and, through computerized record-keeping, has created a means for hospitals in emergency situations to locate immediately needed blood of required types, including rare blood types.

Council for Research in Glaucoma and Allied Diseases

Since 1952 the Foundation has taken a special interest in studies of the incidence and treatment of the disease of glaucoma and the related disease of uveitis. The annual appropriation for this purpose in 1966, amounting to $200,000, brought the Foundation's 14-year investment in this field to $1,529,291.

In its approach to an understanding of these widespread disorders of the eye, the Foundation has supported investigations from a number of directions and at basic levels, in an effort to expand the base of knowledge about the eye from which improved methods of treatment will evolve. It also has supported fellowships for the training of the talented new research scientists who are greatly needed in ophthalmology.

A special feature of the 1966 appropriation was the allocation of

$40,000 toward the cost of equipping a new research wing of the Institute of Ophthalmology of Columbia-Presbyterian Medical Center in New York City, one of the nation's leading eye-research institutions.

The Council for Research in Glaucoma and Allied Diseases was established by the Foundation to assist the Foundation in the administration of grants in ophthalmology. It is composed of a number of senior medical specialists under the chairmanship of Dr. John H. Dunnington, professor emeritus of ophthalmology at Columbia University. Its headquarters are at 111 East 59th Street, New York City. The Council meets periodically to consider applications for research grants and for fellowships in ophthalmology. Upon its recommendation, the Foundation in 1966 allocated $20,000 for eight fellowships and $136,217 for the following research studies:

University of Chicago: For a study of fine microscopy and radioautography of the trabecular area in glaucomatous eyes	$28,000
Columbia University, College of Physicians and Surgeons: To study the effects of autonomic drugs on the composition of aqueous humor and on the cellular physiology of ocular tissues	$ 5,370
To study cryosurgery for glaucoma	$ 6,490
To study the relative effect of different qualities of radiation (RBE) and different dosage schedules on the mammalian lens	$ 9,000
Cornell University Medical College: To support the radioautographic study of catecholamine localization of the eye	$11,546
The Eye-Bank for Sight Restoration, Inc.: To support an electron microscope study of vitreous cells: The role of the macrophage in glaucoma and other eye diseases	$18,000
The Johns Hopkins University, School of Medicine: To study the development and the evaluation of new procedures for the measurement of the ocular pulse in normal and glaucomatous eyes	$14,770
To support a study on the pathogenesis of recurrent nongranulomatous uveitis	$16,716
The Mount Sinai Hospital: To study pharmacogenetics in ophthalmology by means of anticholinesterase drugs and dibucaine numbers	$13,775
New York Association for the Blind: For administrative expenses of the Council for Research in Glaucoma and Allied Diseases	$12,100

Deafness Research Foundation

A second major grant for support of research in otology was made in 1966 to the Deafness Research Foundation. The $316,250 grant was described by the grantee as "the largest grant for ear research ever made from private sources." An initial major grant of $258,750 in 1964 supported 18 individual research grants administered by the Deafness Research Foundation. The 1966 grant will permit extension of some of these projects and initiation of new ones during a two-year period.

Founded in 1958, the Deafness Research Foundation has provided more than $1,000,000 for ear research projects. During its 1965-66 fiscal year the Deafness Research Foundation awarded $250,903 in grants, of which $136,275 represented Sloan Foundation funds.

In addition to supporting research at leading medical institutions, the Deafness Research Foundation operates a nationwide Temporal Bone Banks Program through which persons having hearing disorders may bequeath their inner ear structures for study by scientists seeking causes of and cures for deafness. The American Academy of Ophthalmology and Otolaryngology cooperates with the Deafness Foundation in the conduct of this program. Recently the Armed Forces Institute of Pathology at Bethesda, Maryland, became a participant in the Temporal Bone Banks Program; microscope slides of significant inner ear specimens will be placed on file at the Institute where they will be available for research and instructional purposes.

Other grants for medical research and education:

AMERICAN CANCER SOCIETY, NEW YORK CITY DIVISION, INC., New York, N. Y.: To underwrite half the cost of a benefit to raise funds for cancer research $10,000

AMERICAN HEALTH EDUCATION FOR AFRICAN DEVELOPMENT, INC., New York, N. Y.: In support of a proposed nursing education center in Sierra Leone $16,500

CHILDREN'S HOSPITAL OF MICHIGAN, Detroit, Mich.: Supplementary grant in support of the building and maintenance fund of the Hospital $ 5,000

COLUMBIA UNIVERSITY, SCHOOL OF PUBLIC HEALTH AND ADMINISTRATIVE MEDICINE, New York, N. Y.: For an Anglo-American exchange program in hospital administration . . . . . $ 7,500

HOSPITAL EDUCATIONAL AND RESEARCH FUND, Albany, N. Y.: For general support of the grantee's educational and research program . . $20,000

NATIONAL FUND FOR GRADUATE NURSING EDUCATION, New York, N. Y.: For general support . . . . . $ 5,000

PRESBYTERIAN-UNIVERSITY OF PENNSYLVANIA MEDICAL CENTER, Philadelphia, Pa.: For the preparation of scripts for visual presentation of materials to be used in an instructional system for the training of nurses for cardiac patients $10,000

Management Education

The Foundation's historic interest in the development of managerial leadership was reaffirmed through several grants in 1966. One of these commitments focused on the need for strengthened education of managers in Great Britain and the Commonwealth, and another recognized the rising domestic need for more modern and efficient administration of hospitals. Still another, smaller in amount, supported a study of a proposal by three Midwestern universities to recruit and train young Negro Americans for positions in management (see Page 38, Washington University).

London Graduate School of Business Studies
Massachusetts Institute of Technology

Even before the economic crisis of 1966 directed renewed attention to the British managerial performance, the Foundation had become interested in efforts to upgrade management education at the postgraduate level in Britain. A promising opportunity appeared at the new London Graduate School of Business Studies, which proposed to establish a program of one-year executive-development fellowships similar to a program partially supported by the Foundation since 1938 at the Massachusetts Institute of Technology.

In view of the Foundation's experience with the MIT program and

DR. ARTHUR F. EARLE
Principal, London Graduate
School of Business Studies

of MIT's willingness to assist in the proposed London program, and in recognition of the London Business School's high potential for strengthening the professional caliber of British management, Trustees of the Foundation approved grants totaling $315,000 to help finance the London program for three years. For this special purpose the Trustees waived the Foundation's policy of confining grants to institutions in the United States.

The London-Sloan program, like its counterparts at MIT and Stanford University, will offer selected middle-management personnel, typically in their mid-thirties, a year of intensive exposure to advanced management theory and practice. The initial class of 15 London-Sloan fellows will be recruited beginning in the fall of 1967, and instruction will begin in 1968. The Foundation grants will provide $225,000 to the London Business School and $90,000 to MIT's Alfred P. Sloan School of Management. The MIT School will provide one visiting professor a year to the London program, as well as lecturers for briefer periods and consulting services. Employers of the men chosen as fellows will supply living costs and tuition fees.

The London Graduate School of Business studies was founded in 1965 under the sponsorship of two branches of the University of London, the London School of Economics and the Imperial College of Science and Technology. Its principal is Dr. Arthur F. Earle, a Canadian and a former high executive of Aluminium Limited and of Hoover Limited. The School offers a two-year graduate course leading to the Master's Degree; through the London-Sloan Fellowships and briefer seminars for men already active in management, as well as by research and other means, it seeks to make an immediate impact on business decision-making practices in Great Britain and the Commonwealth.

Under commitments made previously, the Foundation in 1966 continued its partial support of the MIT-Sloan Fellowship Program for some 45 middle-management personnel at a rate of $312,500 a year. The Foundation also continued to provide $220,000 a year for general support of MIT's Alfred P. Sloan School of Management.*

Stanford University

A grant of $465,727 was made in 1966 for continued support of the Stanford-Sloan Fellowship Program at the Graduate School of Business, Stanford University. This grant extended for three years the Foundation's commitment to a program of advanced management education having much the same objectives as the programs at the London Business School and MIT discussed above. An additional emphasis in the Stanford program is the training of professors of management; to this end, six candidates for the Ph.D. in management spend an academic year in the program with the fellows from business and other organizations.

As the Stanford-Sloan Program entered its tenth year in September 1966, the annual class of fellows (exclusive of the six Ph.D. fellows) was increased from 14 to 19. The program also moved into expanded quarters in the Graduate School of Business Building, which was dedicated on October 7, 1966. In recognition of a 1964 contribution by the Foundation of $1,000,000 toward the cost of the $5,500,000 structure, a portion of the building was designated the Alfred P. Sloan Center for Management Education.

The cost of the Stanford-Sloan Program, like that of the London-Sloan and MIT programs, is borne largely by the organizations which sponsor fellows in the program. The Foundation's contributions pay slightly less than one-fourth of the cost of the three programs.

Cornell University

In the special area of management of hospitals and other medical-care facilities, a number of recent developments have made more pressing the need for trained and expert administration. Among these are rapid advances in medical knowledge and technology, the growth of new social

Future hospital managers at the Sloan Institute of Hospital Administration, Cornell University.

* Howard W. Johnson, dean of the Alfred P. Sloan School of Management and former director of the MIT-Sloan Fellowship Program, was inaugurated as the twelfth President of MIT on October 7, 1966. Mr. Johnson's successor as dean of the Sloan School is Dr. William F. Pounds, formerly associate professor of management at the Sloan School of Management. Dr. Peter P. Gil, the present director of the MIT-Sloan Program, was appointed assistant dean of the Sloan School in July, 1966.

provisions (such as Medicare) for the financing of medical care, and a renewed emphasis on closing the gap between medical knowledge and medical practice.

A special five-year grant of $300,000 will, it is hoped, enable the Sloan Institute of Hospital Administration at Cornell University substantially to strengthen its faculty and program for training new hospital managers, as well as to reinforce the additional training it offers to experienced administrators. Since its founding in 1955 the Institute has awarded Masters' degrees to 89 students, of whom 84 are active in the management of hospitals and other medical facilities. Also, 202 mid-career administrators have taken part in summer programs designed to increase their effectiveness.

The latest five-year grant will bring to $2,150,000 the Foundation's total investment in the Sloan Institute of Hospital Administration. By the end of the current grant period in 1971 it is anticipated that Cornell will assume full responsibility for the Institute's annual operating budget.

Other grants for management education:

DARTMOUTH COLLEGE, AMOS TUCK SCHOOL OF BUSINESS ADMINISTRATION, Hanover, N. H.: To support the research of Professor J. B. Quinn into organizational and related questions posed by technologically-based international companies $10,000

HARVARD UNIVERSITY, Cambridge, Mass.: To support the research of Professor William S. Comanor into factors which influence the role and nature of competition in the economy $10,850

JOINT COUNCIL ON ECONOMIC EDUCATION, New York, N. Y.: For general support $10,000

STETSON UNIVERSITY, DeLand, Fla.: For the equipment fund of the University's new School of Business Administration . . . . . $ 5,000

YALE UNIVERSITY, New Haven, Conn.: To provide support for faculty summer research in the University's Department of Industrial Administration $12,000

Professional Education

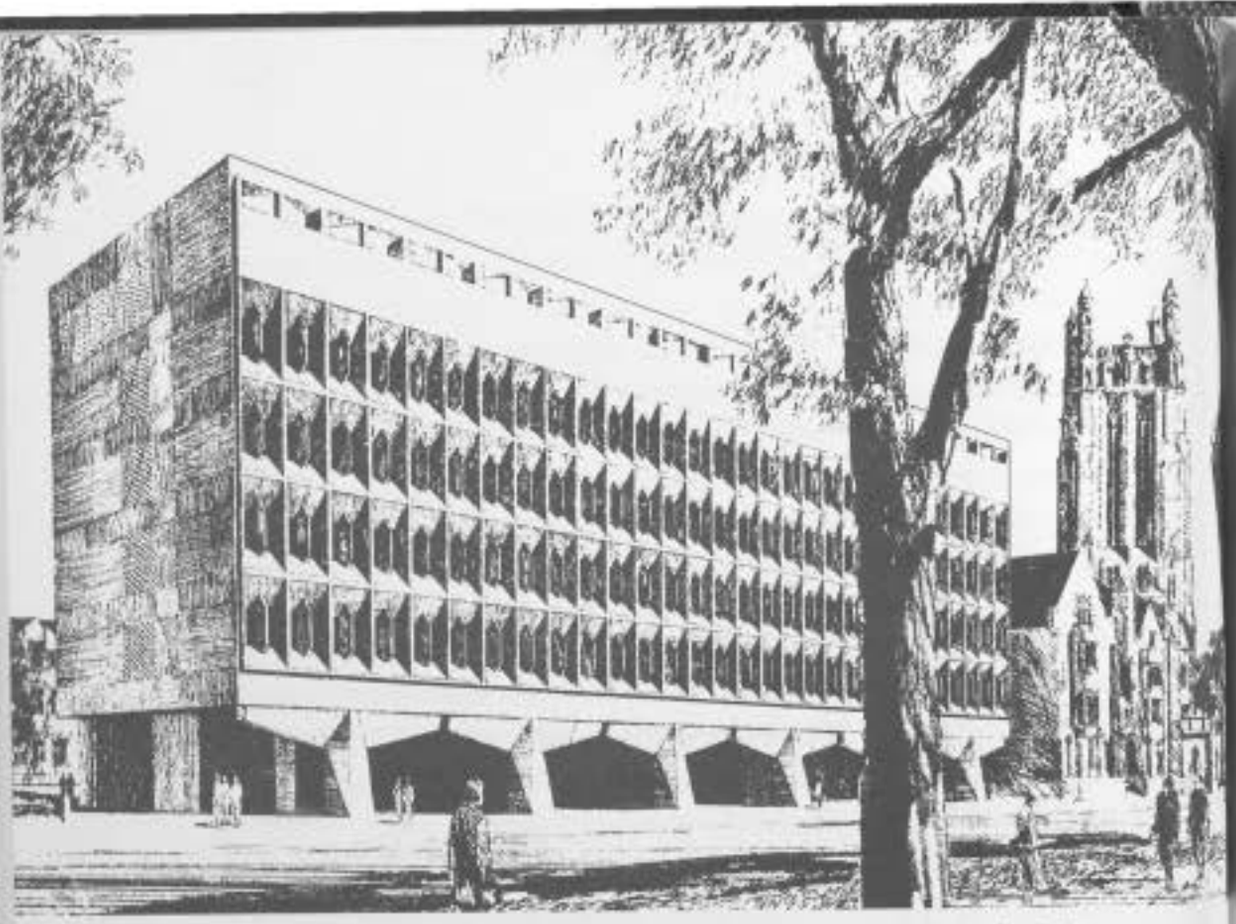
A number of grants were made for the advancement and study of professional education in areas other than those described previously in this Report. Among these was a major grant in engineering education, a field of traditional concern to the Foundation.

Yale University

In 1961 and 1962 the Foundation distributed grants of $1,000,000 each to six universities* having a demonstrated potential for rapid advancement in science-based engineering education. At about the same time Yale University, which was not among the six recipients, began a reorganization designed to relate its engineering education more closely to recent developments in the basic sciences. A new Department of Engineering and Applied Science replaced the traditionally separate departments of engineering at the undergraduate level, while the School of Engineering became a graduate professional school. Emphasis on areas closely tied to basic scientific advance, such as fluid dynamics, computer science, solid-state physics, and maser and laser work, supplanted the former technologically-oriented studies administered by discrete engineering departments.

By 1965 Yale's rapid progress in engineering and applied science,

* Brown University, Dartmouth College, Johns Hopkins University, University of Notre Dame, Princeton University, and University of Rochester.



Yale University's proposed Laboratory of Engineering and Applied Science, designed by Marcel Breuer.

supported by similar progress in basic scientific disciplines, had made improved physical facilities a matter of first importance. The University undertook to raise $12,550,000 for a new Engineering and Applied Science complex; early in 1966 the Alfred P. Sloan Foundation made the first major gift, $1,000,000.

In creating the Engineering and Applied Science complex, Yale plans to raze two antiquated buildings, build a new six-story, $9,000,000 laboratory designed by Marcel Breuer, remodel one of two existing laboratories, and tie the complex together by means of tunnels. Beyond the obvious advantages of greater efficiency and sharing of common facilities, the complex will, in the words of President Kingman Brewster, Jr., "bring into a single intellectual community groups whose work would benefit by constant interchange."

National Academy of Sciences

One of the educational phenomena of postwar years has been the accelerating growth in numbers of postdoctoral fellows and associates. In chemistry and physics their number is doubling every five years; on some campuses they equal or exceed the number of faculty on tenure. Other universities do not know how many postdoctoral people they have, or what their presence is costing the universities in terms of equipment, library facilities, faculty time, and space.

Moreover, the educational purpose of study beyond the doctorate lacks definition and adequate standards by which its value may be judged.* In some of the sciences, the doctorate may no longer represent adequate preparation for appointment to the faculties of some leading universities. For some postdoctorals the desire to conduct an additional year or two of research before taking up teaching may be the controlling factor. Still others are established scholars returning to the university for upgrading in their specialties. While there is as yet no formal degree beyond the Ph.D., the beginnings of a movement to award some form of recognition for postdoctoral study are becoming visible.

The poorly defined status of postdoctoral fellows has led some into difficulties with their draft boards, which find it hard to understand why a young Ph.D. scientist needs still more schooling to reach full stature in his profession. It is not clear at present whether a postdoctoral fellow is an advanced student or an employed professional—a further source of confusion with Selective Service. Finally, because about half the postdoctorals in physics and chemistry, for example, are foreign students, there are international implications.

Together with universities, a stake in the problem is shared by foundations, industry, and certain Federal agencies, in that all provide support for postdoctoral study and all have an interest in optimum utilization of highly educated manpower. The Alfred P. Sloan Founda-

* See "Super Scholars: Postdoctoral Students Create a Controversy as Their Ranks Grow." The Wall Street Journal, October 13, 1966.

tion, therefore, joined in supporting a two-year study of postdoctoral education in the United States, to be administered through the National Academy of Sciences. The Foundation's share of the $293,000 total cost is $50,000; the balance is expected to be contributed by Federal agencies. Through this combination of private and public support, and under the respected auspices of the National Academy of Sciences, many of the ambiguities surrounding postdoctoral education should be resolved.

To direct the study the Academy appointed Dr. Robert A. Alberty, then dean of the Graduate School of the University of Wisconsin and, as of February 1, 1967, dean of the School of Science and professor of chemistry at the Massachusetts Institute of Technology. Studies of the institutional aspects of postdoctoral education will be headed by Mr. Robert K. Weatherall, of the Office of the Graduate Dean at MIT, and studies of manpower aspects will be led by Dr. Lindsey R. Harmon, of the Office of Scientific Personnel, National Academy of Sciences. Dr. Sanborn C. Brown, associate dean of the Graduate School at MIT, is chairman of the advisory committee for the project.

Other grants for professional education:

Graduate Research Center of the Southwest, Dallas, Texas: To support a research program for undergraduates in science and engineering . . . . . $ 9,900

University of Hartford, West Hartford, Conn.: To supplement a grant of December 1, 1965 to finance a study of the needs of engineering education in the Hartford, Conn. area . . . . . $ 3,500

Michigan State University, East Lansing, Mich.: To supplement a grant of June 29, 1965 for a study of attrition among engineering students . . . . . $ 2,766

To finance printing and distribution of a report on the above study . . . . . $ 600

Volunteers for International Technical Assistance, Inc., Schenectady, N. Y.: To introduce technical design problems received by VITA into the curricula of certain cooperating universities and colleges $10,000

Other Grants

Related to and in some instances extending experimentally the interests of the Foundation described in preceding sections of this Report were the grants listed below. Except for the two grants which, as indicated, were specifically authorized by trustees of the Foundation, all were made under discretionary authority confided to the officers and staff of the Foundation by the trustees.

Also listed in this section, beginning on Page 60, are the names of scientists who received Sloan Research Fellowships in 1965 and 1966 under the Foundation's Program for Basic Research in the Physical Sciences, described in Pages 18 through 21.

Council on Foreign Relations

Trustees of the Foundation renewed the Foundation's annual supporting grant to the Council on Foreign Relations, at a level of $25,000. The Council has embarked upon a ten-year development program to strengthen its capacity to contribute to discussion of international affairs. The Foundation has made modest annual contributions to the Council since 1953.

Automotive Safety Foundation

A program of annual awards to stimulate broadcast efforts to encourage safer driving was accorded renewed support of $16,500 by the

trustees. This program is known as the Alfred P. Sloan Awards for Highway Safety and is administered by the Automotive Safety Foundation. The Awards are presented at an annual banquet to both commercial and educational stations and networks in the radio and television media, and to writers and producers in the two media. The Foundation has supported this activity since 1947.

Staff Grants

The staff of the Foundation in 1966 approved the following grants, not previously noted, under its discretionary authority to make limited commitments.* Some of these 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.

American Alumni Council, Washington, D. C.: In partial support of the Council's recent Symposium on Taxation and Education held at Airlie House, Warrenton, Virginia . . . . . $ 5,000

The American Assembly, New York, N. Y.: To support the activities of the American Assembly $10,000

American Association of Junior Colleges, Washington, D. C.: Contribution toward the Association's program to improve student personnel services in its constituent colleges $10,000

The American National Red Cross, New York, N. Y.: Emergency contribution to enable the American Red Cross to extend its services to American armed forces in Vietnam . . . . . $ 2,500

The American National Red Cross, Washington, D. C.: For general support of the program of the Red Cross $10,000

American Psychological Association, Washington, D. C.: To support an Association project in professional communication and information exchange in psychology at the International Congress of Psychology on August 4-11, 1966 at Moscow, U.S.S.R. . . . . $ 5,000

Antioch College, Yellow Springs, Ohio: To revise existing study of college and university trusteeship $11,500

Aspen Institute for Humanistic Studies, Aspen, Col.: For support of the activities of the Institute's Physics Division for 1966 . . . $10,000

Association of International Relations Clubs, New York, N. Y.: In partial support of the Association's seminar to plan student discussions on Southeast Asia . . . . . $ 2,000

Associated Universities, Inc., New York, N. Y.: Toward the cost of a study of the feasibility of converting the U. S. Pavilion of the former New York World's Fair into an inter-university center for research and development $12,500

The Atlantic Council of the United States, Washington, D. C.: For general support $10,000

Board of Education of the City of New York, Brooklyn, N. Y.: In partial support of a pilot program by the Cooperative Education Division of the New York City Board of Education to train artisans in woodworking . . . . . $ 7,500

University of California, Berkeley, Calif.: To support research in science education at the Lawrence Hall of Science $20,000

Columbia University, Bureau of Applied Social Research, New York, N. Y.: To defray a portion of the cost of a study of the Urban Corps of New York City . . . . . $ 6,000

Columbia University, Graduate School of Business, New York, N. Y.: In partial support of a study on corporate contributions policy and American education . . . . . $ 3,000

Columbia University Press, New York, N. Y.: Supplementary grant to defray the publication cost of one volume of "The Papers of Alexander Hamilton" . . . . . $ 5,000

University of Delaware, Newark, Del.: For a study of the feasibility of developing a tenth grade physics course in a more comprehensive and coordinated high school science curriculum . . . . . $ 9,000

Education and World Affairs, New York, N. Y.: For the publication and distribution, under the supervision of the Overseas Educational Service, of the proceedings of a National Service Conference held May 7, 1966 . . . . . $ 5,500

For promotion of public discussion of the proposed national service concept $12,500

* A number of staff grants have been listed in other sections of the Report, and are not repeated here.

ENGINEERS AND SCIENTISTS COMMITTEE, INC., Washington, D. C.: To pay packaging and shipping costs of scientific books and periodicals donated to institutions and individual scientists outside the United States . . . . . $ 5,000

EXPERIMENT IN INTERNATIONAL LIVING, Putney, Vt.: Contribution toward support of the training program for international careers conducted by the Experiment's School for International Training $10,000

FRANKLIN BOOK PROGRAMS, INC., New York, N. Y.: To support the general program of the donee in developing countries $17,500

HARVARD UNIVERSITY, Cambridge, Mass.: To assist in financing completion and publication of a college level text on physical science by Professor Edwin C. Kemble . . . . . $ 8,500

HARVARD UNIVERSITY, GRADUATE SCHOOL OF BUSINESS ADMINISTRATION, Boston, Mass.: To support research into business-governmental relations $20,000

INTERNATIONAL HOUSE, New York, N. Y.: Contribution for the support of International House . . . . . $ 3,500

ISTITUTO E MUSEO DI STORIA DELLA SCIENZA, Florence, Italy: To assist in the restoration and preservation of flood-damaged exhibits . . $10,000

THE LEGAL AID SOCIETY, New York, N. Y.: For general support . . $10,000

NATIONAL ACADEMY OF SCIENCES, Washington, D. C.: Partial support of symposium on Technology and World Trade to be held in connection with dedication of new laboratories of the Bureau of Standards, U. S. Department of Commerce . . . . . $ 5,000

NATIONAL AID TO VISUALLY HANDICAPPED, New York, N. Y.: For the support of the program of the grantee organization . . . . . $ 2,500

NATIONAL BOARD OF THE YOUNG WOMEN'S CHRISTIAN ASSOCIATION OF THE U.S.A.: For general support $10,000

NATIONAL CIVIL SERVICE LEAGUE, New York, N. Y.: To finance the award of cash prizes of $1,000 each for two years to those federal civil servants who annually receive the League's Career Service Award $20,000

NATIONAL COUNCIL OF THE CHURCHES OF CHRIST IN THE U. S., New York, N. Y.: To support the Council's discussion program to be conducted through the National Committee on U. S.-China relations . . $10,000

NATIONAL COUNCIL ON CRIME AND DELINQUENCY, New York, N.Y.: For general support $10,000

NATIONAL INFORMATION BUREAU, New York, N.Y.: Contribution toward operation expense of National Information Bureau. . . . . $ 1,000

NATIONAL PLANNING ASSOCIATION, Washington, D.C.: Contribution in support of the Association's Special Project involving studies of the causes of development progress in Asia and Latin America. $10,000

THE NEW YORK ACADEMY OF SCIENCES, New York, N.Y.: Contribution toward the expenses of a conference on "Leukocyte Chemistry and Morphology Correlated with Chromosome Anomalies." . . . . . $ 500

THE NEW YORK PUBLIC LIBRARY, New York, N. Y.: For support of the Library's Research Division . . . . . $ 5,000

NEW YORK UNIVERSITY, DEPARTMENT OF HISTORY, New York, N.Y.: Partial support of project to assemble, edit, copy, and microfilm the papers of Albert Gallatin. . . . . $ 5,000

NEW YORK UNIVERSITY, INSTITUTE OF FINE ARTS, New York, N.Y.: Second grant to support research on the deterioration of stone sculpture and architecture exposed to the atmosphere $10,000

NIELS BOHR INSTITUTE, Copenhagen, Denmark: Support of the Niels Bohr Institute's program of international scientific cooperation . . $10,000

PAN AMERICAN DEVELOPMENT FOUNDATION, Washington, D.C.: To develop and maintain a national private foundation in the Dominican Republic . . . . . $ 5,780

PHELPS-STOKES FUND, New York, N.Y.: To assist in establishing an office which would seek to secure funds from private sources to support so-called "unsponsored" African students in the United States $20,000

THE POLISH INSTITUTE OF ARTS AND SCIENCES IN AMERICA, INC., New York, N. Y.: Partial support of a Congress of scientists and intellectuals held at Columbia University under the joint auspices of the University and the Institute on November 25-27, 1966 . . . . . $ 5,000

POPULATION REFERENCE BUREAU, INC., Washington, D. C.: For general support $20,000

SOUTHERN ASSOCIATION OF COLLEGES AND SCHOOLS, Atlanta, Ga.: Contribution toward the production and distribution of the Report on the Southern Region Conference on Education . . . . . $ 5,000

UNITED NATIONS ASSOCIATION OF THE U.S.A., New York, N. Y.: Contribution toward the budget of the International Cooperation Year program of the United Nations Association . . . . . $ 2,500

USO OF NEW YORK CITY, INC., New York, N. Y.: For general support . . . . . $ 2,500

College of the Virgin Islands, St. Thomas, Virgin Islands: Contribution toward the College's scholarship and/or loan fund for advanced students who have been accepted at mainland colleges . . . . $ 5,000

Vocational Advisory Service, New York, N. Y.: In partial support of the Service's new Remedial Education Program . . . . . $ 1,000

University of Washington, Seattle, Wash.: To assist in financing the organization and development of the program of the Pacific Northwest Association for College Physics $10,000

Women's City Club of New York, Inc., New York, N. Y.: For the club's Fiftieth Anniversary Fund, for use in civic and educational projects $10,000

Sloan Research Fellows

Scientists who received Sloan Research Fellowships or renewals of Fellowships in 1965 and 1966 through the Program for Basic Research in the Physical Sciences (see Page 18) are listed below, by institution and field of science.

University of Alberta
Chemistry: William A. Ayer
University of Arizona
Physics: John D. McCullen
Brandeis University
Mathematics: Jerome P. Levine, Richard S. Palais, Hugo Rossi, Robert T. Seeley
University of British Columbia
Chemistry: James Trotter. *Applied Mathematics and Theoretical Physics*: Charlotte Froese
Brown University
Chemistry: James C. Baird. *Physics*: Manuel Cardona. *Applied Mathematics*: Leonard Weiss
Bryn Mawr College
Chemistry: Frank B. Mallory
California Institute of Technology
Chemistry: Fred C. Anson, Sunney I. Chan. *Physics*: Roger F. Dashen, Kip S. Thorne, George Zweig. *Mathematics*: Everett C. Dade. *Geochemistry*: Hugh P. Taylor, Jr. *Geophysics*: Don L. Anderson. *Radio Astronomy*: Alan T. Moffet
University of California, Berkeley
Chemistry: Robert A. Harris, Bruce H. Mahan, Herbert L. Strauss. *Physics*: Korkut Bardakci, Fred W. Byron, Jr., Marvin L. Cohen, Yuen-Ron Shen. *Mathematics*: Glen E. Bredon, Richard M. Dudley, Calvin C. Moore, Josgph A. Wolf
University of California, Los Angeles
Chemistry: Mostafa A. El-Sayed, Christopher S. Foote, Paul C. Haake. *Physics*: James S. Ball, Raymond L. Orbach, Philip A. Pincus, Alfred Yiu-Fai Wong
University of California, Riverside
Chemistry: M. Frederick Hawthorne, David R. Kearns
University of California, San Diego
Chemistry: Robert C. Fahey. *Physics*: Donald R. Fredkin, Meir Weger, David Y. Wong
University of California, Santa Cruz
Physics and Biophysics: Ronald H. Ruby
Carnegie Institute of Technology
Physics: Robert B. Griffiths
University of Chicago
Chemistry: Philip E. Eaton, Everly B. Fleischer, John C. Light. *Physics*: David H. Douglass, Jr., Leopoldo M. Falicov, Norman M. Gelfand, Royal W. Stark. *Mathematics*: Arunas Liulevicius

University of Colorado
Chemistry: Melvin W. Hanna. *Physics*: Joseph F. Dreitlein, Paul E. Phillipson
Columbia University
Chemistry: Nicholas J. Turro. *Physics*: Sven R. Hartmann, Wonyong Lee. *Mathematics*: Hyman Bass
Cornell University
Chemistry: Jack H. Freed, David H. Geske, Roald Hoffmann. *Physics*: N. David Mermin, John W. Wilkins, Kenneth G. Wilson. *Mathematics*: Stephen U. Chase
Dartmouth College
Chemistry: Thomas A. Spencer
Florida State University
Mathematics: Robert W. Gilmer, Jr.
University of Florida
Chemistry: William M. Jones
Georgia Institute of Technology
Chemistry: Eugene C. Ashby, J. Aaron Bertrand
University of Georgia
Mathematics: James C. Cantrell
Harvard University
Chemistry: Roy G. Gordon. *Physics*: Sidney R. Coleman, Peter S. Pershan
University of Illinois
Chemistry: John E. Baldwin, Willis H. Flygare, Stanley G. Smith. *Physics*: Gordon A. Baym
Indiana University
Chemistry: Russell A. Bonham. *Mathematics*: George J. Minty
Iowa State University
Chemistry: John G. Verkade. *Physics*: Andrew V. Gold, Terry L. Loucks
Johns Hopkins University
Chemistry: Adam Allerhand, Everett Thiele. *Physics*: Henry W. Moos, James C. Walker
University of Kansas
Chemistry: Benjamin Chu, Robin T. M. Fraser
Louisiana State University
Chemistry: Sean P. McGlynn, L. Kelly Runnels
McMaster University
Physics: Dennis G. Burke, Thomas Timusk
Massachusetts Institute of Technology
Chemistry: Glenn A. Berchtold, James L. Kinsey. *Physics*: Paul G. Federbush. *Mathematics*: Michael Artin, James R. Munkres, W. Gilbert Strang. *Geochemistry and Geophysics*: William C. Luth. *Mathematics and Theoretical Physics*: Joseph Pedlosky
University of Miami
Mathematics: Stanislaw K. Knapowski
Michigan State University
Chemistry: Christie G. Enke, Gerasimos J. Karabatsos. *Physics*: Sam M. Austin
University of Michigan
Chemistry: Michael M. Martin. *Mathematics*: Carl M. Pearcy
University of Minnesota
Chemistry: James R. Bolton, John S. Dahler, Edgar W. Garbisch, Jr., C. Alden Mead. *Physics*: Allen M. Goldman
City University of New York
Mathematics: Gilbert Baumslag
State University of New York at Buffalo
Chemistry: Peter T. Lansbury, Garry A. Rechnitz
State University of New York at Stony Brook
Chemistry: John M. Alexander, Paul C. Lauterbur
University of North Carolina
Chemistry: James P. Collman. *Physics*: Hendrik van Dam
Northwestern University
Chemistry: James A. Marshall, Edward W. Schlag. *Mathematics*: Mark Mahowald
University of Notre Dame
Chemistry: Jeremiah P. Freeman. *Physics*: Paul C. DeCelles
Ohio State University
Chemistry: Leo A. Paquette
University of Oklahoma
Physics: Chun C. Lin
University of Oregon
Chemistry: Lloyd J. Dolby
Pennsylvania State University
Chemistry: Albert Haim, Roy A. Olofson, Herman G. Richey, Jr.
University of Pennsylvania
Physics: Alan J. Heeger, Benjamin W. Lee, Douglas J. Scalapino
University of Pittsburgh
Physics: Thomas F. Jordan
Princeton University
Chemistry: T. Darrah Thomas. *Physics*: David T. Wilkinson
Purdue University
Physics: Robert L. Mieher. *Mathematics*: Louis deBranges

Rice University
Mathematics: Edwin H. Connell. *Space Science*: Donald D. Clayton
University of Rochester
Physics: Ronald D. Parks
San Jose State College
Chemistry: Ralph J. Fessenden
University of Southern California
Chemistry: Howard S. Taylor
Stanford University
Chemistry: Victor W. Laurie. *Physics*: Frank S. Dietrich, Robert J. Oakes, H. Alan Schwettman, Peter L. Scott
University of Texas
Chemistry: Nathan L. Bauld. *Astronomy*: William H. Jefferys III, Neville J. Woolf
Tufts University
Physics: Laura M. Roth
Tulane University
Mathematics: Karl H. Hofmann
University of Vermont
Chemistry: Martin E. Kuehne
University of Virginia
Physics: Bascom S. Deaver, Jr. *Mathematics*: Daniel R. McMillan, Jr.
Washington State University
Chemistry: Donald S. Matteson
Washington University
Chemistry: Robert Yaris. *Physics*: John W. Clark, Kazimierz Luszczynski
University of Washington
Chemistry: Gershon Vincow. *Physics*: William D. McCormick. *Mathematics*: Ramesh A. Gangolli
University of Waterloo
Physics: Douglas J. Henderson
Wayne State University
Chemistry: Carl R. Johnson
Wesleyan University
Astrophysics: Henry A. Hill
University of Western Ontario
Chemistry: James F. King
University of Wisconsin
Chemistry: Richard H. Holm, Howard W. Whitlock, Jr. *Physics*: David L. Huber. *Mathematics*: H. Jerome Keisler, Joseph M. Martin
Xavier University
Physics: Frederick G. Werner
Yale University
Chemistry: Charles S. Johnson, Jr., Morton Kaplan, Martin Saunders. *Chemistry and Molecular Biophysics*: Donald M. Crothers

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, to engage in general philanthropic activities. All of its assets with the exception of the General Motors Dealers Appreciation Fund* are the result of gifts and bequests, aggregating some $167,000,000 as of the date of gift, made by the late Alfred P. Sloan, Jr. and the late Mrs. Sloan. The Foundation is independent of and separate from all other institutions bearing the Sloan name, although some such institutions receive supporting grants from the Foundation.

The Foundation functions almost entirely as a grant-making agency; that is, it does not normally engage directly in the operation of research or other projects. Grants are made to recognized educational and research institutions and are administered by those institutions.

The areas of principal interest of the Foundation are indicated in its Annual Reports, and the Foundation welcomes imaginative and constructive proposals falling within those areas. Failure to support any given proposal does not necessarily imply any adverse judgment of its worth, for the Foundation annually receives many more meritorious requests

* The General Motors Dealers Appreciation Fund was contributed to the Foundation by General Motors dealers of the United States in 1948, in appreciation of Mr. Sloan's services to General Motors Corporation, of which he was then Chairman of the Board. The dealers' original contribution of $1,525,000 had appreciated in market value to $9,770,989 by the end of 1966. Grants paid from the Fund's income have been devoted to cancer research.

than its limited funds permit it to meet. The Foundation is obliged to decline some 750 requests for aid annually.

Proposals outside the areas described in the Reports stand slight chance of acceptance and are wasteful of limited staff time. Among the fields which are not currently supported by the Foundation are the creative and performing arts; religion and the humanities; and the behavioral sciences. With minor exceptions the Foundation does not support charities or international activities. Requests for support of conferences and for equipping and constructing buildings are discouraged.

The Foundation is prohibited by law from supporting activities intended to influence specific legislation. Grants are made only to institutions and organizations which hold tax-exempt status under the Internal Revenue Code.

Application for a grant is made in the form of a letter to the Foundation; no special forms are supplied and except in special programs there are no "deadlines" for applications. The letter of application should present, as clearly and briefly as possible, (1) the nature of the problem to be attacked; (2) the procedure to be employed; (3) the name and qualifications of the person or persons who would conduct the activity, and (4) an itemized expense budget. In the case of requests for large amounts, full supporting documents should accompany the letter of application. Evidence of imagination, precision, and clarity of thought is persuasive in gaining favorable consideration of any request. Often a preliminary letter of inquiry will be useful in determining whether it would be worth while to submit a formal proposal.

Terms and conditions of each grant are established on a basis mutually acceptable to the Foundation and the grantee. The Foundation expects that reports on activities supported by its grants will be made annually and/or at the conclusion of the activity, or on such other schedule as may be arranged; and that financial reports of expenditures from grants will be made on a similar basis. Any funds remaining after termination of an activity supported by a grant normally are refunded to the Foundation.

Grants are made for terms of from one to as many as five years. In a few cases the term of a grant may be extended or support may be renewed upon the expiration of a grant; but in general the Foundation expects that continuing activities to which it extends initial support will become self-sustaining within a reasonable period of time. This policy is intended to preserve for the Foundation the freedom to respond to challenging new opportunities whenever and wherever they may arise.

Financial Review

The financial condition of the Foundation at December 31, 1966 and changes in Funds during the year then ended are set forth in the financial statements and supporting schedules which, together with the related opinion of Haskins & Sells, certified public accountants, begin on page 70. The statements, apart from the supplementary notation of market quotation values where considered appropriate, were prepared at ledger amounts. Matters of special interest regarding the Foundation's finances are as follows:

In 1966 new grants authorized, plus expense of administration and special projects, totaled $21.3 million compared to income of $13.2 million. At the close of its thirty-second year, the Foundation had paid out $127 million and had commitments for future payments of an additional $29 million. The historical total of commitments and expenses, $156 million, compared with cumulative income of $114.7 million results in a cumulative excess of grants and expenses over income of $41.4 million.

The ledger amount of the assets of the Foundation was increased $34.4 million in 1966. Included in this amount is $30.2 million, the market value at date of receipt as residuary legatee of common stocks from the Estate of Alfred P. Sloan, Jr. The balance of the increase, $4.2 million, is the net gain on security transactions which was reinvested.

There was a corresponding increase in Principal account during the year as no principal funds were required to fulfill commitments paid in 1966.

The Foundation's portfolio at December 31, 1966 at market value was $275,382,501 which included $27,174,923 applicable to the common stocks received during the year from Mr. Sloan's estate. The market value of the portfolio at December 31, 1965 was $309,052,655.

The Foundation's investment in common stocks, apart from the distributions received from Mr. Sloan's estate, was reduced by approximately $7 million at ledger amount in 1966. The proceeds of such sales, including the net profit thereon, were reinvested in additional fixed income securities. The total investment in fixed income securities was thus increased $10.6 million and the ratio of such holdings rose to 25% of the total portfolio at ledger amount.

Dividend income in 1966, $9.8 million, was $600,000 less than in 1965 while, conversely, interest income of $1.9 million was approximately $400,000 more. Total income in 1966, $13.2 million, was nevertheless $1.2 million higher than in 1965, including as it did $1.5 million received as income distributions from Mr. Sloan's estate.

All grants and expenses, except those specifically designated as payable from the General Motors Dealers Appreciation Fund, have been charged to the General Fund. Grants paid from the Dealers Fund have

been devoted to cancer research. The balances in the respective funds at December 31, 1966, after deducting $29,202,152 of grants authorized but not due, at ledger amount and market value were:

	LEDGER AMOUNT	MARKET VALUE
General Fund	$161,021,479	$236,747,627
General Motors Dealers Appreciation Fund	5,334,078	9,770,989
	$166,355,557	$246,518,616

A summary of income cash receipts and expenditures for 1966 is as follows:

Receipts:	
Dividends	$ 9,795,351
Interest	1,850,367
Income received as residuary legatee under will of Alfred P. Sloan, Jr. and as remainderman of trusts terminated by his death	1,542,582
Other (principally refunds of unexpended grants)	42,347
Total	13,230,647
Expenditures:	
Grants paid	12,089,558
Cost of special projects	142,782
Administration	754,417
Total	12,986,757
Excess of income cash receipts over expenditures	$ 243,890

The Foundation's oldest employee in length of service, James F. Kenney, retired on August 31, 1966. Mr. Kenney had been Treasurer of the Foundation since 1938 and Secretary for nearly as long. In 1962, on nomination of Mr. Sloan, he was elected Vice President for Financial Affairs. Through his office passed more than $125 million in grant and

expense payments, nearly the whole of the Foundation's disbursements in its first 32 years. His warmly human qualities no less than his quiet efficiency will be long remembered by his associates.

Francis E. Eagan was appointed to succeed Mr. Kenney as Secretary and Treasurer. Mr. Eagan brings to the Foundation a background of broad experience in accounting, banking, and service in government and industry. Immediately before joining the Foundation he was associated with the firm of Haskins & Sells, certified public accountants.

JAMES F. KENNEY
Retired Vice President for Financial Affairs, Secretary and Treasurer

FRANCIS E. EAGAN
Secretary and Treasurer

HASKINS & SELLS
CERTIFIED PUBLIC ACCOUNTANTS

TWO BROADWAY
NEW YORK 10004

ACCOUNTANTS' OPINION

Alfred P. Sloan Foundation:

We have examined the balance sheet of Alfred P. Sloan Foundation as of December 31, 1966 and the related statement of income and funds for the year then ended, and the supplemental schedules and summaries 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 and summaries present fairly the financial position of the Foundation at December 31, 1966 and the results of its operation for the year then ended, in conformity with generally accepted accounting principles applied (except for the change, which we approve, in method of stating marketable securities explained in Note 4 to the Balance Sheet) on a basis consistent with that of the preceding year.

Haskins & Sells

February 23, 1967

BALANCE SHEET

DECEMBER 31, 1966

	LEDGER AMOUNT
ASSETS	
MARKETABLE SECURITIES—at cost or market quotation value at date of gift or receipt:	
Fixed income:	
U.S. Government and agency obligations	$ 37,818,937
Other bonds and notes	10,811,770
	48,630,707
Stocks	146,588,735
TOTAL (market quotation value, $275,382,501)	195,219,442
CASH	338,267
TOTAL	$195,557,709

FUNDS AND OBLIGATIONS

FUND BALANCES:	
General Fund	$161,021,479
General Motors Dealers Appreciation Fund	5,334,078
GRANTS AUTHORIZED BUT NOT DUE FOR PAYMENT	29,202,152
TOTAL	$195,557,709

NOTES:

(1) In accordance with the policy of the Foundation, no effect has been given to income accrued but not due at December 31, 1966.

(2) Under continuing programs, the Foundation is authorized to make certain grants of approximately $625,000, contingent on the fulfillment of certain conditions, for which no liability had been incurred or provided at December 31, 1966.

(3) As residuary legatee of the Estate of Alfred P. Sloan, Jr., the Foundation expects to receive certain additional assets which are not included in the above balance sheet.

(4) Commencing 1966, the Foundation adopted the practice of stating its marketable securities at cost or market quotation value at date of gift or receipt as shown above. Prior to January 1, 1966 the marketable securities were stated at market quotation value and the unrealized appreciation included therein was added to the fund balances.

SCHEDULE OF MARKETABLE SECURITIES

DECEMBER 31, 1966

Fixed Income	Principal Amount	Ledger Amount	Market Quotation Value
U.S. Government and Agency Obligations:			
Treasury Bills:			
February 2, 1967	$ 650,000	$ 647,238	$ 647,082
March 2, 1967	340,000	335,631	337,198
March 16, 1967	500,000	493,890	494,940
Treasury Bonds:			
3.88%—May 18, 1968	4,300,000	4,276,820	4,246,250
4%—October 1, 1969	4,247,000	4,136,615	4,143,458
4%—August 15, 1970	3,000,000	2,950,500	2,906,250
4%—August 15, 1973	6,421,000	6,358,071	6,152,088
Treasury Notes, 4%—February 15, 1970	2,400,000	2,387,325	2,334,000
Federal Home Loan Banks Notes, A, 5.40%—February 27, 1967	3,000,000	3,000,703	2,998,110
Federal National Mortgage Association:			
5.75%—June 23, 1969	1,500,000	1,500,000	1,503,750
5.50%—April 1, 1970	1,500,000	1,498,125	1,500,000
4.50%—July 1, 1970	1,800,000	1,732,500	1,737,000
5.75%—June 23, 1971	300,000	301,500	303,000
4.70%—December 1, 1971	2,000,000	1,997,500	1,925,000
5.13%—February 10, 1972	2,350,000	2,358,813	2,338,250
5.50%—April 1, 1972	1,640,000	1,637,437	1,640,000
4.70%—December 1, 1972	1,000,000	955,000	960,000
Twelve Federal Land Banks Consolidated Federal Farm Loan, 4.50%—October 1, 1970	1,285,000	1,251,269	1,249,663
	38,233,000	37,818,937	37,416,039
Other Bonds and Notes:			
American Telephone & Telegraph Company, Debenture 4.38%—April 1, 1985	1,500,000	1,518,210	1,353,750
Burlington Industries, Inc., Convertible Debenture 5%—September 15, 1991	1,000,000	1,000,000	1,035,000

SCHEDULE OF MARKETABLE SECURITIES

DECEMBER 31, 1966

—CONTINUED—

Fixed Income	Principal Amount	Ledger Amount	Market Quotation Value
Other Bonds and Notes (*continued*):			
General Motors Acceptance Corporation:			
Debentures:			
5%—September 1, 1980	1,300,000	1,300,000	1,231,750
5%—March 15, 1981	1,500,000	1,492,500	1,432,500
Notes:			
5.75%—May 22, 1967	2,875,000	2,875,000	2,875,000
5.96%—August 7, 1967	2,400,000	2,400,000	2,400,000
Public Service Electric & Gas Company, Debenture 4.63%—March 1, 1977	223,000	226,060	204,045
	10,798,000	10,811,770	10,532,045
Total Fixed Income	$49,031,000	$48,630,707	$47,948,084

Stocks	Shares	Ledger Amount	Market Quotation Value
American Cyanamid Company	56,346	$ 1,943,121	$ 1,718,553
American Metal Climax, Inc.	58,000	1,955,180	2,479,500
American Natural Gas Company	60,000	2,972,806	2,280,000
American Telephone & Telegraph Company	212,723	7,736,078	11,699,765
Avon Products, Inc.	17,000	1,067,377	1,377,000
Babcock & Wilcox Company, The	70,000	1,491,478	2,590,000
Caterpillar Tractor Co.	69,091	942,154	2,418,185
Celanese Corporation of America	26,000	1,590,813	1,235,000
Central & South West Corporation	25,000	653,569	1,162,500
Chase Manhattan Bank, The (New York)	16,505	778,626	1,027,436
Corning Glass Works	10,898	1,068,857	3,367,482
Cutler-Hammer, Inc.	28,000	855,426	1,190,000
E. I. duPont deNemours & Company	9,700	1,674,816	1,391,950
Eastern Air Lines, Inc.	14,000	1,635,101	1,076,250
Eastman Kodak Company	58,877	2,562,658	7,521,537

SCHEDULE OF MARKETABLE SECURITIES

DECEMBER 31, 1966

—CONTINUED—

STOCKS (*continued*)

	SHARES	LEDGER AMOUNT	MARKET QUOTATION VALUE
Falconbridge Nickel Mines Limited	33,000	1,819,178	2,652,573
First National Bank of Boston, The (Mass.)	22,500	851,683	1,316,250
First National Bank of Chicago	15,850	753,117	1,012,419
First National City Bank (New York)	17,452	527,600	970,768
General Electric Company	44,710	2,827,011	3,956,835
General Motors Corporation	1,540,666	70,384,314	101,491,373
Gulf Oil Corporation	28,384	578,073	1,678,204
Household Finance Corp.	67,600	1,165,556	2,028,000
Idaho Power Company	32,000	827,998	1,076,000
International Business Machines Corp.	38,131	5,467,269	14,165,666
International Nickel Co. of Canada, Ltd.	43,000	2,097,990	3,773,250
Kennecott Copper Corporation	33,000	1,289,728	1,266,375
Merck & Co., Inc.	30,000	315,550	2,302,500
Middle South Utilities, Inc.	60,600	1,022,692	1,545,300
Mobil Oil Company, Inc.	74,000	2,047,176	3,459,500
Morgan Guaranty Trust Co. of N.Y.	29,818	1,912,527	2,653,802
Northwest Bancorporation	21,000	615,477	971,250
Owens-Corning Fiberglas	30,000	2,445,044	1,980,000
Procter & Gamble Company, The	41,000	1,016,320	2,993,000
Public Service Electric & Gas Company	68,000	1,458,746	2,448,000
Royal Dutch Petroleum Company	74,400	2,362,854	2,464,500
Sears, Roebuck and Co.	96,205	1,821,868	4,293,148
Security First National Bank (L. A.)	20,073	735,502	983,577
Shell Oil Company	54,532	2,129,883	3,271,920
Smith Kline & French Laboratories	5,500	140,167	283,937
Southern Company, Inc.	52,000	950,596	1,501,500
Standard Oil Company of California	14,385	642,157	864,898
Standard Oil Company (New Jersey)	52,567	2,534,390	3,324,863
Texaco Inc.	59,326	1,839,222	4,241,809
Texas Utilities Company	24,600	943,367	1,402,200
Trans World Airlines, Inc.	14,000	1,349,202	1,030,750
TRW, Inc.	57,200	1,655,437	2,574,000

SCHEDULE OF MARKETABLE SECURITIES

DECEMBER 31, 1966

—CONTINUED—

STOCKS (*continued*)

	SHARES	LEDGER AMOUNT	MARKET QUOTATION VALUE
Virginia Electric & Power Company	36,405	785,312	1,761,092
Xerox Corp.	16,000	347,669	3,160,000
Total		$146,588,735	$227,434,417

SUMMARY

Fixed income	$ 48,630,707	$ 47,948,084
Stocks	$146,588,735	$277,434,417
	$195,219,442	$275,382,501

SUMMARY OF MARKETABLE SECURITIES

DECEMBER 31, 1966

	LEDGER AMOUNT	MARKET QUOTATION VALUE	
		AMOUNT	PERCENT
FIXED INCOME:			
U.S. Government and agency obligations	$ 37,818,937	$ 37,416,039	13.6%
Other bonds and notes	10,811,770	10,532,045	3.8
Total	48,630,707	47,948,084	17.4
STOCKS:			
General Motors Corporation	70,384,314	101,491,373	36.9
All other	76,204,421	125,943,044	45.7
Total	146,588,735	227,434,417	82.6
TOTAL	$195,219,442	$275,372,501	100.0%

SUMMARY OF GRANTS AUTHORIZED AND PAYMENTS

FOR THE YEAR ENDED DECEMBER 31, 1966

GRANTS UNPAID, JANUARY 1, 1966		$20,826,508
GRANTS AUTHORIZED:		
During the year	$20,593,809	
Less unexpended balances of authorizations expired	128,607	20,465,202
		41,291,710
PAYMENTS DURING THE YEAR		12,089,558
GRANTS UNPAID, DECEMBER 31, 1966		$29,202,152

STATEMENT OF INCOME AND FUNDS

FOR THE YEAR ENDED DECEMBER 31, 1966

(LEDGER AMOUNTS)

	TOTAL	GENERAL FUND	GENERAL MOTORS DEALERS APPRECIATION FUND
INCOME			
Income on Marketable Securities:			
Dividends	$ 9,795,351	$ 9,388,362	$ 406,989
Interest	1,850,367	1,772,388	77,979
	11,645,718	11,160,750	484,968
Income received as residuary legatee under will of Alfred P. Sloan, Jr. and as remainderman of trusts terminated by his death	1,542,582	1,542,582	
Other (principally refunds of unexpended grants)	42,347	42,347	
Total	13,230,647	12,745,679	484,968
Grants and Expenses:			
Grants authorized	20,465,202	19,840,202	625,000
Cost of special projects	142,782	142,782	
Administration, including investment counsel and custodian services	754,417	754,417	
Total	21,362,401	20,737,401	625,000
Excess of Grants and Expenses Over Income For The Year	(8,131,754)	(7,991,722)	(140,032)
Cumulative Excess of Grants and Expenses over Income from inception to:			
January 1, 1966	(33,286,138)	(34,044,725)	758,587
December 31, 1966	(41,417,892)	(42,036,447)	618,555
PRINCIPAL			
Balance, January 1, 1966	173,347,936	168,789,931	4,558,005
Assets received as residuary legatee under will of Alfred P. Sloan, Jr. and as remainderman of trusts terminated by his death	30,224,666	30,224,666	
Excess of market quotation value of assets received in liquidation of New Castle Corporation over the ledger amount of the stock given in exchange	1,045,676	1,005,941	39,735
Net profit on disposals of securities	3,155,171	3,037,388	117,783
Balance, December 31, 1966	207,773,449	203,057,926	4,715,523
FUND BALANCES, DECEMBER 31, 1966	$166,355,557	$161,021,479	$5,334,078

NOTE: See Note 4 to Balance Sheet.

GRANTS AUTHORIZED AND PAYMENTS

	AUTHORIZED BUT NOT DUE DEC. 31, 1965	1966 GRANTS AUTHORIZED	1966 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1966
Agricultural & Technical College of North Carolina		$ 33,333	$ 33,333	
Air Force Museum Foundation, Inc.	$ 50,000		50,000	
Alabama Agricultural & Mechanical College		6,969	6,969	
Alberta, University of	9,660		9,660	
Albion College	49,760	15,410	15,165	$ 50,005
American Alumni Council, The		5,000	5,000	
American Assembly, The		10,000	10,000	
American Association of Junior Colleges		10,000	10,000	
American Cancer Society, New York City Division, Inc.		10,000	10,000	
American College of Hospital Administrators		500	500	
American Health Education for African Development, Inc.		16,500	16,500	
American National Red Cross, The		12,500	12,500	
American Psychological Association, Inc.		5,000	5,000	
Amherst College	92,250	27,870	28,000	92,120
Antioch College	25,300	421,020	19,350	426,970
Arizona, University of		21,670	10,620	11,050
Aspen Institute for Humanistic Studies		10,000	10,000	
Associated Universities, Inc.		10,492	10,492	
Association of International Relations Clubs		2,000	2,000	
Atlanta University		66,666	66,666	
Atlantic Council of the United States, The		10,000	10,000	
Automotive Safety Foundation		16,500	16,500	
Bennett College		37,905	37,905	
Bethune-Cookman College	32,550		9,300	23,250
Bishop College	32,550	33,333	42,633	23,250
Bowdoin College	57,450	20,000	21,400	56,050
Brandeis University	26,250	19,500	36,000	9,750
British Columbia, University of	8,625	6,112	14,737	
Brookings Institution, Inc., The	100,000		50,000	50,000
Brown University	85,450	580,770	310,625	355,595
Bryn Mawr College		20,000	10,000	10,000
California, University of	91,465	167,444	181,710	77,199
California Institute of Technology	4,214,650	131,730	1,131,625	3,214,755

	AUTHORIZED BUT NOT DUE DEC. 31, 1965	1966 GRANTS AUTHORIZED	1966 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1966
Carleton College	$ 45,077	$ 517,733	$ 11,750	$ 551,060
Carnegie Institute of Technology	158,700	64,200	54,950	167,950
Case Institute of Technology	114,550	37,280	36,500	115,330
Chicago, University of	37,500	80,875	100,375	18,000
Children's Hospital of Michigan		5,000	5,000	
City University of New York, The	13,915		13,915	
Clark College		28,851	28,851	
Colby College	27,400	10,040	10,300	27,140
Colgate University	71,750	429,390	21,450	479,690
Colorado, University of	19,550		19,550	
Columbia University	94,574	1,122,768	331,310	886,032
Columbia University Press		5,000	5,000	
Community Blood Council of Greater New York, Inc.		250,000	125,000	125,000
Cornell College		375,000		375,000
Cornell University	1,326,386	463,611	794,114	995,883
Council on Foreign Relations		25,000	25,000	
Dartmouth College	701,630	79,810	499,300	282,160
Davidson College	15,780	258,370	4,320	269,830
Deafness Research Foundation, The		316,250	172,500	143,750
Delaware, University of		9,000	9,000	
Dillard University	100,320	32,000	107,570	24,750
Education and World Affairs		18,000	18,000	
Educational Services, Incorporated	120,000		120,000	
Engineers and Scientists Committee, Inc.		5,000	5,000	
Experiment in International Living, Inc., The		10,000	10,000	
Eye-Bank for Sight Restoration, Inc., The		18,000	18,000	
Fisk University	36,750		10,500	26,250
Florida, University of	5,750		5,750	
Florida Agricultural & Mechanical University		13,825	13,825	
Florida State University	12,420		12,420	
Fort Valley State College, The		4,213	4,213	
Franklin Book Programs, Inc.		17,500	17,500	
George Washington University Medical School, The		1,500	1,500	
Georgia, University of		11,845	10,925	920
Georgia Institute of Technology	22,135	21,800	21,085	22,850

GRANTS AUTHORIZED AND PAYMENTS

	AUTHORIZED BUT NOT DUE DEC. 31, 1965	1966 GRANTS AUTHORIZED	1966 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1966
Graduate Research Center of the Southwest		$ 9,900	$ 9,900	
Grinnell College	$ 19,550	410,120	4,700	$ 424,970
Hall of Science of the City of New York, Inc.		10,000	10,000	
Hamilton College	20,866	10,420	4,950	26,336
Hampton Institute	36,750	66,666	77,166	26,250
Hartford, University of		3,500	3,500	
Harvard University	156,120	96,250	95,410	156,960
Haverford College		400,000		400,000
Hope College		375,000		375,000
Hospital Educational and Research Fund, Inc., The		20,000	20,000	
Illinois, University of	34,495	41,290	39,390	36,395
Indiana University	8,050	6,813	14,863	
International House		3,500	3,500	
Iowa State University		40,250	25,300	14,950
Istituto e Museo di Storia della Scienza		10,000	10,000	
Johns Hopkins University	467,075	114,351	415,236	166,190
Joint Council on Economic Education		10,000	10,000	
Kalamazoo College		400,000		400,000
Kansas, University of		24,150	16,100	8,050
Knox College	32,815	282,950	8,550	307,215
Knoxville College	32,550	33,333	42,633	23,250
Langston University		16,176	16,176	
Legal Aid Society, The		10,000	10,000	
Lehigh University	58,300	17,460	18,100	57,660
Lemoyne College		18,370	18,370	
Lincoln University	12,990	6,580	3,740	15,830
Livingston College		24,780	24,780	
London Graduate School of Business Studies, The		225,000	75,000	150,000
Louisiana State University		24,150	16,100	8,050
McMaster University		43,975	21,950	22,025
Massachusetts, University of		10,284	10,284	
Massachusetts Institute of Technology	6,591,995	803,967	845,292	6,550,670
Memorial Sloan-Kettering Cancer Center		3,000,000	1,000,000	2,000,000
Menninger Foundation	200,000		100,000	100,000
Miami, University of		18,400	9,200	9,200

	AUTHORIZED BUT NOT DUE DEC. 31, 1965	1966 GRANTS AUTHORIZED	1966 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1966
Michigan, University of	$ 13,750	$ 43,500	$ 21,750	$ 37,500
Michigan State University		17,996	17,996	
Middlebury College		400,000		400,000
Minnesota, University of	31,850	46,600	39,400	39,050
Missouri, University of		15,000	15,000	
Morehouse College	60,330	404,666	116,026	348,970
Mount Holyoke College		375,000		375,000
Mount Sinai Hospital, The		13,775	13,775	
NAACP Legal Defense and Educational Fund, Inc.		10,000	10,000	
NAACP Special Contribution Fund		10,000	10,000	
National Academy of Sciences		67,000	42,000	25,000
National Aid to Visually Handicapped, Inc.		2,500	2,500	
National Bureau of Economic Research, Inc.	360,000		160,000	200,000
National Civil Service League	25,000	20,000	45,000	
National Council of Churches of Christ of the United States of America		10,000	10,000	
National Council on Crime and Delinquency		10,000	10,000	
National Fund for Graduate Nursing Education		5,000	5,000	
National Information Bureau, Inc.		1,000	1,000	
National Medical Fellowships, Inc.	150,000	80,000	75,000	155,000
National Planning Association		10,000	10,000	
New York Academy of Sciences, The		500	500	
New York Association for the Blind		12,100	12,100	
New York City Board of Education		7,500	7,500	
New York Public Library		5,000	5,000	
New York University	150,000	36,000	186,000	
Niels Bohr Institute		10,000	10,000	
North Carolina, University of		4,600	4,600	
North Carolina College at Durham		10,720	10,720	
Northwestern University	17,500	17,500	26,250	8,750
Notre Dame, University of	67,950	53,960	39,050	82,860
Oak Ridge Associated Universities, Inc.		10,000	10,000	
Oberlin College	101,650	523,830	29,750	595,730
Occidental College	25,505	409,670	9,825	425,350

GRANTS AUTHORIZED AND PAYMENTS

	AUTHORIZED BUT NOT DUE DEC. 31, 1965	1966 GRANTS AUTHORIZED	1966 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1966
Ohio State University	$ 21,550	$ 9,000	$ 14,800	$ 15,750
Oregon, University of	8,050		8,050	
Paine College		18,256	18,256	
Pan American Development Foundation, Inc.		5,780	5,780	
Pennsylvania, University of	7,500	10,530	18,030	
Pennsylvania State University, The	16,100	3,738	11,788	8,050
Phelps-Stokes Fund	118,000	50,000	109,000	59,000
Pittsburgh, University of	6,250		6,250	
Polish Institute of Arts and Sciences in America, Inc.		5,000	5,000	
Pomona College	18,750	9,490	4,900	23,340
Population Reference Bureau, Inc.		20,000	20,000	
Princeton University	366,230	74,759	357,449	83,540
Purdue University	27,850	9,000	14,650	22,200
Radcliffe College	33,000		33,000	
Reed College		375,000		375,000
Research Foundation of the State University of New York, The	16,100	35,761	43,811	8,050
Rice University, William Marsh	11,250	20,000	21,250	10,000
Rochester, University of	312,500		312,500	
San Jose State College	8,050		8,050	
Scientists' Institute for Public Information, Inc.	100,000		50,000	50,000
Skidmore College	50,000		50,000	
Sloan-Kettering Institute for Cancer Research	2,000,000	650,000	450,000	2,200,000
Smith College		250,000		250,000
Southern Association of Colleges and Schools, Inc.		5,000	5,000	
Southern California, University of	8,750		8,750	
Southern Research Institute		225,000	75,000	150,000
Southern University and Agricultural and Mechanical College		8,367	8,367	
Stanford University	644,805	511,390	614,073	542,122
Stetson University		5,000	5,000	
Swarthmore College		375,000		375,000
Talladega College	21,700	30,471	36,671	15,500
Texas, The University of	8,625	38,300	25,275	16,650
Tougaloo College	$ 21,700		$ 6,200	$ 15,500
Tufts University	7,500		7,500	
Tulane University	33,100	$ 46,980	19,400	60,680
Tuskegee Institute	54,625	72,436	82,291	44,770
United Nations Association of the U.S.A.		2,500	2,500	
United Negro College Fund, Inc.		160,000	160,000	
United States Churchill Foundation	40,000		20,000	20,000
USO of New York City, Inc.		2,500	2,500	
University System of Georgia		1,500	1,500	
Vanderbilt University	67,140	25,280	22,750	69,670
Vermont, University of	8,050		8,050	
Virgin Islands, College of the		5,000	5,000	
Virginia, University of	9,200	8,300	6,450	11,050
Virginia State College		19,440	19,440	
Vocational Advisory Service, Inc.		1,000	1,000	
Volunteers for International Technical Assistance		10,000	10,000	
Wabash College	54,900	16,580	17,300	54,180
Washington, University of		40,300	33,400	6,900
Washington and Lee University		250,000		250,000
Washington State University		16,100	8,050	8,050
Washington University	7,500	45,750	44,500	8,750
Waterloo, University of		6,900	6,900	
Wayne State University	8,050		8,050	
Wesleyan University		25,000	12,500	12,500
Western Ontario, University of		16,100	8,050	8,050
Whitman College	22,350	8,000	8,100	22,250
Williams College	97,950	528,190	31,150	594,990
Wisconsin, University of	30,700	60,750	56,250	35,200
Women's City Club of New York, Inc.		10,000	10,000	
Woodrow Wilson National Fellowship Foundation		20,000	20,000	
Xavier University (Cincinnati, Ohio)	6,250		6,250	
Xavier University of Louisiana		41,257	41,257	
Yale University	75,175	1,084,360	267,925	891,610
Young Women's Christian Association, National Board of		10,000	10,000	
TOTAL	$20,826,508	$20,465,202	$12,089,558	$29,202,152

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CREDITS

Except as noted below, illustrations were provided by the institutions with which the subjects are identified.

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PAGE 20—BILL HELMS

PAGE 69—(MR. KENNEY) IRA HILL'S STUDIO
(MR. EAGAN) CONWAY STUDIOS

My concept of a Foundation is that its resources should be considered "risk capital," to be employed in furthering projects of potential value in promoting the public welfare. By so directing their resources, Foundations can and will increasingly become an important force in stimulating higher standards of education, broader concepts of research, and the advancement of both social and economic progress through fundamental investigation and study.

Alfred P. Sloan, Jr.

Alfred P. Sloan Foundation

REPORT FOR 1967

Alfred P. Sloan Foundation
630 Fifth Avenue
New York, N. Y. 10020

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[1]Retiring as President April 30, 1968
[2]Elected President effective May 1, 1968
[3]Retired as Executive Director on November 1, 1967 but remained a Vice President
[4]Resigned effective July 17, 1967
[5]Elected October 16, 1967

EVERETT CASE

President's Review

"The problem of education is twofold: first to know, and then to utter. Every one who lives any semblance of an inner life thinks more nobly and profoundly than he speaks; and the best of teachers can impart only broken images of the truth which they perceive. Speech which goes from one to another between two natures, and, what is worse, between two experiences, is doubly relative. The speaker buries his meaning; it is for the hearer to dig it up again; and all speech, written or spoken, is in a dead language until it finds a willing and prepared hearer."

So, in 1879, Robert Louis Stevenson began his unfinished but eloquent essay on *Lay Morals*. Among the many to whom, in 1968, the passage I have quoted speaks directly, the scientist is surely not the last. Nor is his concern, as Snow seems to suggest, simply one of communicating with the humanist. He must bridge a wider chasm and somehow get his message through to the man in the street as well.

Certainly this is true if, as Harvey Brooks recently warned his fellow physicists, there appears to be a "revulsion against science by the whole society, but especially among young people."* Physics, suggests Walter Sullivan in reporting these remarks, "has armed technology to revolutionize the world in which we live"; nevertheless it is "coupled in the popular mind with the evil manifestations of technology—nuclear

*From remarks addressed to the American Physical Society, quoted by Walter Sullivan in the New York *Times* for February 4, 1968.

weapons, electronic invasions of privacy, environmental pollution." In the meantime, he adds, the physicists themselves "are pursuing lines of research more and more remote from the problems of everyday life."

All of this adds point to the remarks of Donald Hornig, Chairman of the President's Science Advisory Committee, who warns that "it will no longer do for scientists to convince each other of the importance of what they are doing and ask the taxpayer to take it on faith." And his associate, Lewis Branscomb, urging scientists to enter vigorously into the national life, adds the trenchant observation that "the present planning mechanisms of government . . . are not adequate to the task of foreseeing the future consequences of present decisions."

Perhaps it is not altogether wide of the mark to suggest that concern for the whole range of future consequences of present decisions has seldom been the most conspicuous characteristic of our dynamic—and currently so 'affluent'—society. Science, moreover, however it may be plagued, has one great and inherent advantage: the scores of new postulates and problems spawned by every successful demonstration or 'solution' are hailed by its devotees primarily as new and invigorating challenges.

In contrast, the multiplication and growth of many of our besetting social problems seem all too reminiscent of the behavior of the cancerous cell. Who would have predicted at the beginning of this decade that racism would infect and inflame the minds of even a vocal minority of the Negroes who, in this country, have been its principal victims? Who would have foretold the rise in resort to violence not only among the swelling ranks of the criminals but also as a means of social protest and even as a weapon of dissent? And what Cassandra prophesied the dissaffection of so many of the younger generation, from the draft-card burners to the lotus-eaters, but including as well great numbers of the deeply concerned and thoughtful moderates?

Time and time again the general purpose foundation has asserted that its role is not the alleviation of human suffering or want, but rather the support and acceleration of the search for new knowledge which

may expose their root causes. In scientific research, moreover, the formula works; yellow fever and malaria have been all but conquered, and fresh clues to the control of cancer are constantly being pursued. Experiments in plant biology have enormously increased the productivity of underdeveloped acreage in Latin America and Asia. More effective techniques for the control of population growth are at hand. The genetic code has been deciphered, and the elements of DNA can now be made synthetically. So, too, the hundreds of young scientists who have earned Sloan fellowships in basic research have made important contributions to our understanding of both the macrocosm and the microcosm.

It is different when one leaves the laboratory or the field experiment, and the disciplined minds they attract, for the sprawling, clamorous, and slippery problems which confront, say, the President of the United States or the Mayor of New York City. It is easy to ascribe outbreaks of urban violence to the intolerable conditions of the ghettos. It is easy to ascribe those conditions to the neglect or apathy of the landlords, to the massive immigration of unskilled and disadvantaged Negroes from the South, to the cupidity of the real estate operators and the building trades, or to the ineptitude and corruption of city officials. It is much harder to get at the *root* causes of such phenomena, and even more difficult to discover and apply effective cures.

How to protect the weak and defenseless against ruthless exploitation —or, better still, how to develop in them the means and the will of protecting themselves—are questions beyond the reach of any known scientific formulae. Yet their urgency, and their relevance to our total society, need no further demonstration. And if once it was easy to invoke education as a kind of universal panacea, there is much to remind us today that a number of the problems which education is called upon to cure may raise all but insuperable barriers to the educational process itself.

Some such observation applies as well to those who see our salvation simply in terms of a return to the 'old-fashioned morality.' It is not that the younger generation (and moral confusion is not limited to them)

have found anything better than the golden rule or the New Testament's 'Second Commandment'; indeed, many of them are seeking new ways of applying these precepts more effectively. In the canyons and ghettos of megalopolis, however, the simple injunction to "love thy neighbor as thyself" too often seems meaningless or irrelevant. Moreover, the new knowledge and new technology which we owe to science can not only change our environment in ways that bewilder and confuse, but can themselves become instruments of exploitation. By the same token, they may convert the stuff of moral and legal controversy into an academic exercise. Consider, for example, the impact of the postcoital pill, perfected and inexpensive, on the hotly debated laws governing abortion. Finally, the ambivalence of such concepts as the Gross National Product, which now exceeds $800 billion a year, has been eloquently underscored by a recent guest commentator for the New York *Times*, the junior senator from New York, who points out that this figure

> ". . . counts special locks for our doors, and jails for the people who break them. It includes the destruction of the redwoods, and armored cars for the police to fight riots in our cities. It counts Whitman's rifle and Speck's knife and television programs which glorify violence the better to sell toys to our children."

Amid all this welter of confusion and viewing-with-alarm, there are a few positive elements that we would do well to remember. We have the resources, if we can also muster the resourcefulness and the will, to meet what General Gavin has well called "the hydra-headed problems of poverty, discrimination and urban decay."* For many of our youth, moreover, the educational process is not only still operative but quite possibly more effective—in depth as well as breadth—than it has ever been before. If this makes the young alert to the contradictions and scornful of the ambivalence of our society, it may also encourage some of the more committed to tackle the prodigious task of developing a new and viable ethics,

*Saturday Review for February 24, 1968, Vol. LI, No. 8.

personal and social, and to do so in language which might even find "willing and prepared hearers." One hopes, moreover, that the concerned and committed will find an *inner* incentive to do just this sort of thing, for there are aspects of human life, as we are learning the hard way in Vietnam and elsewhere, which simply do not respond to money. And any society of which this ceases to be true has, I suspect, fatally lost its capacity for self-renewal.

* * *

And now a word about the program of the Sloan Foundation as reflected in the grants and appropriations authorized by its trustees for the year under review. No one who is familiar with the operating procedures of the general purpose foundation will expect these grants to be altogether consonant with the reading of the current situation which I have just essayed. For one thing, this reading is my own and does not necessarily reflect the views of the trustees. Furthermore, my commentary, so far as it applies to 1967, has the benefit of hindsight, while the program was necessarily shaped in great measure before the event. Finally, whatever be the dangers of a lag between new and emergent facts and programs shaped by other and largely antecedent considerations, no foundation could command respect or confidence if, with every change of the wind, it were to scrap its tested programs in favor of new and hasty improvisations.

Thus in any stampede which threatened the healthy diversity of major foundation programs, the social gains would be minimal as compared to the probable losses. By the same token, if programs are to be responsive to change as well as to abiding needs, their review, revision and reformulation must be a constant exercise, especially for the responsible officers and staff.

Take, for example, one of the Sloan Foundation's traditional concerns: science. Whatever its problems, including the apprehension of a popular revulsion against its untoward consequences, it is clear that science is an enterprise too dynamic to be 'turned off' if we would, and

too fundamental to our security and our economy to be abandoned if we could. Certainly the search for the causes and possible cures of cancer must be accelerated, not brought to a halt. Together with technology, engineering and management, moreover, science has an indispensable role to play in any effective assault society may launch upon the stubborn complexities of our urban problems. And if what we do not know is still our greatest asset, this is hardly the moment to close the door to opportunity to our gifted younger scientists.

Thus, in 1967, the appropriation of $1.4 million for the Sloan Fellowship Program in Basic Research was renewed for the twelfth successive year. Thus substantial grants were also made to the University of Rochester for mathematics and to Tulane University for the development of its new Graduate Center in Science and Engineering. Thus, too, initial payments were made on grants authorized in 1966, under the Foundation's $7.5 million College Science Program, to the twenty independent liberal arts colleges designated as 'laboratories' for testing and developing new ways of strengthening their science faculties and undergraduate curricula.

At the same time, our developing concern about the impact of the scientific and technological revolution on people and the quality of human life led us to extend to other institutions supporting grants similar to that which helped Columbia University a year earlier to launch its Institute for the Study of Science in Human Affairs. Of these new grants, the immediate beneficiaries were California Institute of Technology, now developing promising cross-departmental programs of its own; the National Academy of Sciences, especially to help it meet its heavy responsibility in the area of *science policy*; and Harvard which, under the direction of Professor Gerald Holton, is developing a fresh experimental approach to the teaching and learning of basic physics as an integral part of human experience. If, as we believe, our confidence in these grantees is not misplaced, science and the whole of society will be the ultimate beneficiaries of the seed money currently entrusted to them.

In engineering education and research, another field of traditional

concern to Sloan, we made only a single major grant in 1967, but one that could prove to be of seminal importance. In economic research, as well, a single grant afforded the only fresh indication of our continuing concern. As a contribution to public understanding of economic problems, a film on *Money and Banking*—the third and last of a planned series—was completed with the aid of objective and knowledgeable consultants.

To schools of management, our most substantial grants in 1967 were terminal—not, certainly, of our interest but rather of repetitive support which we believed the institutions and programs involved were now strong enough to replace from other sources. In each case, and for special reasons, the terminal grant substantially exceeded existing forward commitments.

Terminal arrangements which provide for the gradual phasing out of Sloan support were also authorized for the limited areas in which the Foundation has made substantial grants for medical research other than cancer. Support for the latter—still centered upon the Sloan-Kettering Institute and its associated institutions—continues to be sustained at the level of our traditional commitments, actual and contingent.

Sums released through terminal grants for investment in promising innovations or experiments do not, of course, become immediately and fully available. Nevertheless, we were able to make a start in 1967, including a grant to assist a promising new college in the Connecticut Valley in developing the integrated program in science and mathematics which it had planned. As part and parcel of the Foundation's own continuing assessment of its program, moreover, an intensive inquiry was initiated in the late fall into the possibilities of developing fresh and productive relationships between some of the Foundation's traditional concerns on the one hand, and the complex array of urban problems on the other.

We were also able to renew and hopefully to strengthen special programs designed to assist a number of the predominantly Negro colleges to help themselves, and so their students. Thus a cooperative program

NILS Y. WESSELL

involving two dozen or more of these institutions, and offering special incentives for the recruitment of alumni and local support, was revised and renewed for a second two years—at a cost to the Foundation of more than $1 million.

These institutions—despite a substantial degree of integration in their faculties and at least token integration of their student bodies—are by no means immune to the winds of impatience that are felt in many northern cities. How could they—and why should they—be immune? At the same time, they show signs of an ever livelier concern for genuine learning, and for making real the expanding opportunities for young Negroes to enter business and the professions, with all that this implies for the ultimate achievement of equal status.

It was with the importance of these professional opportunities in mind that support for the National Medical Fellowships program was not only renewed for the ninth successive year but also increased. Similar considerations supported the special grant of $100,000 to Atlanta University toward the cost of a new facility for its Graduate School of Business Administration. And if the recently announced $350,000 grant to Tuskegee for the further strengthening of its rapidly developing engineering program properly belongs in the Report for 1968, it was pro-

DEVEREUX C. JOSEPHS

FREDERIC G. DONNER

posed, studied and reviewed with the Executive Committee in 1967, and so may perhaps deserve passing notice in these pages.

* * *

Since my retirement, already announced, becomes effective on April 30, valedictory remarks at this juncture may appear somewhat premature. Nevertheless, as this is the last annual Report for which I shall have any responsibility, it affords my last and best opportunity publicly to acknowledge my incalculable debt to my fellow trustees and co-workers at the Sloan Foundation.

Under the leadership of Devereux Josephs, who succeeded Mr. Sloan as chairman in 1966, the trustees were quick to recognize, and alert to discharge, the new responsibilities which were implicit in the founder's death. In the inevitable review of policy and program that ensued, their guidance—individual and collective—has been both wise and understanding—and this applies in a most particular degree to their astute and versatile chairman. Special mention should also be made of the unstinted time and effort expended by the members of the Executive

and Policy Committee, under the direction of Albert Bradley, in the successful search for my successor. Of special significance for the future is the fact that at the meeting in January, 1968, at which Nils Wessell was not only formally designated as such, but also elected a trustee, full attendance of the Board was prevented only by the last minute illness of one member. Since at that same meeting Mr. Josephs tendered his resignation as chairman and Frederic G. Donner was elected to succeed him, Mr. Josephs and I were able on the same occasion to salute our successors and congratulate the Board on the wisdom of its choice.

With a new chapter about to be written, one would like to feel that the man who directed for so many years—and with such unbounded energy and imagination—the Foundation which he himself created would fully share my confidence in these newly designated leaders and so in the future of the Sloan Foundation. If the years of transition have helped to build a viable bridge to that future, my fellow officers, and indeed the entire staff, have labored without stint to build it well and truly. I spare them the full tribute which I owe, but I know they will forgive me if I single out for special mention the wisest and kindliest tutor that any foundation president as much in need of instruction as I have been could hope to have: Warren Weaver. Happily my bequest to Nils Wessell includes this best of consultants and this small but able and devoted staff, along with a large docket of unsolved problems and unfinished business. May he find the opportunity that awaits him no less demanding and rewarding than I have found that which awaited me in 1962—an opportunity and a challenge which I owe even more directly to Mr. Sloan himself.

EVERETT CASE

The Physical Sciences and Mathematics

For a number of years, advancement of the physical sciences and mathematics has been one of the Sloan Foundation's major concerns. The record suggests that this held true for 1967. The Program for Basic Research in the Physical Sciences, initiated by the Foundation more than a dozen years ago, continued to provide essentially unrestricted support for "people, not projects" in the sciences; and two major grants were made to assist strategic institutional developments.

Program for Basic Research in the Physical Sciences

For the young academic scientist who has not yet "made a name for himself," even though he may show every prospect of doing so in time, federal research support is hard to come by. The Foundation's Program for Basic Research in the Physical Sciences was established in 1955 in recognition of this fact. Since that time 596 young research scientists in chemistry, physics, mathematics, and closely related disciplines have been helped by this program to establish themselves in their chosen fields of work.

By 1967, after more than a decade of mushrooming growth in federal research outlays (and in numbers of active scientists), a leveling off of federal funds available for basic research had made the shortage of support for young investigators even more serious. Thus the Program for Basic Research in the Physical Sciences was carried forward essentially without change at an annual expenditure of $1,400,000.

The Foundation in 1967 awarded 85 new Sloan Research Fellowships and seven one- or two-year renewals of fellowships awarded earlier. Recipients are on the faculties of 50 universities and colleges in the United States and two institutions in Canada. At the time these grants became effective, the number being supported by the program totaled 161.

More than 500 nominations for Sloan Research Fellowships are received annually from department chairmen, former Sloan Research Fellows, and others in a position to identify unusually promising young faculty scientists. (The Foundation does not accept direct applications for fellowships.) For help in the difficult task of judging these nominations the Foundation relies upon a distinguished Program Committee which has a rotating membership of two chemists, two physicists, and two mathematicians.

The present chairman of the Program Committee is Dr. Franklin A. Long, vice president for research and advanced studies at Cornell University and a chemist. Other members and their fields of science are Dr. E. J. Corey, Harvard University, chemistry; Dr. Robert E. Marshak, University of Rochester, and Dr. Alfred O. C. Nier, University of Minnesota, physics; and Dr. R. H. Bing, University of Wisconsin, and Dr. Lipman Bers, Columbia University, mathematics. The Foundation officer in charge of this program is Dr. Larkin H. Farinholt, Vice President for Scientific Affairs.

The Basic Research Program Committee, from left, Dr. Alfred O. C. Nier (standing), Dr. Lipman Bers, Dr. R. H. Bing, Dr. Franklin A. Long, Dr. E. J. Corey, Dr. Larkin H. Farinholt, and Dr. Robert E. Marshak.

The Program Committtee also has the task of adjusting the recommended stipend of each fellowship to the Sloan Research Fellow's estimated need. This varies with the Fellow's field of science and, within that field, with the kind of research he is conducting. Experimental work, for example, typically requires greater outlays than does theoretical work. The current average two-year stipend is about $17,500.

The fellowship grant is paid to the Sloan Research Fellow's institution for his use in accordance with the policies of the institution. Subject to those policies, the Fellow has considerable freedom in the use of the funds. They may be used for purchase of equipment and supplies, support of scientific and technical assistance, professional travel, summer support, computer time, and support of predoctoral and postdoctoral fellows. Sometimes the Fellow, with the approval of his department chairman, may use his grant for relief from part or all of his teaching duties for a time, either at his own university or on leave at some other institution. Supplies and equipment purchased under the grant become the property of the Fellow's institution, which also receives a fixed percentage of the grant for indirect costs.

The Sloan Research Fellow does not submit a research proposal to the Foundation, nor is he required to file with the Foundation anything more than a brief annual progress report or reprints of his published work resulting from the grant. He may, if he finds it desirable, change the direction of his research at any time.

Thus it is hoped that the Program for Basic Research in the Physical Sciences affords a measure of freedom to young scientists very early in their academic careers, at precisely the time when their scientific crea-

tivity is most often at its peak. In this area the Foundation sees a continuing role for private support of science.

Scientists who received Sloan Research Fellowships and renewals of fellowships in 1967 are the following:

Arizona State University
Chemistry: Sheng Hsien Lin
University of Arizona
Chemistry: Robert B. Bates
University of Arkansas
Chemistry: A. Wallace Cordes
University of British Columbia
Chemistry: Richard E. Pincock
Brown University
Mathematics: Gabriel Stolzenberg
Bryn Mawr College
Chemistry: Jay M. Anderson
California Institute of Technology
Chemistry: William A. Goddard, III. *Astrophysics*: John N. Bahcall
University of California, Berkeley
Chemistry: Clayton H. Heathcock. *Mathematics*: Charles C. Pugh, Robert M. Solovay. *Mathematics & Computer Science*: John L. Rhodes
University of California, Irvine
Physics: Myron Bander
University of California, Los Angeles
Physics: Louis A. P. Balazs, John M. Cornwall, Michael A. Woolf. *Mathematics*: V. S. Varadarajan
University of California, San Diego
Chemistry: Charles L. Perrin. *Oceanography and Geophysics*: Myrl C. Hendershott
University of California, Santa Barbara
Chemistry: Bruce F. Rickborn
University of Chicago
Chemistry: Everly B. Fleischer, Donald H. Levy. *Physics*: Roland Winston. *Mathematics*: George Glauberman. *Astrophysics & Mathematics*: Norman R. Lebovitz
University of Colorado
Chemical Physics: Richard N. Zare
Columbia University
Physics: Charles Baltay, Norman H. Christ, William Happer
Cornell University
Mathematics: James B. Ax
Dartmouth College
Chemistry: Thomas A. Spencer
Duke University
Physics: Robert A. Guyer
Emory University
Mathematics: John W. Neuberger
University of Florida
Chemistry: Merle A. Battiste
University of Georgia
Chemistry: R. Bruce King
Harvard University
Chemistry: Jack Z. Gougoutas. *Physics*: Curtis G. Callan, Michael J. Tannenbaum
University of Illinois
Chemistry: Peter A. Beak, Jiri Jonas. *Physics*: Michael Wortis
Kansas State University
Chemistry: Donald W. Setser
McMaster University
Chemistry: Peter M. Maitlis. *Physics*: John A. Cameron
Massachusetts Institute of Technology
Chemistry: Alan Davison. *Physics*: Raymond Y. Chiao. *Mathematics*: Donald W. Anderson, Daniel G. Quillen
University of Massachusetts
Physical Biochemistry: John F. Brandts
University of Michigan
Physics: Richard T. Robiscoe. *Mathematics*: Armand Brumer
University of Minnesota
Chemistry: H. Ted Davis, C. Alden Mead
State University of New York
at Stony Brook
Chemistry: Albert Haim, Noboru Hirota. *Physics*: Peter Paul
New York University
Chemistry: David L. Schuster
Northwestern University
Chemistry: Duward F. Shriver
University of Notre Dame
Chemistry: Daniel J. Pasto. *Mathematics*: James D. Stasheff
Ohio State University
Chemistry: Paul G. Gassman
University of Oregon
Chemistry: O. Hayes Griffith. *Physics*: George W. Rayfield. *Mathematics*: Kenneth A. Ross

Pennsylvania State University
Chemistry: Gordon A. Hamilton
University of Pennsylvania
Physics: A. Brooks Harris
Princeton University
Chemistry: John M. Deutch, Maitland Jones, Jr. *Physics*: Gerald T. Garvey, William I. Weisberger. *Mathematics*: Joseph A. Shalika
Rice University
Physics: Stephen D. Baker, Neal F. Lane
Rockefeller University
Physics: Heinz R. Pagels
University of Southern California
Chemistry: Robert A. Beaudet, Howard S. Taylor
Stanford University
Chemistry: Robert Pecora. *Physics*: Anthony C. Hearn, Frank N. von Hippel
Vanderbilt University
Chemistry: Thomas M. Harris
University of Vermont
Chemistry: Martin E. Kuehne
University of Washington
Chemistry: Ernest R. Davidson
Wayne State University
Chemistry: Don C. DeJongh, Carl R. Johnson
Wesleyan University
Chemistry: Peter A. Leermakers
Williams College
Physics: Stuart B. Crampton
University of Wisconsin, Madison
Chemistry: John E. Harriman, Barry M. Trost
University of Wisconsin-Milwaukee
Mathematics: John E. McMillan
Yale University
Physics: Richard K. Chang. *Mathematics*: Wu-chung Hsiang
Yeshiva University
Chemistry: Karl G. Untch

University of Rochester

Although mathematics has developed vigorously in the United States over the past few years, many observers detect an undue emphasis on the isolated development of a highly abstract kind of pure mathematics. This they contrast with a rounded development of both pure and applied mathematics in its full useful relationship with many other fields of activity, especially engineering, the physical sciences, biology, medicine, and the social sciences. The Sloan Foundation, in its continuing concern for mathematics as a whole, has been trying to assist in re-establishing its full integrity.

The University of Rochester, a recipient of a $1,000,000 Sloan grant in 1962 for improving engineering education, has also developed substantial strength in mathematics, upon which engineering heavily depends. Under President W. Allen Wallis, the University proposes to strengthen further its applied mathematics and to unify its total effort in mathematics at a projected cost of $3,000,000 by 1975. Investigation satisfied the Foundation that the University was potentially an outstanding center of mathematics, not least because of its close proximity to a

number of highly technical industries in the Rochester area. A grant of $1,000,000 to assist the further development of mathematics at the University of Rochester was therefore approved.

Tulane University

Tulane University, in New Orleans, was identified by the Foundation in 1963 as one of four private, mid-continent universities eligible, on the basis of past performance, for grants of $250,000 each to help strengthen research and instruction in science and mathematics.

Shortly thereafter Tulane received from the federal government a 364-acre tract, which included several substantial buildings, a short distance down the Mississippi River from its main campus. The University decided to develop this new Riverside Campus initially as a center of research and teaching in aerospace, biomedical, and environmental engineering; certain aspects of evolutionary environmental and developmental biology; nuclear physics; and electric power research.

It appeared to the Foundation that this development presented a unique opportunity to contribute to the establishment of a major science-and-engineering complex in a part of the nation where it was greatly needed. Citing the tripling of Tulane's graduate enrollment in the past quarter century, President Longenecker added:

> "In order to serve the national interests best, the South must be transformed from a perpetual drain on the Ph.D. talent of other regions, to a contributor of Ph.D. talent to these other regions on a reciprocal basis. Without an attitude of self-sufficiency and isolation, Tulane aims to increase academic interchange and interaction with other regions through such an adequately balanced flow of intellectual leaders."

As a contribution toward Tulane's realization of such goals both on its new campus and on its present one, the Foundation granted $500,000.

Other Grants in Science and Mathematics

The staff of the Foundation approved the following additional grants in this field during 1967:

Arctic Institute of North America, Washington, D. C.: For the Icefield Ranges Research Project, sponsored jointly by the Institute and the American Geographical Society $10,000

Aspen Institute for Humanistic Studies, Aspen, Colo.: For a third year of support of the Institute's Physics Division $10,000

University of California, Berkeley, Calif.: In further support of research in science-teaching devices at the Lawrence Hall of Science. . $20,000

Gordon Research Conferences, Concord, N. H.: For certain expenses of a conference on Chemistry at Interfaces . . . . . $ 1,000

New York University, New York, N.Y.: For renewed support of research by the University's Institute of Fine Arts on the preservation of stone sculpture and architecture exposed to the atmosphere . . . $10,000

Science and Society

While the preservation of a strong basic research capacity remains one of the Sloan Foundation's major concerns, it is also actively concerned with certain closely related questions. One of these, a hardy perennial with marked current visibility, is how the citizens of a democracy may be well enough informed to participate effectively in decisions about major issues of scientific policy. No less urgent is the need to explore the social, economic and human consequences of the increasing domination of modern life by science and technology.

Clearly, the scientific enterprise itself needs to be better understood, both by the man in the street and by the scholar who seeks to understand why the enterprise functions as it does and how it might better contribute to the achievement of other human ends. This "social science of science" is among the interests of a new program in science and human affairs to which the Foundation extended support in 1967.

California Institute of Technology

The complex of new problems faced by our society largely as a result of rapid scientific and technological advance requires for its effective study and resolution a combination of the skills of the social and behavioral scientist and the humanist, together with those of the physical scientist, the life scientist, and the engineer. One such collaborative effort was launched in 1966 by Columbia University's Institute for the Study of Science in Human Affairs, with assistance from the Sloan Foundation.

The campus of the California Institute of Technology at Pasadena, Calif.

Meanwhile, across the continent, an institution noted for its outstanding scientific and technological strength was preparing to enter much the same field of study from a somewhat different perspective. The California Institute of Technology has a faculty rich in eminent research scientists and engineers, many of them active in shaping the nation's scientific policy, as well as a small but superior student body oriented primarily toward science and engineering. In recent years the growing strength of Caltech's Division of Humanities and Social Sciences has brought the Institute to a position from which it can formally encourage faculty and students alike to explore more thoroughly the economic and social ramifications of developments in science and technology. Far from waiting on such encouragement, Caltech's students have been actively urging such a move.

Caltech therefore determined to increase its capacity for multidisciplinary study of the interrelationships of science, technology, and society. Initial support was provided by the Rockefeller Foundation, and the Sloan Foundation in 1967 authorized a grant of $400,000 to expand and develop the effort.

As a first step toward implementing the new program, Caltech has begun "a search for new faculty members in economics and behavioral sciences, as well as those who have an active teaching and research interest in the psychological, social, and cultural aspects of technological innovation."

National Academy of Sciences

During the century of the Academy's existence, the need for a continuing independent and informed appraisal of the nation's scientific and technological effort has assumed an ever increasing urgency. Chartered as a private institution by the Congress in 1863, the National Academy of Sciences has played an indispensable role in this regard, as well as in advising the federal government, both on request and on its own responsibility, on matters relating to science and engineering.

While membership in the Academy is restricted to scientists of outstanding stature in their disciplines, the Academy and its younger adjunct, the National Research Council, are able to call upon some five thousand scientists, engineers, and other advisors to serve without compensation on some four hundred committees studying questions of national and international importance in which their special expertise is required. Most of these studies are undertaken at the request of the federal government, but the Academy also works in close cooperation with institutions in the private sector and with state and local governments.

The rapid growth of the Academy's over-all program, coupled with the somewhat slower growth of its unrestricted income, has made it necessary for the Academy to recruit additional funds from private sources, in order to sustain its independence and its ability to initiate vital new programs for which public support is not yet available. During 1967 the Academy set out to raise a total of $15,000,000, the income from which would be used for just such purpose.

Toward this effort, the Trustees of the Sloan Foundation authorized a special grant of $1,000,000. Toward the same goal, the Ford Foundation contributed $5,000,000 and the Rockefeller Foundation $1,000,000.

Harvard Project Physics

In the past 20 years the percentage of high-school students enrolled in introductory physics courses has steadily decreased. At present 80 per cent of high-school students graduate without having studied any physics. The number of Bachelors' degrees in physics has been dropping so markedly that the physics degrees granted in 1969-70 are expected to be only 1 per cent of the total, as contrasted with 2.16 per cent in 1961-62. This state of affairs is harmful not only to the nation's total effort in physics, but also to an understanding by non-scientists of what physics is about and what it is that physicists do.

In recent years a new course of study has been developed, with support from the Sloan Foundation and others, and has been widely adopted in high schools. While this work of the Physical Science Study Committee (PSSC) has markedly improved the preparation of many students in physics, it has been aimed primarily at gifted students who are scientifically inclined.

In the meantime a group at Harvard, headed by Professor Gerald Holton, has been developing a new one-year introductory physics course

Foundation officers Robert N. Kreidler, left, and Everett Case view Harvard Project Physics materials.

intended for national use at the high-school and junior-college level. It is designed to appeal to a broad spectrum of students, from the science-oriented to the science-shy. Much emphasis is placed on historical aspects of physics and on the relationship of the development of physics to general culture. While the course is a rigorous one, there is every indication that its breadth of approach to the subject may help to reverse the declining interest of high-school students in physics.

As with the PSSC course, a crucial factor in gaining acceptance of Harvard Project Physics is the effective training of teachers to use the course. For this purpose, Harvard Project Physics and Educational Station WGBH-TV in Boston are collaborating in the production of a series of teacher-training programs which will be broadcast from Boston and made available on film and tape for use in other areas. Through this medium large numbers of teachers can be reached; and after the initial broadcasts of each of the thirty 20-minute demonstration programs, half-hour "feedback" sessions will enable teachers to respond by telephone from remote points with comments and questions which will be recorded for future use.

For support of this teacher-training project the Sloan Foundation granted $150,000 to Harvard Project Physics. Earlier in the year, the Foundation provided $14,200 for preparation of a film on the Cambridge Electron Accelerator as part of the course materials of the Harvard project.

Understanding Science: Five Smaller Grants

A number of smaller grants were approved in 1967 by the staff of the Foundation, under discretionary authority confided to the staff by the Trustees, in furtherance of the Foundation's continuing interest in the communication and interpretation of science, particularly to the lay public. Thus a grant of $20,000 was made for interim support of the magazine, *Scientist and Citizen*, published by the Greater St. Louis Citizens' Committee for Nuclear Information, under the imaginative

direction of Barry Commoner, professor of plant physiology at Washington University. The magazine has undertaken to upgrade and expand its content, and to reach greater numbers of citizens with its authoritative analyses of public issues, notably environmental pollution, involving science and technology. It has been adopted as the official publication of the Scientists' Institute for Public Information, of New York, an earlier recipient of Foundation support.

The Foundation also renewed its earlier support of two programs to train journalists and teachers of journalism in the skills of interpreting science to the layman. The University of Missouri School of Journalism received $20,000 to support graduate internships in science communication and a series of distinguished lectures on public understanding of science; and the Boston University School of Public Communication received $10,000 for its graduate program in science communication.

Another previous grantee, the Council for the Advancement of Science Writing, received $17,520 to finance a seminar on television techniques for experienced science writers. Support for this project also was provided by Station WCBS-TV of New York.

Finally, in an effort to improve the scientific writing of scientists themselves, the Foundation granted $6,820 to Rockefeller University in partial support of a workshop on the teaching of scientific writing.

Other Grants in Science and Society

The staff of the Foundation also approved during 1967 the following grants for related purposes:

American Universities Field Staff, New York, N.Y.: For partial support of a conference on Science and Social Change, held at the California Institute of Technology	$ 9,200
For publication of papers developed at the above conference.	$ 3,000
Association for the United Nations International School, New York, N.Y.: For development of an experimental course in science at the School	$12,000

California Institute of Technology, Pasadena, Calif.: For videotaping a conference entitled "The Next Ninety Years" on the past and future impact of science and technology; the tape to be made available to educational television . . . . . $ 9,998

Institute for Policy Studies, Washington, D. C.: For support of a summer popular-science laboratory for children in the Adams-Morgan neighborhood of Washington, D. C. . . . . $ 3,550

Institute on Religion in an Age of Science, Chicago, Ill.: For partial support of a series of symposia on Science and Human Values . $15,000

Massachusetts Institute of Technology, Center for International Studies, Cambridge, Mass.: For a meeting on Science and Public Policy held at the 1967 annual meeting of the American Association for the Advancement of Science . . . . . $ 950

National Educational Television and Radio Center, New York, N. Y.: For partial support of a film on the impact of societal and technological change on the Manus culture of New Guinea, featuring Dr. Margaret Mead $20,000

Engineering

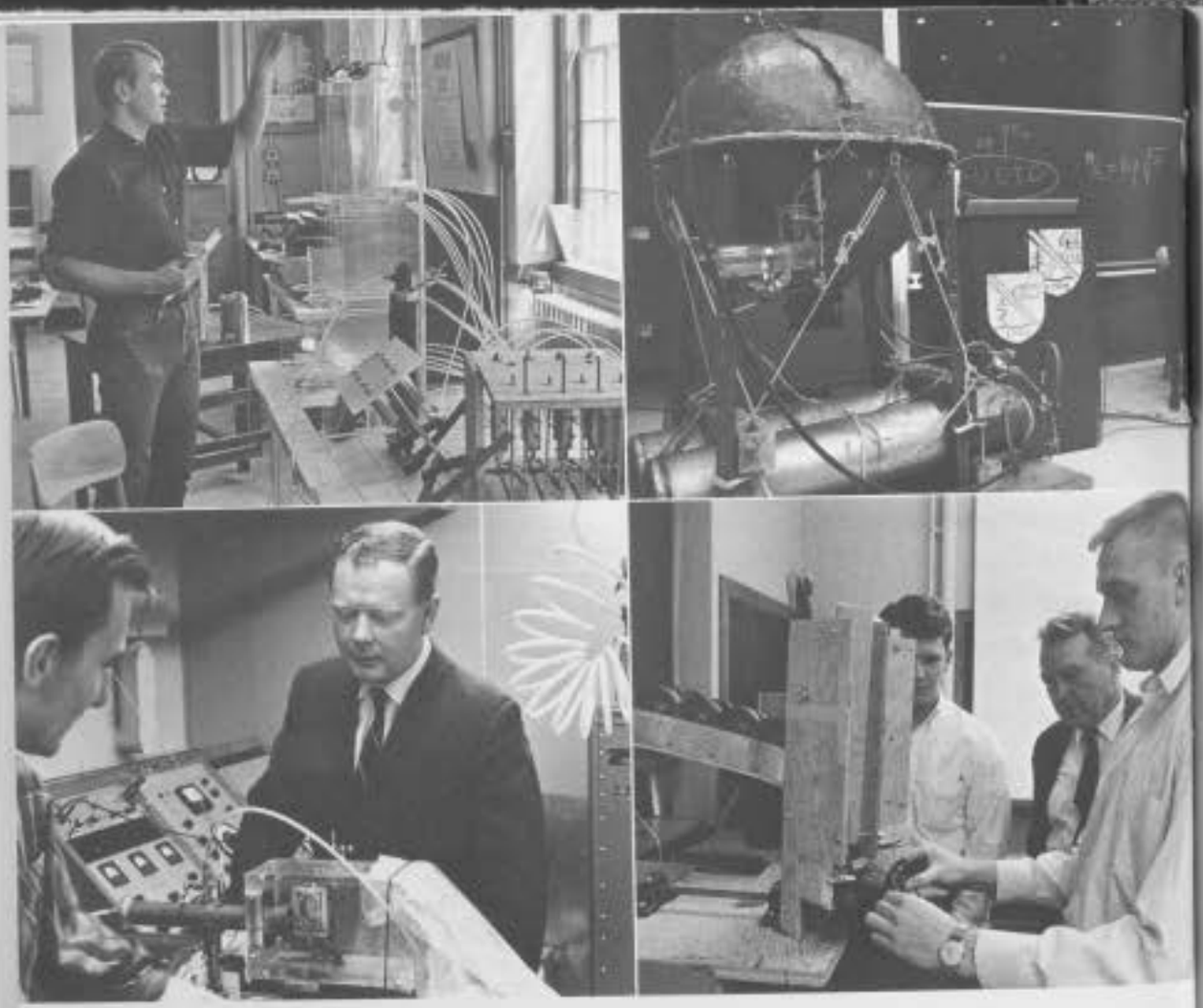
The effects of the physical sciences on the human environment are most often visible in the work of the engineer. Through its support of engineering education the Sloan Foundation has sought to assist in maximizing the benefits which enlightened engineering practices can offer to society. In recent years this support has taken the form of major grants to Yale University for its new engineering and applied science complex; to the Massachusetts Institute of Technology for its Center for Advanced Engineering Study; and to a group of six universities for strengthening their engineering programs.

One of the latter has since made unusual strides in implementing a new concept of engineering education.

Dartmouth College

The implications of the experiment in engineering education currently in progress at Dartmouth College seemed to the Foundation sufficiently far-reaching as to warrant a further grant of $1,500,000 in 1967. Certainly, Dartmouth's "pilot plant" in engineering has excited considerable on-campus interest; it has also inspired emulation in engineering schools having enrollments many times that of Dartmouth's Thayer School.

Under the leadership of Dean Myron Tribus, the Thayer School of Engineering has worked toward a more professional approach to engineering education, focusing on the solution of actual problems of society



Engineering at Dartmouth involves students in design problems such as a letter sorter, a constant-depth barge, a pulley sheave device, and an instrument for study of shock-wave instability (clockwise from upper left). A Sloan grant will support further growth.

rather than problems which are of merely technical interest. To this end, the Thayer curriculum includes a strong ingredient of liberal education, an emphasis on creative design, full exploitation of Dartmouth's multiple-access computer facility, and a close involvement with industry.

Since the first Sloan grant in 1962 the Thayer School has initiated three new graduate programs; increased its faculty from 15 to 22 and its technical and supporting staff from 19 to 34; renovated laboratory and shop facilities; and increased its sponsored research from $370,000

to $725,000 annually. The second grant will support a further increase in faculty to 27 members, and an increase in the student body from 75 to 100. Further improvements in facilities also are planned and substantial new funds are being sought from other sources.

The Foundation's renewed support was granted to sustain the leadership of the Thayer School in educating the "new breed" of engineer which is needed to apply science and technology creatively to the problems of the present and the future.

* * *

A small but strategic additional grant in the field of engineering was made to Volunteers for International Technical Assistance, Schenectady, N.Y., for extraordinary expenses incurred in the merger of VITA and DATA International Assistance Corps; both organizations being concerned with the solution of technical and engineering problems referred from sources in the less-developed nations. The amount of this grant was $10,000.

Higher Education

In somewhat broader ways than those discussed previously, the Foundation continued its selective support of higher education generally. Even here there was usually evidence of the Foundation's basic orientation toward the sciences, as in the College Science Program described in the Report for 1966 (Page 10 ff.). With the aid of grants totaling $7,500,000, twenty private liberal-arts colleges in this five-year program are implementing a variety of improvements designed to strengthen their position in the natural sciences and thus to maintain their standing in this highly critical and competitive area of education.

In 1967 the Foundation continued its relatively large program of undergraduate scholarships and gave help to a promising new college.

Alfred P. Sloan National Scholarship Program

One of the Foundation's oldest continuing programs, and one which has afforded it an acquaintance with a growing number of educational institutions over the years, is the Alfred P. Sloan National Scholarship Program. While the program's principal aim is to enable young men of outstanding potential to capitalize their capacity for leadership, a beneficial by-product for the Foundation has been the understanding it has gained of the needs and problems of the forty-five participating institutions, large and small, in all sections of the nation.

The needs for student aid at these institutions were reviewed by the Foundation in 1966. The outcome of this review was a decision by the

The Alfred P. Sloan National Scholarship Program currently is assisting 558 undergraduates in forty-five institutions. Pictured here are Sloan Scholars at the Massachusetts Institute of Technology (upper left), the University of Notre Dame (upper right), Whitman College (lower left), Davidson College (lower center), and Purdue University.

Trustees to stabilize the program for the immediate future at a level of $1,200,000 a year (see the Report for 1966, Page 25 ff.). The Trustees approved a renewal of support at the same level in 1967. Thus a new

class of 151 Sloan Scholars entered colleges and universities in the fall of 1967, and another class will enter in 1968.

The eleventh graduating class of Sloan Scholars emerged from their undergraduate studies in 1967, bringing to 1,130 the number of students who have completed college with the help of Sloan Scholarships since the program began in 1953. The Foundation decided to undertake a new assessment of the program, not in terms of the need for it as in 1966 but in terms of its results as reflected in the personal and professional development of its graduates. It will be interesting to learn whether these young men are indeed moving into the leadership roles which were predicted for them at the time of their selection as Sloan Scholars.

The results of this survey of the first ten classes are not yet ready for publication, but some data on the eleventh class, that of 1967, are available. There were 116 in this class, and 114 responded to a questionnaire.

It is not surprising in our time to find 84 per cent of these young men of high ability moving directly into full-time graduate or professional study. An additional 6 per cent are employed full-time and pursuing graduate studies part-time. The remainder—save one who was undecided—are employed full-time (and not doing graduate work) or are in the armed forces.

Most of the ninety-six scholars who are in graduate or professional schools are clustered in the natural sciences (28.1 per cent) and engineering (26.0 per cent). Other fields in which the Sloan Scholars of 1967 are pursuing graduate or professional studies include the humanities and arts (9.4 per cent), law (9.4 per cent), medicine (7.3 per cent), and the social sciences (7.3 per cent). Other areas of study account for the rest (12.5 per cent).

Seventy-six of the scholars accepted some eighty-seven graduate assistantships, fellowships, and other awards, including fifteen National Defense Education Act Fellowships, ten National Science Foundation Fellowships, and five Woodrow Wilson Fellowships.

The leading institutions of choice by the ninety-six graduate and

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-Mellon University
Pittsburgh, Pennsylvania

Case Western Reserve University
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 University
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

professional students were Stanford University (ten), Harvard University (seven), Massachusetts Institute of Technology (seven), Cornell University (six), and California Institute of Technology, Ohio State University, Purdue University, and Yale University (four each). Four are attending universities in Europe.

As in prior years, the Foundation continued to monitor the federal programs of student aid which, together with state-supported programs, have become a highly significant factor at some institutions. Budgetary pressures held down the hoped-for growth of these federal programs in the fiscal year 1967-68, and there was evidence that existing levels were of limited benefit to some institutions. Thus the president of one Eastern university wrote to the Foundation, in part:

> "... That 'massive' federal support of higher education has not materialized on the undergraduate level. Last year, while [this university] granted $1,981,000 in scholarships, not even one per cent of that amount was provided by federal funds. As we continue to seek out the most able young men to study here, it is only with sustained scholarship assistance from sources such as the Alfred P. Sloan Foundation that we will be able to promise them the necessary support."

Hampshire College

Among the various new colleges currently being planned, Hampshire College, in Amherst, Massachusetts, appeared to have two special claims upon the Sloan Foundation for support.

First, Hampshire's plan explicitly recognizes the central role of science and mathematics in the liberal-arts curriculum. A unified science-mathematics course, to be called *Science as Inquiry*, will be required of all entering students. Each student will take from two to four semesters of this course, depending on his ability and his plans for concentration. Hampshire believes the pre-eminent position given this sequence is justified by the increasingly crucial relationship of mathematics to the natural

Temporary headquarters of Hampshire College in Amherst, Mass.

sciences and its growing importance in the social sciences and other disciplines.

Second, Hampshire is being planned in cooperation with neighboring institutions in the Connecticut River Valley—Amherst, Mount Holyoke, Smith, and the University of Massachusetts. Steps are being taken to minimize course duplication, to coordinate the future development of the cooperating colleges so that a full range of departmental strengths will be available to all students in the Valley, and even to develop occasional joint departments and programs among some or all of the institutions. If this kind of collaboration can be encouraged, Hampshire's growth could illustrate ways in which higher education, which is growing increasingly costly, may be made more economical as well as more efficient, while maintaining the richness and diversity of the liberal-arts experience.

Hampshire plans to enroll its first freshman class in September 1970.

Four years later it hopes to have about 1,500 students and, within the foreseeable future, 3,600. It has a 500-acre campus area and, under President Franklin K. Patterson, an active planning staff.

The Sloan Foundation, with its interest in preserving a strong component of science in liberal education, agreed to provide a grant of $300,000, plus an additional $200,000 if that sum is matched by Hampshire during 1968. These funds will be used primarily to explore, plan, and implement the core mathematics-science curriculum, and incidentally to explore the use of technologically-assisted instruction, to study the introduction of computer resources on an inter-institutional basis, and to assist in defining Hampshire's role as the latest addition to a well-established group.

Other Grants for Higher Education

The staff of the Foundation in 1967 also approved the following grants in the general area of higher education:

American Association of Junior Colleges, Washington, D. C.: For support of forward planning to guide and assist the growth of the nation's two-year colleges $20,000

Cornell University, Ithaca, N. Y.: For partial support of the International Conference on the World Crisis in Education, held at Williamsburg, Va., in October of 1967 . . . . . $10,000

Massachusetts Institute of Technology, Cambridge, Mass.: For a research project entitled: The Educational Opportunity Bank: An Economic Analysis of a Contingent Repayment Loan Program for Higher Education $16,250

Extending Educational Opportunity

The Foundation's commitment to expanding the economic and social horizons of the Negro minority continued in 1967 to focus primarily on the area of higher education and, within that area, mainly on the strengthening of certain predominantly Negro colleges. While other approaches to the problem merit the serious consideration they are receiving, the Foundation's experience with the Negro colleges has convinced it that important work remains to be done, both by and in behalf of these developing institutions, if they are to assume their rightful place among other integrated institutions and in the meantime do their utmost to translate into reality the ideal of equal opportunity.

Cooperative College Development Program

One way of strengthening the predominantly Negro colleges, it seemed to the Foundation, was to offer a number of them, on a necessarily selective basis, an opportunity to improve their capacities to go out and find the funds potentially available to them in increasing amounts from their alumni, their communities, and from industry, foundations, and government. This increased support, it was believed, would help to stimulate an across-the-board strengthening of the affected colleges.

The Cooperative College Development Program (CCDP), originally involving some twenty-three member institutions, was established for this purpose in 1965 in cooperation with the Phelps-Stokes Fund.

Expansion and renewal of the Cooperative College Development Program were announced at a news conference in October. At head table, from left, are Dr. Arnold J. Zurcher, Foundation vice president; Dr. Frederick D. Patterson, president of the Phelps-Stokes Fund; Everett Case, president of the Foundation, and Dr. Vivian Henderson, president of Clark College.

(See the Foundation's Report for 1965, Page 28 ff.; Report for 1966, Page 34 ff.) Later in 1965 the Foundation offered these member colleges an opportunity to match, in varying amounts, a total of $1,000,000 over a two-year period. That period has just ended, and the response of the colleges as a group to the Foundation's challenge has been heartening.

In summary, the 23 colleges raised fully $9,390,000 from private sources in matching the $1,000,000 offered by the Foundation. Many of them far exceeded their quotas; only one (as of this writing) apparently failed. (Maximum challenge funds provided by Sloan were $66,666 for each of seven colleges and $33,333 for each of the other 16.)

The Foundation's matching formula purposely accorded the highest rewards to funds raised from alumni, which were matched $1 for $1. Under this stimulus some of the colleges established their first systematic alumni programs, and others accelerated theirs. Thus the 23 colleges in the two-year period raised a collective total of $900,000 from alumni.

Second-highest rewards were attached to funds raised from sources within the colleges' state and local communities, all in the South. These funds were matched $1 for $2, within each college's specified maximum, and from these sources the colleges obtained a total of $1,299,000. Some of them reported significant support for the first time from their own communities.

The third category of support, matched $1 for $3, consisted of private funds raised by the colleges outside their own states. In this category the colleges raised a total of $7,191,000.

Funds received through government programs were not eligible for matching. However, the CCDP colleges also made substantial gains in this area. In 1964-65, before CCDP, federal grants to the 23 colleges amounted to $5,495,948. During 1965-66 they nearly doubled, to $10,852,553. Partly this was the result of the availability of new funds for "developing institutions" through Title III of the Higher Education Act of 1965, and also of the colleges' increasing organizational capacity to tap these funds. CCDP members obtained $1.4 million of such funds in 1966-67, and $5 million for 1967-68.

While such sums may be taken as encouraging evidence of progress, perhaps more important has been the internal strengthening of the institutions involved, which promises to sustain this progress. For example, since the beginning of CCDP, the number of member colleges having designated development officers has increased from two to 23; development committees, from two to 19; alumni officers, from 14 to 18. Moreover, efforts are now under way to involve academic deans and faculty more closely in planning for the total development, academic as well as financial, of each institution.

The CCDP staff, based at the Phelps-Stokes Fund in New York and supported equally by the Sloan Foundation and the member colleges, works with individual colleges and with groups of colleges to strengthen their developmental capacities. Periodic workshops and seminars provide opportunities for exchange of experiences and for presentations by outside experts in development. This continuing organizational work is

carried on by three CCDP co-directors, and by Dr. Frederick D. Patterson, president of the Phelps-Stokes Fund and ex officio chairman of CCDP. A monthly CCDP report assists in maintaining communication within the group of institutions. An Advisory Council headed by Dr. Patterson and made up of persons knowledgeable in finance, philanthropy, education, government, college development, and business provides over-all guidance.

COOPERATIVE COLLEGE DEVELOPMENT PROGRAM
Participating Institutions

Alabama A. & M. College
Normal, Alabama

Atlanta University
Atlanta, Georgia

Benedict College
Columbia, South Carolina

Bennett College
Greensboro, North Carolina

Bishop College
Dallas, Texas

Clark College
Atlanta, Georgia

Dillard University
New Orleans, Louisiana

Florida A. & M. University
Tallahassee, Florida

Hampton Institute
Hampton, Virginia

Huston-Tillotson College
Austin, Texas

Jackson State College
in Mississippi
Jackson, Mississippi

Kentucky State College
Frankfort, Kentucky

Knoxville College
Knoxville, Tennessee

Langston University
Langston, Oklahoma

LeMoyne College
Memphis, Tennessee

Lincoln University
Lincoln University, Pennsylvania

Livingstone College
Salisbury, North Carolina

Meharry Medical College
Nashville, Tennessee

Morehouse College
Atlanta, Georgia

Morris Brown College
Atlanta, Georgia

North Carolina A & T State Univ.
Greensboro, North Carolina

North Carolina College
at Durham
Durham, North Carolina

Paine College
Augusta, Georgia

Southern University
Baton Rouge, Louisiana

Talladega College
Talladega, Alabama

Texas Southern University
Houston, Texas

Tuskegee Institute
Tuskegee Institute, Alabama

Virginia State College
Petersburg, Virginia

Virginia Union University
Richmond, Virginia

Xavier University of Louisiana
New Orleans, Louisiana

Early in 1966 the Sloan Foundation took under study the question of its future relationship to the Cooperative College Development Program. A firm of consultants was engaged, and its report supported the participants' belief in the usefulness of the program, while recommending certain improvements in it. Other colleges were requesting admission to CCDP; and the general, but uneven, progress of the then-current membership suggested that an extension of Foundation support might well result in further significant gains.

Trustees of the Foundation accordingly approved in 1967 an expansion of the CCDP membership to 30 colleges; an additional and terminal grant of $168,000 to the Phelps-Stokes Fund to support half the cost of the expanded program (member colleges paying the other half) during 1968 and 1969; and a second offer of $1,000,000 in matching grants to the expanded membership over the two-year period.

The terms of the new $1,000,000 matching-grant offer differ in several respects from those of the initial one. In the second offer, unlike the first, no distinction is made among the 30 member colleges; each will be eligible for a maximum of $30,000 from the Foundation. The remaining $100,000 will be apportioned equally among the four institutions judged by the CCDP Advisory Council to have been the most outstanding in specified categories of fund-raising.

Moreover, matching of funds received from private sources outside the colleges' state and local communities will be discontinued, in an effort to encourage the colleges to find support from new sources other than Northern church and philanthropic organizations. As before, contributions from alumni will be matched $1 for $1 and contributions from private in-state and local sources $1 for $2, up to the specified maximum of $30,000.

Alfred P. Sloan Opportunity Awards

An experimental and temporary pilot project launched by the Foundation in 1965, the Alfred P. Sloan Opportunity Awards program was

designed to extend the opportunity of a higher education to larger numbers of Negro youth, particularly in the South, and to help strengthen ten predominantly Negro colleges by expanding the pool of qualified applicants from which they draw their students. The colleges participating in the program annually select a total of 30 high-school post-juniors who can expect to qualify for college only with the benefit of *both* remedial and financial assistance. These students receive two summers of special remedial work in mathematics and communications skills at either Dillard University or Morehouse College; after the second summer, if they are considered able to do college work, they are admitted to the colleges which selected them and are awarded four-year scholarships whose renewal is contingent on satisfactory performance. (See the Foundation's Report for 1965, Page 25 ff., and the Report for 1966, Page 31 ff.)

Foundation Trustees in January 1967 appropriated $275,000 for a fourth class of Opportunity Award scholars, bringing to 120 the number of young men admitted to the program since its inception. (An initial class of post-seniors entered college in 1965 after a single summer of remedial instruction.)

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

During 1967 the staff of the Foundation undertook to reappraise the Opportunity Awards program in the context of its original purposes, of the results achieved so far and of the expanding support available for similar purposes.

As was stated in earlier Reports, the Opportunity Awards were conceived partially as a means of counter-balancing the increasing drain of talented potential students from the Southern Negro colleges into the predominantly white institutions which were and are actively recruiting such students. The Negro colleges were encouraged by this program to seek out another kind of student, the under-achiever of high potential who, with the aid of extra preparation and financial assistance, could become an asset to the college and the nation. The program recognized that the predominantly Negro colleges have accepted this task of providing "catch-up" education with severely limited resources; thus the Sloan Opportunity Awards scholarships were intended to reduce the financial burden on both the college and the student.

The problem of the colleges' identifying students, in their junior year of high school, who could benefit by such a program proved to be more complicated than had been anticipated. The rate of attrition in the summer remedial programs has exceeded expectations. Nevertheless, some 60 per cent of the students who have entered college are still there—suggesting that such obstacles are not in themselves insuperable.

A more important consideration has been the growth of the federally financed Upward Bound program, through which educationally disadvantaged students receive a similar kind of compensatory pre-college instruction, though not parallel scholarships except as they are able to obtain federal Educational Opportunity Grants or other assistance. In 1967, Upward Bound enrolled some 22,000 students in remedial programs at various colleges and universities. The magnitude of the Upward Bound program relative to the Opportunity Awards program clearly

calls into question the significance of the impact which the latter may expect to have.

The staff of the Foundation therefore recommended to the Executive and Policy Committee in December of 1967 that the program of Opportunity Awards not be extended. Students currently on Opportunity Awards scholarships, and those who will enter college in September of 1968 on such scholarships after a final remedial summer session, will be supported to graduation if they maintain acceptable academic standards. In the case of those who fail to keep up, their colleges will be permitted to reassign their scholarships to other students of high standing.

The Foundation staff also recommended that the funds formerly committed annually to the Alfred P. Sloan Opportunity Awards be redeployed for other purposes in the area of extending educational opportunity. New ways of accomplishing a similar purpose are under study. Experience gained in the remedial and other phases of the Opportunity Awards program will be made available to other interested parties, and will help the Foundation to identify and attack basic problems in this crucial area of higher education.

Atlanta University

As the demand for young Negroes capable of filling managerial positions in business has multiplied in recent years, Atlanta University has been host to a growing stream of recruiters seeking to employ graduates of its School of Business Administration. Atlanta University is the only predominantly Negro institution offering courses exclusively at the graduate level, and its School of Business Administration has become the major institution in the deep South training Negroes (and a number of white and foreign students) for careers in business.

The growth of the School of Business Administration has reached the point where expanded quarters have become a pressing need. For this reason the University has planned a new building for the School, which is expected to cost between $500,000 and $600,000. Trustees of the Foundation, despite a general policy which gives a low priority to buildings, recognized this urgent need with a grant of $100,000.

The technology of business is explored by a class of graduate students in the School of Business Administration, Atlanta University.

National Medical Fellowships, Inc.

The continuing under-representation of Negroes in American medicine prompted the Foundation to renew for a ninth year its support of National Medical Fellowships, Inc., which assists qualified Negro students in preparing for careers as physicians. In 1967, moreover, the Foundation increased its support from $80,000 to $100,000 annually, in order to raise average stipends and thus reduce to some extent the financial hardships endured by most Negro students pursuing a medical education. The $100,000 grant will support four-year scholarships for ten new medical students and will provide $10,000 for small emergency grants to other Negro medical students. The latest grant brings the Foundation's cumulative investment in this program to more than $600,000.

Ninety-seven students have entered medical schools since 1960 with support from the Foundation through this program. Of that number, thirty-nine have been awarded the M.D. degree thus far and thirty-eight are still in medical school. The range and quality of the institutions attended by these students is indicated by the schools which admitted Sloan-supported medical students in 1967: University of California at

San Francisco, University of Chicago, Columbia University, Duke University, Emory University, George Washington University, Harvard University, Louisiana State University, and University of North Carolina (two students).

Other Grants for Extending Educational Opportunity

The following grants for purposes related to the above were approved by the staff of the Foundation in 1967:

CORNERSTONE PROJECT, INC., Brooklyn, N. Y.: Toward support of the Project's summer program of providing young potential leaders with a first-hand encounter with the problems of urban poverty . . . . $ 5,000

COUNCIL FOR FINANCIAL AID TO EDUCATION, INC., New York, N. Y.: For a conference in Atlanta on development needs of public, predominantly Negro colleges and universities, under the joint auspices of the Council and the National Association of State Universities and Land Grant Colleges . . . . . $ 5,000

For duplicating and distributing the proceedings of the above conference . . . . . $ 850

HARVARD DIVINITY SCHOOL, Cambridge, Mass.: For support of Negro undergraduates attending a special summer program of the School . . . . . $ 6,000

INDEPENDENT SCHOOLS TALENT SEARCH PROGRAM, East Northfield, Mass.: For support of development activities of the ABC (A Better Chance) program for disadvantaged students in private preparatory schools $11,000

INTERDENOMINATIONAL THEOLOGICAL CENTER, Atlanta, Ga.: For renewed support of the Center's student aid funds and other activities . $10,000

MANHATTAN COUNTRY SCHOOL, New York, N. Y.: For support of the School's developing program of integrated private education in an urban setting $10,000

NAACP LEGAL DEFENSE AND EDUCATIONAL FUND, INC., New York, N. Y.: For general support of the Fund $10,000

NAACP SPECIAL CONTRIBUTION FUND, New York, N. Y.: For the planned expansion of the NAACP's Youth and College Department . $15,000

NATIONAL URBAN LEAGUE, New York, N. Y.: For general support $10,000

UNITED NEGRO COLLEGE FUND, New York, N. Y.: For general support $15,000

WOODROW WILSON NATIONAL FELLOWSHIP FOUNDATION, Princeton, N. J.: For a second year of support of a post-baccalaureate program of assistance for five graduates of Southern predominantly Negro colleges $20,000

YALE UNIVERSITY, New Haven, Conn.: For partial support of the Yale Summer High School's program in compensatory education for talented but disadvantaged students $15,000

Economics and Management

Among the Foundation's oldest interests have been the training of future professional managers, further training for practicing managers, research into the workings of the economy, and efforts to increase the public's understanding of economic issues. The Foundation continued to pursue these interests, with some changes in emphasis, during the year just ended.

Massachusetts Institute of Technology

MIT's School of Industrial Management, established late in 1951 and renamed the Alfred P. Sloan School of Management in 1964, has moved with remarkable vigor into a position of leadership among schools of management in this country and abroad. The School was founded with the advice and encouragement of Mr. Sloan, and both he and the Alfred P. Sloan Foundation took a close interest in its progress from the beginning.

The Sloan School's contributions to the theory and practice of management have more than justified the confidence which led the Foundation to invest in its founding and, on a proportionately diminishing scale, in its support over its first 16 years of existence. Of particular interest to the Foundation has been the MIT Sloan Fellowship Program for Executive Development, generally regarded as the prototype of such

advanced-training programs for middle management personnel in this country and abroad. The value of the Sloan Fellowship Program and of the School itself has been recognized by increasing support from industry and other sources.

With the future of the Fellowship Program and of the School assured, the Foundation by a grant of $3,000,000 in 1967 brought to an end its allocation of resources on a continuing basis for these purposes. This grant, which subsumed existing commitments of $1,597,500, brought to more than $15,000,000 the Foundation's 16-year investment in the Alfred P. Sloan School of Management.

It is expected that henceforth the MIT Sloan Fellowship Program will be supported increasingly by contributions from the industries and other employers which send mid-career executives to the program. Begun with the personal support of Mr. Sloan in 1931 and supported in part by the Foundation since 1938, the Sloan Fellowship Program has made possible advanced studies in management by some 650 mid-career executives since 1938.

Sloan Fellows are nominated by their employers and appointed, after rigorous screening, by MIT. They spend a full year at the Institute, beginning in June. During this year they pursue a special curriculum designed to sharpen their understanding of management's total role and to prepare them for broader responsibilities upon their return to their sponsoring organizations. On visits to New York, Washington, and major cities of Europe they meet with industrial, financial, and governmental leaders; other top executives visit MIT to participate in seminars with the Fellows. The Sloan Fellowship at MIT normally also includes independent work toward the Master's degree, which most of the Fellows pursue.

Some 45 Sloan Fellows, whose average age is 36, are admitted to the MIT program each year. Their wives and families move to the Boston area with them to share indirectly in the process of updating and advancing their training and education. Tuition and expenses of the Fellows are paid by their employers; the Foundation has supported

somewhat less than one-fourth of the cost of the program, in addition to its unrestricted grants to the Sloan School.

Stanford University

The Graduate School of Business of Stanford University enrolled its eleventh and largest class of Stanford-Sloan Fellows in 1967. Twenty-three Fellows from industry and government, six Fellows working toward the Ph.D. in management, and two post-doctoral Fellows make up the current group of 31 in the Stanford-Sloan Program.

Similar in many respects to the MIT Sloan Program, the Stanford-Sloan Program differs in the length of its term, which is nine months rather than twelve, and in its inclusion of the doctoral candidates and post-doctorals, most of whom will join the faculties of business schools as teachers of management. Thus the future teachers and the practicing professionals are able to benefit by working together within the program.

In the most recently completed session of the Stanford program, the Fellows were given 16 business courses, six courses in the humanities, and special introductions to computer philosophy and particle physics. They also participated in ten field trips, including one to Washington and New York, and in 13 seminars with business leaders, and conducted individual research and directed reading projects. Their wives took part in twelve special seminars.

The Foundation since 1958 has supported slightly less than a fourth of the cost of the Stanford-Sloan Program, the balance being borne by organizations sponsoring the Fellows from industry and government, and by the Graduate School of Business. During 1967 the Foundation provided for this program a final grant of $500,000, which included an existing commitment of $169,218. This brought to slightly more than $1,800,000 the Foundation's cumulative support of the Stanford-Sloan Program since its inception a decade ago.

Stanford, like MIT, plans to seek increased support of this program

from industry in the future, and is already taking active measures to assure it.

The Foundation also made a grant of $50,000 to Stanford for part of the added expense incurred in the construction of the new Graduate School of Business building. In 1964 the Foundation contributed $1,000,000 toward the cost of this structure, which houses the Stanford-Sloan Program and other activities of the School.

The Brookings Institution

The Foundation's long-standing interest in economic research has been largely focused in recent years on projects conducted by two outstanding organizations, the National Bureau of Economic Research, Inc., of New York, and the Brookings Institution of Washington, D. C. The National Bureau, through a grant made in 1964, is investigating relationships among productivity, employment, and price levels; its ambitious program also includes studies designed to improve the usefulness of estimates of the gross national product.

The most recent Brookings project to receive Foundation support is a study of the impact of research and development on the structure and market performance of American industry. Reasons for the different levels of R & D expenditure in different industries and the effects of these differentials are being explored, as is the impact of government procurement and R & D policies on industry. This study, for which the Foundation granted $150,000 in 1967, is being conducted in the Brookings economics division of which Dr. Joseph Pechman is the head.

Educational Films in Economics

The Foundation's efforts to bring about a broader dissemination of general economic knowledge have centered in recent years largely on the film, through which economic problems may be graphically presented and, it is hoped, more readily grasped by students and the lay public.

Actors and film crew prepare to shoot a scene for *Money and Banking*, third in the Foundation's current series of economic films.

The current series of such films began with *Productivity: Key to America's Economic Growth* in 1965 and continued with *The Modern Corporation*, which was released in 1967. Based on studies by leading economists and produced in consultation with their authors, with social-studies teachers, and with the National Association of Secondary School Principals, these films are coming into fairly wide use in school systems and, to a lesser degree, in industry groups. They are distributed, with appropriate study guides, through the cooperation of the National Association of Secondary School Principals, an affiliate of the National Education Association.

The third and last film in this series was authorized by Foundation Trustees in 1967. It deals with the nation's monetary and banking system—how and why a consumer or a business man borrows from his bank, how the amount of money in circulation is affected by banks' lending policies, and how the Federal Reserve System acts to regulate the supply of money and credit. Consultants for this film, tentatively

entitled *Money and Banking*, are Dr. Lester Chandler, professor of finance at Princeton University; Thomas O. Waage, vice president of the Federal Reserve Bank of New York; Dr. Ellsworth Tompkins, executive secretary of the National Association of Secondary School Principals; and Dr. Fred T. Wilhelms, economist and associate secretary of the National Association of Secondary School Principals. Like its predecessors, the third film is being produced by Sutherland Educational Films of Los Angeles. It is expected to be completed in 1968.

Other Grants in Economics and Management

Under this rubric, the staff of the Foundation authorized the following additional grants:

American Enterprise Institute, Washington, D. C.: For a study of the effects of controls on foreign investment on the United States balance of payments $10,000

Dartmouth College, The Amos Tuck School of Business Administration, Hanover, N. H.: For partial support of a planning conference on Business and Society under the auspices of the Tuck School and the American Academy of Arts and Sciences $13,000

Instituto Centroamericano de Administracion de Empresas, Managua, Nicaragua: For a program to train prospective managers of business for Central America . . . . . $ 6,500

Joint Council on Economic Education, New York, N. Y.: For general support $10,000

George C. Marshall Research Foundation, Lexington, Va.: To help establish in the Marshall Library a Marshall Plan Room depicting the postwar economic recovery of Western Europe $18,450

University of Michigan, Ann Arbor, Mich.: To provide assistance for Professor Kenneth Boulding in his study of the Theory of the Integrative System in society . . . . . $ 9,033

Cancer and Other Medical Research

The disease of cancer continues to occupy the leading place in the Foundation's limited medical interests. Mr. Sloan and his close associates considered cancer a problem which might prove amenable to a concerted attack through research; and the Sloan-Kettering Institute for Cancer Research, established in 1945, is today the institutional symbol of its founders' early faith. All of the Foundation's support of cancer research is channeled through the Institute and through agencies related to it.

Beyond the field of cancer, the Foundation's medical interests exist only in highly limited and well-defined areas; in 1967 these included ophthalmology, otology, and on a terminal basis, one leading institution in psychiatry. The Foundation extends virtually no support to medical education except as education is involved in the limited medical programs which it does support. Research in otology is supported only through the Deafness Research Foundation, which received a two-year grant in 1966 (see the Report for 1966, Page 44).

Sloan-Kettering Institute for Cancer Research

The Alfred P. Sloan Foundation made the initial large grant to establish the Sloan-Kettering Institute for Cancer Research, and since 1945 has provided a number of grants for special purposes as well as regular unrestricted support, currently $400,000 per year. Commitments by the Foundation to the Institute have aggregated $9,679,205.

The Institute has grown in its 22 years to a position of eminence in its field. Its expanded research efforts now require governmental and private support far exceeding the Sloan Foundation's annual contributions; in its latest reported year (1966) the Institute recorded expenditures of $8,790,582. Like a number of its trustees, the Foundation nevertheless continues to take a lively and active interest in all phases of the Institute.

Experience in the study of cancer has diminished any hope for an early "breakthrough" or "cure." The progress is piecemeal and, by present indications, may always be. Among such advances in understanding were the following reported by the Institute during 1967:

—The study of immunology had disclosed a "transfer factor" in human white blood cells which can transmit certain types of immunity from one person to another. A limited quantity of this factor was obtained from the blood of 200 women, all of whom were over the age of 50 and none of whom had a history of cancer. Administered to a patient with widespread inoperable breast cancer, transfer factor apparently produced a significant regression.

—Two types of cancer, apparently biologically and geographically distinct, appear to share similar antigens (an antigen being a chemical which stimulates an immune response). A large majority of patients suffering from carcinoma of the post-nasal space had strong positive reactions to antigen from Burkitt's lymphoma, which is relatively common among children in parts of Africa but relatively uncommon in the United States. This finding, and the one cited earlier, have suggested further studies of the immunity system and of the means by which it may be mobilized against cancer.

—In the effort to understand basic differences between cancer cells and normal cells, biochemists have learned that cancer cells, when they come into contact with each other, form "bridges" and exchange genetic material. Normal cells do not behave in this fashion toward each other. If it is found that cancer cells are able to inject genetic material into normal cells, thus altering the functioning of the normal cells, this may help to explain how cancer spreads.

Dr. Martin Sonenberg won a Sloan Cancer Award in 1967.

—Another difference between normal cells and cancerous cells is that certain of the latter are dependent on an extra-cellular supply of an amino acid called L-asparagine. An enzyme, L-asparaginase, breaks down L-asparagine. The purified enzyme can be obtained from a common bacterium, Escherichia coli. Deprived of the amino acid through the introduction of the enzyme, some types of cancer cells die. Initial trials of the enzyme in a limited number of human leukemia patients have shown encouraging but not yet conclusive results. One obstacle at present is the extreme difficulty and expense of obtaining the enzyme in its purified form.

The above few instances suggest that the effort against cancer may be far from being won; that its successful prosecution requires unusual creativity and perseverance; and that progress is being made. Along the way, knowledge which may have far-reaching applications to other problems of health is being acquired.

Since 1960 Memorial Hospital for Cancer and Allied Diseases and the Sloan-Kettering Institute have been increasingly integrated as the clinical and research units of Memorial Sloan-Kettering Cancer Center. Both units are active in the education and training of new investigators and clinicians in the field of cancer.

The 1966 Report of Memorial-Sloan Kettering Cancer Center acknowledges bequests from the estate of Mr. Sloan of $10,000,000 to the Sloan-Kettering Institute and of $10,000,000 to Memorial Hospital. Moreover, the National Institutes of Health in 1966 made the Institute the first recipient of a "single instrument" institutional research grant, amounting to $22.6 million over a five-year period, which entrusts to the Institute the assignment of these government funds to significant research projects. Thus the Institute's great potential has been recognized both by a final gift from its principal founder and by a large forward commitment from the government agency which now bears the primary financial responsibility in this field.

Among the institutions cooperating with the Sloan-Kettering Institute is the Southern Research Institute, which was activated in 1945 in Birmingham, Alabama, with the intention of creating a major research capability within the Southern region of the United States. The Southern Research Institute has, among its other interests, a program in cancer research which involves the work of more than 200 people; the largest but by no means the only element in this program is research in chemotherapy, the testing of large numbers of chemical compounds for possible activity against cancer cells. The Sloan Foundation has been supporting cancer research at the Southern Research Institute at the rate of $75,000 a year, through a grant renewed most recently for three years in 1966.

The Alfred P. Sloan Cancer Awards, inaugurated in 1962 through

a special gift by Mr. Sloan to the Foundation, are designed to reward significant achievements by, and provide new opportunities for, scientists who are given a special leave of absence from, or become visiting fellows of, the Sloan-Kettering Institute or the Memorial Hospital.

These awards were temporarily suspended in 1966, the year of Mr. Sloan's death. They were resumed on a more limited basis in 1967. A Sloan Cancer Award was presented in 1967 to Dr. Martin Sonenberg, a member of the Institute and chief of its Division of Endocrinology. These awards enable their American recipients, chosen from the Institute staff, to spend as much as a year in visits to foreign and domestic centers of cancer research; they also support an occasional foreign scientist for a period of research at the Sloan-Kettering Institute. Their objective is the encouragement of individual growth and enhanced communication among scientists working toward the conquest of cancer.

Council for Research in Glaucoma and Allied Diseases

Next to cancer, the medical field of longest-continued concern to the Foundation is ophthalmology. Within this field, the Foundation's efforts have focused since 1952 on the disease of glaucoma and, later, on the closely related disease of uveitis. The Foundation's grants in ophthalmology have been made upon recommendation of a group of senior medical advisors known as the Council for Research in Glaucoma and Allied Diseases. In recent years the Foundation has been allocating $200,000 annually to this program. This support was renewed for 1967; however, the Foundation decided not to renew support beyond such terminal grants as it might authorize in 1968.

The ophthalmology program has provided annual support for a number of projects in leading eye-research laboratories in the United States. Occasionally a small grant has been made for equipment or facilities, and a small number of fellowships have been provided to encourage medical students to prepare for research in ophthalmology.

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Recipients of grants for ophthalmological research and fellowships in 1967 were the following schools of medicine:

University of California (San Francisco)
Columbia University
Cornell University
Harvard University
Jefferson Medical College
The Johns Hopkins University
University of Oregon
Stanford University
Yale University

In addition, research grants were authorized under this program to the Eye-Bank for Sight Restoration, Inc., and Mount Sinai Hospital of New York, and funds were provided to the New York Association for the Blind for a symposium on uveitis and for administrative expenses of the Council for Research in Glaucoma and Allied Diseases.

Members of the Council responsible for recommending to the Foundation the allocation of these funds are:

Dr. John H. Dunnington, Professor of Ophthalmology, Emeritus, Columbia University, and formerly Director of the Institute of Ophthalmology at the Columbia Presbyterian Medical Center.

Dr. David G. Cogan, Henry Willard Williams Professor of Ophthalmology and Director of the Howe Laboratory of Ophthalmology, Harvard Medical School.

Dr. Irving H. Leopold, Director, Department of Ophthalmology, The Mount Sinai Hospital.

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. 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.

Dr. Frank W. Newell, Professor and Chairman, Section of Ophthalmology, Department of Surgery at the University of Chicago.

The Menninger Foundation

The Menninger Foundation has received support since 1953 for its School of Psychiatry from the Sloan Foundation. This relationship was to have ended on April 30, 1968, at the expiration of a three-year,

$300,000 grant. In September of 1966, however, Dr. William C. Menninger, The Menninger Foundation's vice president and among his other functions its principal external spokesman, died. Shortly thereafter Dr. Karl Menninger, who had assumed responsibility for the internal operations of the Foundation in 1965, relinquished those duties. This left the well-known clinic and training center, which at last report had some 900 employees, with an unexpected vacuum in leadership.

Under these circumstances the Sloan Foundation was persuaded that an extension of its terminal grant by an additional year and an additional $100,000 would have strategic value in preserving the Menninger operation and particularly its School of Psychiatry during the crucial period of transition in leadership. Accordingly, such an extension was approved.

In April of 1967 the trustees of The Menninger Foundation elected Dr. Roy W. Menninger, eldest son of Dr. William C. Menninger, to the presidency.

Other Grants for Medical Research

These additional grants for projects in the field of medicine were approved by the staff of the Foundation in 1967:

INSTITUTE OF REHABILITATION MEDICINE, New York University Medical Center, New York, N. Y.: To replace a recently destroyed vehicle used for the Institute's patients for therapeutic recreation and resocialization . . . . . $ 3,091

ST. LUKE'S HOSPITAL, New York, N. Y.: To support projects in dermatogeriatrics in the Hospital's Department of Dermatology . . . $10,000

STATE CHARITIES AID ASSOCIATION, New York, N. Y.: In partial support of the work of New York City's Commission on the Delivery of Personal Health Services $12,000

YALE UNIVERSITY, New Haven, Conn.: For experimental videotaping of therapeutic interviews in the University's Department of Psychology, the tapes to be for possible use as training materials $12,300

Other Grants

While the great majority of the Foundation's grants in 1967 were confined to the categories described in preceding sections of this Report, a few others represented exploratory probes into areas which might become of major interest to the Foundation in the future. Some also contributed modest sums to meet obligations which have become traditional to the Foundation. Finally, a certain number of grants were made in recognition of the Foundation's responsibilities as a 'citizen' of the nation and, in particular, of the greater New York area.

The two grants immediately following were approved by the Board of Trustees of the Foundation upon recommendation by the staff. The remainder, as indicated, were approved by the staff under discretionary authority confided to the staff by the Trustees.

Automotive Safety Foundation

Since 1947 the Foundation has supported a program of awards designed to recognize outstanding contributions by broadcasters to the cause of safer driving. These awards, known as the Alfred P. Sloan Radio-TV Awards for Highway Safety, enjoy high prestige within the broadcasting industry; and the need to encourage better driving habits certainly has not diminished. Thus the Trustees accorded renewed support of $18,500 for the 1968 program of awards.

The Alfred P. Sloan Radio-TV Awards are administered by the Automotive Safety Foundation of Washington, D. C., which invites

applications, arranges for the judging, and presents the awards at a banquet in New York in May of each year. Currently nine awards are offered to radio and television stations and networks for sustaining activities, and six to advertisers for commercially sponsored activities. Awards earmarked for noncommercial, educational radio and television stations are included. In addition, four creative awards of $1,000 each are offered for radio and television writers and producers.

Council on Foreign Relations

Composed of leaders from many fields of national life having a common interest in foreign affairs, the Council on Foreign Relations has four principal objectives—"aiding its members to deepen their understanding of international affairs; seeking new insights into American foreign policy; disseminating knowledge about America's foreign relations through its publications; and providing a meeting place for leaders in international affairs from the United States and abroad."

The Council pursues these objectives through a program of fellowships, studies, meetings, and publications including the quarterly *Foreign Affairs*. Trustees of the Sloan Foundation, by a grant of $25,000 in 1967, renewed the Foundation's support of the Council for the 15th year.

Staff Grants

Administration and Management Research Association of New York City, Inc., New York, N. Y.: For partial support of a documentary film on the comprehensive plan developed by the New York City Planning Commission $10,000

Adult Education Association of the U.S.A., Chicago, Ill.: For the North American Conference on Adult Education, held in Montreal, Que., in October of 1967 . . . . . $ 3,000

American Alumni Council, Washington, D. C.: In partial support of research into the uses of funds from private sources by universities here and abroad . . . . . $ 5,650

The American Assembly, New York, N. Y.: For general support $20,000

The American National Red Cross, Washington, D. C.: For general support $12,500

Bureau of Municipal Research, Toronto, Ont.: For partial support of a study of problems confronting world metropolitan areas . . $10,000

Channel 13/WNDT (Educational Broadcasting Corporation), New York, N. Y.: For general support $20,000

Clark University, Worcester, Mass.: Toward the completion of the University's Goddard Library $10,000

Colgate University, Hamilton, N. Y.: In partial support of Professor Albert Parry's research on economic and social changes in the Soviet Union and in China . . . . . $ 2,600

Columbia University, New York, N. Y.: For support of one fellow in Columbia's International Fellows Program for one year . . . $ 3,500

Council on Foundations, New York, N. Y.: For general support . . . . . $ 5,000

Franklin Book Programs, Inc., New York, N. Y.: For renewed support of the grantee's operations in developing countries $17,500

Freedom House, New York, N. Y.: In partial support of a conference on United States policy toward Asia . . . . . $ 5,000

Goodwill Industries of Greater New York, Inc., New York, N. Y.: Toward the purchase of a site for a new headquarters $15,000

Institute of International Education, New York, N. Y.: For temporary support of one of several Sudanese students deprived of U. S. Government scholarships by an amendment to the Foreign Assistance Act . . . . . $ 2,500

The Johns Hopkins University School of Advanced International Studies, Washington, D. C.: To provide one fellowship in the School . . . . . $ 4,000

The Legal Aid Society, New York, N. Y.: For general support . $10,000

Massachusetts Council for the Public Schools, Inc., Boston, Mass.: For general support of the Council's work in introducing curricular innovations into public schools . . . . . $ 5,000

THE MILESTONE FOUNDATION, Washington, D. C.: For support of planning by the National Highway Users Conference for the use of major national highways in times of national emergency $10,000

NATIONAL CITIZENS' COMMITTEE FOR PUBLIC TELEVISION, New York, N. Y.: For general support of the Committee's efforts to promote the growth of public television $15,000

NATIONAL INFORMATION BUREAU, New York, N. Y.: For general support . . . . . $ 1,000

NATIONAL SERVICE SECRETARIAT, Washington, D. C.: To promote study and discussion of the concept of national service $15,000

THE NEW YORK PUBLIC LIBRARY, New York, N. Y.: For support of the Library's research division . . . . . $ 5,000

UNIVERSITY OF NOTRE DAME, Notre Dame, Ind.: In partial support of a conference on The Changing Woman: The Impact of Family Planning . . . . . $ 2,500

UNIVERSITY OF PITTSBURGH, Pittsburgh, Pa.: For initial administrative costs of the new Graduate Center for Public Works Engineering and Administration $12,500

POPULATION REFERENCE BUREAU, Washington, D. C.: For general support $10,000

NATIONAL BOARD OF THE YOUNG WOMEN'S CHRISTIAN ASSOCIATION OF THE U. S. A., New York, N. Y.: In support of the International Training Institute of the YWCA . . . . . $ 5,000

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, to engage in general philanthropic activities. All of its assets with the exception of the General Motors Dealers Appreciation Fund* are the result of gifts and bequests, aggregating some $175 million as of the date of gift, reflecting the generous concern of the late Alfred P. Sloan, Jr. and the late Mrs. Sloan. The Foundation is independent of and separate from all other institutions bearing the Sloan name, although some such institutions have been recipients of grants from the Foundation.

The Foundation functions almost entirely as a grant-making agency; that is, it does not normally engage directly in the operation of research or other projects. Grants are made to recognized educational and research institutions and are administered by those institutions.

The areas of principal interest of the Foundation are indicated in its Annual Reports, and the Foundation welcomes imaginative and constructive proposals falling within those areas. Failure to support any given proposal does not necessarily imply any adverse judgment of its worth, for the Foundation annually receives many more meritorious

*The General Motors Dealers Appreciation Fund was contributed to the Foundation by General Motors dealers of the United States in 1948, in appreciation of what Mr. Sloan had done, as Chairman of General Motors Corporation, in advancing the opportunities of the dealer organization. The dealers' original contribution of $1,525,000 had appreciated in market value to $9,806,760 by the end of 1967. Grants paid from the Fund's income have been devoted to cancer research.

requests than its limited funds permit it to meet. The Foundation is obliged to decline some 750 formal requests for aid annually.

Proposals outside the areas described in the Reports stand slight chance of acceptance and are wasteful of limited staff time. Among the fields which are not currently supported by the Foundation are the creative and performing arts; religion and the humanities; and the behavioral sciences. With minor exceptions, the Foundation does not support 'charitable' or international activities. Requests for support of conferences, for endowment, and for equipping and constructing buildings are discouraged.

Application for a grant is made in the form of a letter to the Foundation; no special forms are supplied and except in special programs there are no "deadlines" for applications. The letter of application should present, as clearly and briefly as possible, (1) the nature of the proposed program or the problem to be attacked; (2) the procedure to be employed; (3) the name and qualifications of the person or persons who would conduct the activity, and (4) an itemized expense budget. In the case of requests for large amounts, full supporting documents should accompany the letter of application. Often a preliminary letter of inquiry will be useful in determining whether it would be worth while to submit a formal proposal.

Terms and conditions of each grant are established on a basis mutually acceptable to the Foundation and the grantee. The Foundation expects that reports on activities supported by its grants will be made annually and/or at the conclusion of the activity, or on such other schedule as may be arranged; and that financial reports of expenditures from grants will be made on a similar basis. Any funds remaining after termination of an activity supported by a grant normally are refunded to the Foundation.

Grants are made for terms of one to as many as five years. In a few cases the term of a grant may be extended or support may be renewed upon the expiration of a grant; but in general the Foundation expects

that continuing activities to which it extends initial support will become self-sustaining within a reasonable period of time. This policy is intended to preserve for the Foundation the freedom to respond to challenging new opportunities whenever and wherever they may arise.

Financial Review

Financial statements of the Foundation's assets, obligations, and funds at December 31, 1967; its income, expenses and appropriations for the year then ended; and the securities owned at year end with their book and market values appear on pages 71-77. The independent accounting firm of Haskins & Sells audited these statements and has given its opinion on page 70 that the statements present fairly the Foundation's financial position at December 31, 1967 and the results of its operations for the year then ended.

The Foundation's assets at ledger value increased by $9,515,374. This increase consisted of additions to cash of $386,217 and a net addition to investments of $9,129,157. The portfolio of fixed income securities showed an increase of $11,345,499; and the net change in common stock investments was reflected in a reduction of $2,216,342. Short-term U.S.A. Treasury Bills account for $17,546,842 of the $36,339,569 investment in fixed income securities maturing in five years or less. The addition to fixed income securities was primarily financed by the proceeds from the sale of common stocks including $7,780,216 representing net profit on disposal of equity holdings during the year.

A comparative summary of the Foundation's investments in marketable securities at quoted market values at December 31, 1967 and December 31, 1966 follows:

	1967		1966	
	AMOUNT	PERCENT	AMOUNT	PERCENT
Fixed income:				
U.S. Government and agency obligations	$ 41,373,426	12.7	$ 37,416,039	13.6
Other bonds and notes	17,198,806	5.3	10,532,045	3.8
Total fixed income	58,572,232	18.0	47,948,084	17.4
Common stocks:				
General Motors	126,334,612	38.8	101,491,373	36.9
All other	141,001,378	43.2	125,943,044	45.7
Total common stocks	267,335,990	82.0	227,434,417	82.6
Total investments	$325,908,222	100.0	$275,382,501	100.0

A listing of grants authorized and payments made during 1967 will be found on pages 78-82. A summary of grants authorized and payments for the year ended December 31, 1967 follows:

Grants unpaid January 1, 1967	$29,202,152
Grants authorized during the year	13,504,234
	42,706,386
Payments during the year	16,992,794
Grants payable but not due at December 31, 1967	$25,713,592

After taking account of the foregoing, the net worth of the Foundation at December 31, 1967, based on quoted market values, was divided as follows:

General Fund	$291,112,354
General Motors Dealers Appreciation Fund	9,806,760
Total	$300,919,114

At ledger value, additions of $14,732,428 to the principal funds during 1967 consisted of net profit on disposals of securities in the

CHARLES E. HEWITT
Secretary and Treasurer

amount of $7,482,428 and receipt of distributions, as residuary legatee, of $7,250,000 from the Estate of Alfred P. Sloan, Jr. Net profit on common stock sales amounted to $7,780,216 offset by losses of $297,788 on sales of fixed income securities.

The statement of Income and Funds on pages 76-77 shows an operating deficit for the year of $1,728,494. This amount included non-recurring commitments consisting of terminal grants to the Alfred P. Sloan School of Management at Massachusetts Institute of Technology and to Stanford University for the Sloan Fellowship Program. Total income for the year showed a decrease from 1966 of $547,262, and total grants and expenses were $14,411,879, or $6,950,522 less than the record total reported for the previous year.

In summarizing the movements of cash during 1967, the following schedule is presented:

SOURCES OF CASH:	
Excess of value on sales of securities over ledger values	$ 7,482,428
Investment and other income	12,683,385
Distributions from Estate of Alfred P. Sloan, Jr.	7,250,000
	$27,415,813
APPLICATION OF CASH:	
Grant payments	$16,992,794
Increase in ledger value of investments	9,129,157
Payments for special projects	111,680
Administrative expenses	795,965
Increase in cash balances	386,217
	$27,415,813

At its July meeting the Board accepted Mr. Francis E. Eagan's resignation as Secretary and Treasurer of the Foundation. At the October 16, 1967 meeting of the Board of Trustees, Mr. Charles E. Hewitt was elected Secretary and Treasurer to fill this vacancy. A specialist in investment and corporate finance, Mr. Hewitt brings to the Foundation a broad experience in financial management.

HASKINS & SELLS
CERTIFIED PUBLIC ACCOUNTANTS

TWO BROADWAY
NEW YORK 10004

ACCOUNTANTS' OPINION

Alfred P. Sloan Foundation:

We have examined the balance sheet of Alfred P. Sloan Foundation as of December 31, 1967 and the related statement of income and funds for the year then ended, and the supplemental schedules of marketable securities 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, 1967 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.

February 14, 1968

Haskins & Sells

BALANCE SHEET

DECEMBER 31, 1967 AND DECEMBER 31, 1966

	1967	1966
ASSETS		
MARKETABLE SECURITIES (at cost or quoted market at date of gift or receipt):		
Fixed Income Securities:		
U.S. Government and agency obligations	$ 42,339,436	$ 37,818,937
Other bonds and notes	17,636,770	10,811,770
	59,976,206	48,630,707
Common Stocks	144,372,393	146,588,735
TOTAL (quoted market 1967—$325,908,222, 1966—$275,382,501)	204,348,599	195,219,442
CASH	724,484	338,267
TOTAL	$205,073,083	$195,557,709
OBLIGATIONS AND FUNDS		
GRANTS AUTHORIZED BUT NOT DUE FOR PAYMENT	$ 25,713,592	$ 29,202,152
FUND BALANCES:		
General Fund	173,716,420	161,021,479
General Motors Dealers Appreciation Fund	5,643,071	5,334,078
TOTAL	$205,073,083	$195,557,709

NOTES:

(1) In accordance with the policy of the Foundation, no effect has been given to income accrued but not due at December 31, 1967 and 1966.

(2) As residuary legatee of the Estate of Alfred P. Sloan, Jr., the Foundation expects to receive certain additional assets which are not included in the above balance sheet.

(3) Under continuing programs, the Foundation is authorized to make certain grants of approximately $100,000, contingent on the fulfillment of certain conditions, for which no liability had been incurred or provided at December 31, 1967.

SCHEDULE OF MARKETABLE SECURITIES

DECEMBER 31, 1967

FIXED INCOME	PRINCIPAL AMOUNT	LEDGER AMOUNT	QUOTED MARKET VALUE
U.S. Government and Agency Obligations:			
Treasury Bills:			
February 1, 1968	$4,500,000	$ 4,475,436	$ 4,481,055
March 7, 1968	4,500,000	4,452,517	4,458,150
March 28, 1968	3,900,000	3,850,919	3,850,860
April 22, 1968	4,850,000	4,767,970	4,768,617
Treasury Bonds:			
4%—October 1, 1969	2,247,000	2,187,019	2,178,174
4%—August 15, 1973	5,921,000	5,863,617	5,439,919
Treasury Notes 5.375%—			
February 15, 1971	2,500,000	2,496,063	2,468,750
Federal Land Bank 4.50%—			
October 1, 1970	1,285,000	1,251,269	1,230,388
Federal National Mortgage Association:			
5.75%—June 23, 1969	1,500,000	1,500,000	1,481,250
5.50%—April 1, 1970	1,500,000	1,498,125	1,470,000
4.50%—July 1, 1970	1,800,000	1,732,500	1,714,500
5.75%—June 23, 1971	300,000	301,500	293,625
5.125%—February 10, 1972	2,350,000	2,358,813	2,258,938
5.50%—April 1, 1972	1,640,000	1,637,438	1,586,700
4.70%—December 1, 1972	1,000,000	955,000	928,750
5.20%—January 19, 1977	3,000,000	3,011,250	2,763,750
Total U.S. Government and Agency Obligations		42,339,436	41,373,426
Other Bonds and Notes:			
General Motors Acceptance Corporation Notes 4.65718%—February 16, 1968	2,875,000	2,875,000	2,875,000
General Motors Acceptance Corporation Bonds:			
5%—September 1, 1980	1,300,000	1,300,000	1,095,250
5%—March 15, 1981	1,500,000	1,492,500	1,263,750

SCHEDULE OF MARKETABLE SECURITIES

DECEMBER 31, 1967

—CONTINUED—

FIXED INCOME	PRINCIPAL AMOUNT	LEDGER AMOUNT	QUOTED MARKET VALUE
Other Bonds and Notes (continued):			
Public Service Electric & Gas Company Debenture Bonds 4.63%— March 1, 1977	$ 223,000	$ 226,060	$ 188,993
American Telephone & Telegraph Company, Debenture Bonds 4.38%— April 1, 1985	1,500,000	1,518,210	1,224,375
Burlington Industries, Inc., Convertible Debenture Bonds 5%— September 15, 1991	1,000,000	1,000,000	1,130,000
Tenneco Corporation, Convertible Debenture Bonds 6.25%— October 1, 1992	1,500,000	1,500,000	1,642,500
General Telephone & Electronics Corporation, Convertible Debenture Bonds 5%—December 15, 1992	2,725,000	2,725,000	2,772,688
Standard Oil Company (New Jersey) Debenture Bonds 6%— November 1, 1997	5,000,000	5,000,000	5,006,250
Total other bonds and notes		17,636,770	17,198,806
Total fixed income securities		$59,976,206	$58,572,232

COMMON STOCKS	NUMBER OF SHARES	LEDGER AMOUNT	QUOTED MARKET VALUE
American Can Company	50,000	$ 3,003,632	$ 2,575,000
American Metal Climax, Inc.	58,000	1,955,181	2,820,250
American Telephone & Telegraph Company	138,723	5,570,425	6,988,171
Avon Products, Inc.	13,100	822,375	1,863,475
Babcock & Wilcox Company, The	70,000	1,491,478	3,281,250
Caterpillar Tractor Company	80,000	1,448,479	3,470,000

SCHEDULE OF MARKETABLE SECURITIES

DECEMBER 31, 1967

—CONTINUED—

Common Stocks	Number of Shares	Ledger Amount	Quoted Market Value
Central & South West Corporation	25,000	$ 653,569	$ 1,162,500
Chase Manhattan Bank, N.A., The	16,505	778,626	1,017,121
Corning Glass Works	9,598	1,030,430	3,311,310
Cutler-Hammer, Inc.	33,500	1,359,310	1,620,563
E. I. duPont deNemours & Company	9,700	1,674,816	1,537,450
Eastern Air Lines, Inc.	40,000	2,228,031	1,870,000
Eastman Kodak Company	51,977	2,499,064	7,744,573
FMC Corp.	50,000	1,725,928	1,812,500
Falconbridge Nickel Mines Limited	33,000	1,819,178	2,961,222
First National Bank of Boston, The	22,500	851,683	1,237,500
First National Bank of Chicago	15,850	753,117	863,825
First National City Bank of New York	17,452	527,600	966,405
General Electric Company	39,810	2,741,464	3,821,760
General Motors Corporation	1,540,666	70,384,314	126,334,612
Gillette Company	31,200	1,536,011	1,942,200
Gulf Oil Corporation	28,384	578,073	2,167,828
Household Finance Corp.	67,600	1,165,556	2,104,050
Idaho Power Company	32,000	827,998	968,000
International Business Machines Corp.	35,884	5,331,508	22,499,268
International Nickel Co. of Canada, Ltd.	38,600	1,971,791	4,525,850
Kennecott Copper Corporation	43,000	1,727,509	1,999,500
Merck & Co., Inc.	24,400	256,741	2,058,750
Middle South Utilities, Inc.	60,600	1,022,692	1,560,450
Mobil Oil Corporation	74,000	2,047,176	3,154,250
Morgan Guaranty Trust Company of N.Y.	29,818	1,912,527	2,765,620
Northwest Bancorporation	21,000	615,477	1,055,250
Owens-Corning Fiberglas Corp.	26,100	2,127,985	1,618,200
Procter & Gamble Company	35,500	883,581	3,274,875
Public Service Electric & Gas Company	68,000	1,458,746	2,235,500

SCHEDULE OF MARKETABLE SECURITIES

DECEMBER 31, 1967

—CONTINUED—

Common Stocks	Number of Shares	Ledger Amount	Quoted Market Value
Royal Dutch Petroleum Company	74,400	$ 2,362,854	$ 3,543,300
Sears, Roebuck and Company	78,605	1,689,531	4,509,962
Security First National Bank (L.A.)	23,083	735,471	796,364
Shell Oil Company	54,532	2,129,883	3,599,112
Southern Company, The	52,000	950,596	1,475,500
Standard Oil Company (New Jersey)	52,567	2,534,390	3,548,273
TRW, Inc.	52,300	1,497,782	5,386,900
Texaco Inc.	59,326	1,839,222	4,924,058
Texas Utilities Company	24,600	943,367	1,429,875
Trans World Airlines, Inc.	20,000	1,808,587	1,012,500
Virginia Electric & Power Company	36,405	785,312	1,588,168
Xerox Corporation	14,300	313,327	4,332,900
Total common stocks		144,372,393	267,335,990
Total fixed income securities		59,976,206	58,572,232
Total marketable securities		$204,348,599	$325,908,222

STATEMENT OF INCOME AND FUNDS

FOR THE YEARS ENDED DECEMBER 31, 1967 AND 1966

	TOTAL		GENERAL FUND		GENERAL MOTORS DEALERS APPRECIATION FUND	
	1967	1966	1967	1966	1967	1966
INCOME						
Investment Income:						
Dividends	$ 9,765,702	$ 9,795,3	$ 9,403,549	$ 9,388,362	$ 362,153	$ 406,989
Interest	2,442,798	1,850,2	2,351,857	1,772,388	90,941	77,979
Income received as residuary legatee under will of Alfred P. Sloan, Jr. and as remainderman of trusts	450,500	1,542,5	450,500	1,542,582		
Other (principally refunds of unexpended grants)	24,385	42,3	24,385	42,347		
Total	12,683,385	13,230,6	12,230,291	12,745,679	453,094	484,968
Grants and Expenses:						
Grants authorized	13,504,234	20,465,2	13,104,234	19,840,202	400,000	625,000
Cost of special projects	111,680	142,7	111,680	142,782		
Administration, including investment counsel and custodial services	795,965	754,4	795,965	754,417		
Total	14,411,879	21,362,4	14,011,879	20,737,401	400,000	625,000
Excess of Grants and Expenses over income for the year	(1,728,494)	(8,131,7	(1,781,588)	(7,991,722)	53,094	(140,032)
Cumulative excess of Grants and Expenses over income from inception to:						
Beginning of year	(41,417,892)	(33,286,1	(42,036,447)	(34,044,725)	618,555	758,587
End of year	(43,146,386)	(41,417,8	(43,818,035)	(42,036,447)	671,649	618,555
PRINCIPAL						
Balance at beginning of year	207,773,449	173,347,9	203,057,926	168,789,931	4,715,523	4,558,005
Assets received as residuary legatee under will of Alfred P. Sloan, Jr. and as remainderman of trusts	7,250,000	30,224,6	7,250,000	30,224,666		
Excess of quoted market value of assets received in liquidation of New Castle Corporation over the ledger amount of the stock given in exchange		1,045,6		1,005,941		39,735
Net profit on disposals of securities	7,482,428	3,155,1	7,226,529	3,037,388	255,899	117,783
Balance at end of year	222,505,877	207,773,4	217,534,455	203,057,926	4,971,422	4,715,523
FUND BALANCES AT END OF YEAR	$179,359,491	$166,355,5	$173,716,420	$161,021,479	$5,643,071	$5,334,078

	AUTHORIZED BUT NOT DUE DEC. 31, 1966	1967 GRANTS AUTHORIZED	1967 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1967
Administration and Management Research Association of New York City, Inc.		$ 10,000	$ 10,000	
Adult Education Association of the U.S.A.		3,000	3,000	
Alabama Agricultural and Mechanical College		23,410	23,410	
Albion College	$ 50,005	14,990	15,133	$ 49,862
American Alumni Council		5,650	5,650	
American Assembly, The		20,000	20,000	
American Association of Junior Colleges		20,000	20,000	
American Enterprise Institute		10,000	10,000	
American National Red Cross, The		12,500	12,500	
American Universities Field Staff		12,200	12,200	
Amherst College	92,120	26,170	28,768	89,522
Antioch College	426,970	10,820	93,868	343,922
Arctic Institute of North America		10,000	10,000	
Arizona, University of	11,050	16,100	19,100	8,050
Arizona State University		16,100	8,050	8,050
Arkansas, University of		8,050	8,050	
Aspen Institute for Humanistic Studies		10,000	10,000	
Association for the United Nations International School, The		12,000	12,000	
Atlanta University		100,000	100,000	
Automotive Safety Foundation		18,500	18,500	
Bennett College		28,761	28,761	
Bethune-Cookman College	23,250	39,600	14,250	48,600
Bishop College	23,250	44,400	14,850	52,800
Boston University		10,000	10,000	
Bowdoin College	56,050	20,650	21,800	54,900
Brandeis University	9,750		9,750	
British Columbia, University of		16,100	8,050	8,050
Brookings Institution, Inc., The	50,000	150,000	200,000	
Brown University	355,595	47,620	318,955	84,260
Bryn Mawr College	10,000	15,530	17,330	8,200
Bureau of Municipal Research		10,000	10,000	
California Institute of Technology	3,214,755	485,593	1,203,333	2,497,015
California, University of	77,199	266,535	197,019	146,715
Carleton College	551,060	18,360	114,190	455,230
Carnegie-Mellon University	167,950	60,700	62,138	166,512
Case Western Reserve University	115,330	33,230	39,158	109,402
Channel 13/WNDT (Educational Broadcasting Corporation)		20,000	20,000	
Chicago, University of	18,000	82,250	63,500	36,750
Clark College		4,482	4,482	
Clark University		10,000	10,000	

	AUTHORIZED BUT NOT DUE DEC. 31, 1966	1967 GRANTS AUTHORIZED	1967 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1967
Colby College	$ 27,140	$ 10,640	$ 10,560	$ 27,220
Colgate University	479,690	31,690	107,373	404,007
Colorado, University of		23,000	11,500	11,500
Columbia University	886,032	149,015	412,013	623,034
Community Blood Council of Greater New York, Inc.	125,000		125,000	
Cornell College	375,000		75,000	300,000
Cornell University	995,883	108,319	558,385	545,817
Cornerstone Project, Inc.		5,000	5,000	
Council for Financial Aid to Education, Inc.		5,850	5,850	
Council for the Advancement of Science Writing, Inc.		17,520	17,520	
Council on Foreign Relations, Inc., The		25,000	25,000	
Council on Foundations, Inc.		5,000	5,000	
Dartmouth College	282,160	1,581,885	105,065	1,758,980
Davidson College	269,830	8,370	56,493	221,707
Deafness Research Foundation, The	143,750		143,750	
Dillard University	24,750	103,996	79,246	49,500
Duke University		8,750	8,750	
Emory University		21,500	10,500	11,000
Eye-Bank for Sight Restoration, Inc., The		14,100	14,100	
Fisk University	26,250	46,800	16,050	57,000
Florida Agricultural and Mechanical University		16,746	16,746	
Florida, University of		16,100	8,050	8,050
Fort Valley State College, The		9,698	9,698	
Franklin Book Programs, Inc.		17,500	17,500	
Freedom House		5,000	5,000	
Georgia Institute of Technology	22,850	6,000	13,850	15,000
Georgia, University of	920	16,100	8,970	8,050
Goodwill Industries of Greater New York, Inc.		15,000	15,000	
Gordon Research Conferences		1,000	1,000	
Greater St. Louis Citizens' Committee for Nuclear Information		20,000	20,000	
Grinnell College	424,970	10,120	87,580	347,510
Hamilton College	26,336	10,420	6,559	30,197
Hampshire College		500,000	300,000	200,000
Hampton Institute	26,250	42,000	15,750	52,500
Harvard College	156,960	276,580	187,768	245,772
Haverford College	400,000		80,000	320,000
Hope College	375,000		75,000	300,000
Illinois, University of	86,395	73,750	59,585	50,560
Independent Schools Talent Search Program		11,000	11,000	

GRANTS AUTHORIZED AND PAYMENTS

	AUTHORIZED BUT NOT DUE DEC. 31, 1966	1967 GRANTS AUTHORIZED	1967 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1967
Indiana University		$ 9,868	$ 9,868	
Institute for Policy Studies		3,550	3,550	
Institute of International Education, Inc.		2,500	2,500	
Institute on Religion in An Age of Science		15,000	15,000	
Instituto Centroamericano de Administracion de Empresas		6,500	6,500	
Interdenominational Theological Center, Inc.		10,000	10,000	
Iowa State College	$ 14,950		14,950	
Jefferson Medical College of Philadelphia		3,000	3,000	
Johns Hopkins University	166,190	67,390	112,923	$ 120,657
Joint Council on Economic Education		10,000	10,000	
Kalamazoo College	400,000		80,000	320,000
Kansas State University		8,050	8,050	
Kansas, University of	8,050		8,050	
Knox College	307,215	8,540	63,630	252,125
Knoxville College	23,250	39,600	14,250	48,600
Langston University		17,157	17,157	
Legal Aid Society, The		10,000	10,000	
Lehigh University	57,660	18,260	18,915	57,005
LeMoyne College		19,963	19,963	
Lincoln University	15,830	6,580	5,185	17,225
Livingstone College		8,553	8,553	
London Graduate School of Business Studies, The	150,000		75,000	75,000
Louisiana State University	8,050		8,050	
McMaster University	22,025	37,600	40,825	18,800
Manhattan Country School		10,000	10,000	
Marshall Research Foundation, George C.		18,450	18,450	
Massachusetts Council for the Public Schools, Inc.		5,000	5,000	
Massachusetts Institute of Technology	6,550,670	2,011,928	5,163,913	3,398,685
Massachusetts, University of		16,735	9,660	7,075
Memorial Sloan-Kettering Cancer Center	2,000,000		1,000,000	1,000,000
Menninger Foundation, The	100,000	100,000	100,000	100,000
Miami, University of	9,200		9,200	
Michigan, University of	37,500	51,642	54,517	34,625
Middlebury College	400,000		80,000	320,000
Milestone Foundation, The		10,000	10,000	
Minnesota, University of	39,050	33,150	41,650	30,550
Missouri, University of		20,000	20,000	
Montana, University of		4,898	4,898	
Morehouse College	348,970	93,950	117,898	325,022
Mount Holyoke College	375,000		75,000	300,000
Mount Sinai Hospital, The		21,437	21,437	

	AUTHORIZED BUT NOT DUE DEC. 31, 1966	1967 GRANTS AUTHORIZED	1967 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1967
NAACP Legal Defense and Educational Fund, Inc.		$ 10,000	$ 10,000	
NAACP Special Contribution Fund		15,000	15,000	
National Academy of Sciences	$ 25,000	1,000,000	275,000	$ 750,000
National Bureau of Economic Research, Inc.	200,000		100,000	100,000
National Citizens' Committee for Public Television		15,000	15,000	
National Educational Television and Radio Center		20,000	20,000	
National Information Bureau, Inc.		1,000	1,000	
National Medical Fellowships, Inc.	155,000	100,000	80,000	175,000
National Service Secretariat		15,000	15,000	
National Urban League		10,000	10,000	
New York Association for the Blind		29,000	29,000	
New York Public Library, The		5,000	5,000	
New York University		22,341	22,341	
North Carolina College at Durham		22,613	22,613	
North Carolina, University of		9,809	9,809	
Northwestern University	8,750	16,750	17,500	8,000
Notre Dame, University of	82,860	66,160	59,515	89,505
Oberlin College	595,730	17,130	131,533	481,327
Occidental College	425,350	8,840	90,118	344,072
Ohio State University, The	15,750	17,050	12,550	20,250
Oregon, University of		58,801	35,871	22,930
Paine College		15,077	15,077	
Pennsylvania State University, The	8,050	8,050	16,100	
Pennsylvania, University of		7,000	7,000	
Phelps-Stokes Fund	59,000	168,000	59,000	168,000
Pittsburgh, University of		12,500	12,500	
Pomona College	23,340	9,490	7,223	25,607
Population Reference Bureau, Inc.		10,000	10,000	
Princeton University	83,540	72,360	74,590	81,310
Purdue University	22,200	9,000	8,700	22,500
Reed College	375,000		75,000	300,000
Research Foundation of State University of New York, The	8,050	52,342	40,842	19,550
Rice University	10,000	41,675	31,675	20,000
Rochester, University of		1,000,000	250,000	750,000
Rockefeller University, The		12,820	12,820	
St. Luke's Hospital		10,000	10,000	
Scientists' Institute for Public Information, Inc.	50,000		50,000	
Sloan-Kettering Institute for Cancer Research	2,200,000	400,000	500,000	2,100,000
Smith College	250,000		50,000	200,000
Southern California, University of		35,000	17,500	17,500

	AUTHORIZED BUT NOT DUE DEC. 31, 1966	1967 GRANTS AUTHORIZED	1967 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1967
Southern Research Institute	$ 150,000		$ 75,000	$ 75,000
Southern University and Agricultural and Mechanical College		$ 12,425	12,425	
Spelman College		33,333	33,333	
Stanford University	542,122	505,582	307,529	740,175
State Charities Aid Association		12,000	12,000	
Swarthmore College	375,000		75,000	300,000
Talladega College	15,500	55,882	38,982	32,400
Texas, University of	16,650		16,650	
Tougaloo College	15,500	27,200	9,500	33,200
Tulane University	60,680	518,230	282,708	296,202
Tuskegee Institute	44,770	61,770	23,943	82,597
United Negro College Fund, Inc.		15,000	15,000	
United States Churchill Foundation	20,000		20,000	
Vanderbilt University	69,670	36,020	33,925	71,765
Vermont, University of		8,050	8,050	
Virginia State College		13,893	13,893	
Virginia, University of	11,050		11,050	
Volunteers for International Technical Assistance		10,000	10,000	
Wabash College	54,180	16,230	18,858	51,552
Washington and Lee University	250,000		50,000	200,000
Washington State University	8,050		8,050	
Washington University	8,750		8,750	
Washington, University of	6,900	16,100	14,950	8,050
Wayne State University		16,100	16,100	
Wesleyan University	12,500	17,250	21,000	8,750
Western Ontario, University of	8,050		8,050	
Whitman College	22,250	8,000	9,150	21,100
Williams College	594,990	33,640	137,973	490,657
Wisconsin, University of	35,200	39,245	45,045	29,400
Woodrow Wilson National Fellowship Foundation		20,000	20,000	
Xavier University of Louisiana		25,409	25,409	
Yale University	891,610	98,860	593,890	396,580
Yeshiva University		9,000	9,000	
Young Women's Christian Association, National Board of		5,000	5,000	
Cooperative College Development Program for 1968-1969		1,000,000		1,000,000
	29,202,152	13,573,078	17,061,638	25,713,592
Reduction for grant transfers		68,844	68,844	
TOTAL	$29,202,152	$13,504,234	$16,992,794	$25,713,592

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Index of Grantees

CREDITS

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Alfred P. Sloan Foundation

REPORT for 1968

Alfred P. Sloan Foundation
630 Fifth Avenue
New York, N. Y. 10020

Contents

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Arnold J. Zurcher[4]

[1] Retired April 30, 1968
[2] Elected January 20, 1969
[3] Elected July 15, 1968
[4] Retired October 31, 1968

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Cynthia Wilson
Secretary to the President

[1] Elected Executive Vice President October 21, 1968
[2] Retired October 31, 1968; now a consultant
[3] Elected Vice President January 20, 1969

A Look Ahead

THE year 1968 clearly produced a new high water mark in the measurement of accelerating change in our society. This was true of the whole range of human concerns, from urban living to celestial exploration. It is equally clear that as the nineteen-sixties become the nineteen-seventies the rate of change will continue to increase. Being prophetic and right in this forecast requires only average sensitivity and average intelligence.

Less clear and less certain is the response foundations should make under these conditions. Should they become island fortresses defending themselves and their code against the tides of change, maintaining that their duty is to preserve themselves and their assets for the days when calm and stability will have returned, or at most sustaining only those ventures which seem to have a chance of riding out the storm? Few, happily, subscribe to this position. But what of the well reasoned claim that foundations are uniquely able to take the long view, to invest in people and institutions the results of whose labors take years for fruition? This position is not so easily dismissed, even in the face of the obvious and mounting pressures around us. Yet neither is it easy to counter the argument that if we plan for 1978 and ignore the intervening decade, 1978 may never come; or if it does come, many of our most valued principles and traditions will have disappeared.

Our first duty is to avoid confusing change with the turbulence which accompanies it, to distinguish between symptoms and causes, and to refuse to waste our resources on palliatives. To subscribe to this caution is as

easy as to say it. To find and to apply the wise judgments it requires is a much more difficult and much more important responsibility.

On many of the critical issues of the day we seem to hear primarily from the polar extremes. The long distances between the extremes seem to demand that opponents shout at each other in order to be heard. Yet it is in this difficult, broad terrain between extremes that understanding, mutual respect, and civilized decency often reside. It is there that in due course the resolution or the amelioration of our problems as a society will have to be managed.

Ironic, is it not, that at the doorstep of those who have long upheld the primacy of reason can be laid some degree of responsibility for the appearance of vociferous groups and individuals who insist on the primacy of emotion. Advocates of intellectual discipline and control seem unwittingly to have fostered impulsiveness. Adherents of standards of good taste are blamed for provoking vulgarity in some of their fellows. Compassion sometimes seems to be rewarded by the development of self-centeredness in others. Reasoned restraint and tolerance seem to have invited demands for complete freedom. In a democracy based on the will of the majority, we find both the arrogant repression of the rights of minorities and the equally arrogant effort to impose the will of the minority on the majority.

Small wonder that confusion and separation characterize our times. How do we proceed with the process of depolarization? How do we replace confusion with order and meaning? How do we bring reason and emotion into proper balance, encourage impulsiveness when it is creative but not when it is but selfish caprice, prevent control and restraint from stifling innovation and progress yet nurture and respect them when they are the best watchword, develop standards of taste which speak for themselves but which do not dictate to any man what he must see or hear or say? Is it not possible to have both the minority will and the majority will justly and fairly reflected in our customs, laws, and behavior?

The private foundation as a public trust must address itself to these questions, not because of any greater wisdom conferred upon it, but because in our contemporary society it is an agent for change whose influence and impartiality are difficult to match. It can operate free of the pressures which special interests apply to most man-made institutions. The public interest is the ultimate standard by which it is assessed. It is not, of course, free of human fallibility, shortsightedness, or poor judgment.

Recognition of the unusual circumstances and opportunities which characterize the private foundation does not answer the question of how its response to its circumstances and opportunities is best expressed in the support of efforts and ventures which seek results next week, or next month, or even next year, or in the support of programs and activities

whose results will not be plain or measurable for much longer periods of time. This is not an abstract question. In the foundation this is a daily practical matter. Choices must be made—between supporting a compensatory educational program for disadvantaged pre-school children and a research project in neurochemistry which could begin to unlock the mysteries of the neurological basis of infant and early childhood learning; between a program of fellowships for young scientists whose most productive years are still in the indefinite future and an ongoing research project by a distinguished investigator whose studies are threatened by the lack of an expensive piece of equipment; between a scholarship program for needy and deserving undergraduates and a desperately necessary classroom building in which to teach them. Moreover, many times it is not clear whether the hoped for results of a program or project are likely to be achieved immediately or years hence.

In facing these dilemmas the Sloan Foundation can learn a great deal by examining its past, but it must do much more than this, for the history of our present society is not a simple extension of what has gone before. From that past, however, we find evidence overwhelmingly in support of the importance of investing in people—people of promise and commitment. Equally importantly, we find it is possible to strike a reasonable balance between ventures whose objectives are to be achieved in the short term and those whose objectives are long range. At the same time that we reaffirm many of the Foundation's past concerns, we can modify and extend them in recognition of the radically changed nature of our times.

The evaluation of a foundation's program is properly a continuing one. The advent of a new administration in the Sloan Foundation, however, makes a period of examination and self-study particularly timely. A new administration brings a heightened expectancy, a special appropriateness to the questioning approach in all that we do or plan. At the same time, the consideration of grants while programs and policies are being developed and defined is a form of insurance against complete sterility and unreal abstraction in the formulation of the latter.

In broad terms it can be said that the Foundation's past concerns and presently developing interests are in three fields: science, education, and social problems. In each of these fields the Foundation will attempt to identify the most urgent needs and most promising opportunities, and indicate those which in its view are most consistent with the best use of the Foundation's resources.

We will strive to strike a balance between the immediate and the long range. We will not and can not look the other way in the face of the crises in our society. But neither will we abdicate the role the Foundation has played, particularly in science and education, in supporting enterprises

whose applications, even if predictable, are clearly to be made in the distant future. We are of course dealing with probabilities in such matters, probabilities assessed by fallible men. We *will* ask the question of probability. In some instances it will be a critical consideration; in others irrelevant.

The area represented by social problems is new, large, and confused. Until experience furnishes a more sure guide we will have to adopt an experimental approach. Our objective will be to learn more about the complications of the many problems encountered in urban affairs and to determine the most effective role the Foundation can play.

Our most serious limitation may well be the limitation of our financial resources. A most important source of counsel and wisdom will be the individuals who bring to our attention their own convictions, promising ideas, and visions of the future.

Nils Y. Wessell

December 31, 1968

1968: A Summary Report

1968 was a year of transition in which the Alfred P. Sloan Foundation completed a change in leadership, began an expansion of staff, and undertook an assessment of future prospects.

Everett Case, who had led the Foundation as President since 1962, retired during 1968 and was succeeded in the presidency on May 1 by Nils Y. Wessell, former president of Tufts University and of the Institute for Educational Development. Earlier in the year Frederic G. Donner had succeeded Devereux C. Josephs as Chairman of the Board; Mr. Josephs in turn having succeeded Alfred P. Sloan, Jr., as Chairman after the death of Mr. Sloan in 1966.

New Trustees

Two new members were elected to the Board of Trustees in 1968 and early 1969—John A. Perkins and Edwin D. Etherington. Mr. Perkins, Chairman of the Board of Dun & Bradstreet, Inc., and former president of the University of Delaware, joined the Board in July. Mr. Etherington, president of Wesleyan University and former president of the American Stock Exchange, was elected in January of 1969.

Arnold J. Zurcher, an associate of Mr. Sloan during the Foundation's formative years, retired October 31, 1968 as Vice President and Trustee after 23 years of service to the Foundation; he remains an active consultant. Robert N. Kreidler, who joined the Foundation staff in 1962 and was elected a Vice President in 1965, was elected Executive Vice President in October, 1968 with general responsibilities in all areas of Foundation interest.

The Foundation also obtained during 1968 the services of three special

JOHN A. PERKINS

EDWIN D. ETHERINGTON

consultants. One of them, Arthur L. Singer, Jr. became a member of the staff late in 1968 and was elected a Vice President of the Foundation by the Trustees in January of 1969. Mr. Singer is a former president of Educational Services, Inc. (now Education Development Center, Inc.) and a former executive associate with the Carnegie Corporation of New York.

Robert K. Hage, director of financial aid at Dartmouth College, joined the Foundation as a consultant on a year's leave of absence to counsel a group of predominantly Negro colleges on admissions and financial aid procedures. Stephen White, who has served as director of special projects at The Salk Institute and assistant to the chairman of the Carnegie Commission on Public Television, among other assignments, joined the Foundation as a consultant on a half-time basis; he will continue to serve The Salk Institute while carrying out special assignments for the Foundation.

A Search for New Opportunities

The Foundation's expanding staff will be occupied not only with the usual grant-making activities but also in special studies designed to identify some of the most pressing new needs of society and to suggest the Foundation's future posture toward them. Trustees of the Foundation have requested the officers and staff to survey the range of emerging opportunities for philanthropy and to submit recommendations concerning those which seem appropriate objects of Sloan Foundation interest. This process was going forward at the close of 1968.

Grants approved during 1968 fell largely within those areas with which the Foundation has been identified in recent years and included the areas of science, engineering, and technology; education (principally higher education), and extending equality of opportunity. The Foundation's historical interests in economics and management, and in certain aspects of medicine with particular emphasis on cancer research, also were reflected in 1968.

ARNOLD J. ZURCHER

ROBERT N. KREIDLER

ARTHUR L. SINGER, JR.

The Foundation continued to leave to others the necessary support of the creative and performing arts, religion, international activities, the humanities as such, and community welfare activities.

The flow of requests for grants continued at a high level, particularly in the area of scientific research and education where reductions in federal expenditures have created a shortage of funds. The Foundation, given its limited resources, could not possibly fill the void created by federal cutbacks, and was obliged to decline such requests.

Grants and Income

Grants authorized and expenses during 1968 came to a total of $10,022,197 in comparison to $14,411,879 in 1967. For the first time in a number of years, income primarily from dividends and interest exceeded grants authorized and expenses, by a figure of $3,679,726. This is in contrast to 1967, when grants and expenses were $1,728,494 in excess of income. Over the Foundation's thirty-four year history, the cumulative excess of grants and expenses over income has amounted to $39,466,660.

The Foundation's assets increased in 1968 to a total of $329,499,475 at quoted market value at the close of the year. Assets at the close of 1967 totalled $326,632,706.

Cash expenditures were $16,612,733 in 1968, compared with $17,969,283 in 1967. The excess of cash expenditures over income was $2,910,810 in 1968 which compares with $5,285,898 in 1967.

In the text of the Report for 1968 all major grants and program appropriations approved by Trustees are described in detail. Representative examples of smaller grants are also provided. All grants not otherwise mentioned are included in a section on *Other Grants*, and amounts committed and paid to each grantee, as well as comprehensive information on income, assets, and investments, are presented in the *Financial Review*.

Science
Technology
Engineering

ORDERLY growth of the scientific enterprise is essential if science and its adjuncts, technology and engineering, are to make their fullest contribution to human welfare. It takes time to develop institutions and individuals capable of advancing science in significant ways; reliability and flexibility of support, while it may not guarantee institutional and individual growth in science, at least makes such growth more possible and even more probable. It also takes time to develop in society, and in the scientific community itself, an appreciation of the appropriate role of science in society.

A private foundation of limited means cannot by itself assure the over-all and orderly growth of science, technology, and engineering; nor can it assure their full appreciation by, and rational integration into, the surrounding society and culture. What it *can* do is to focus its resources on a few points in these processes which seem to be strategic.

Institutions and Individuals

The wider use of mathematics continues to seem one of the more promising, if not inevitable, trends of development in the sciences. The contributions of mathematics to the physical sciences and engineering are well known; now the life sciences, so recently revolutionized through

applications of physics and chemistry, are beginning to find in mathematics an instrument for further progress in understanding the basic biological principles of life.

Mathematical Biology at Chicago

The University of Chicago recently committed itself to expanding and strengthening its existing Committee on Mathematical Biology, probably the oldest group working in this highly interdisciplinary field. Under the leadership of the Committee's new chairman, Prof. Jack D. Cowan, and with the active participation of Prof. Richard Lewontin, associate dean for basic science of Chicago's Division of Biological Sciences, the University set out to double the number of faculty members having primary appointments in mathematical biology, and to provide the necessary supporting funds for fellowships, research, and facilities. The Sloan Foundation contributed $400,000, payable over two years, to this undertaking.

Professor Cowan is assembling a group of young scientists skilled in mathematics, many of whom hold joint appointments in various science departments of the University. Among them are a physicist, a chemist,

Prof. Jack D. Cowan (foreground), head of the Committee on Mathematical Biology, with Dr. Leon O. Jacobson, Dean of the Division of Biological Sciences and The Pritzker School of Medicine, University of Chicago.

an information scientist, two biostatisticians, and of course several biologists. Scientists from other disciplines are being sought.

Strengthening Biological Theory

The group's primary interests lie in the fundamental principles of biological organization. Its approach to biology is theoretical and quantitative, with emphasis on the development of predictive theories which can be tested experimentally. Theory, moreover, is not divorced from experiment; the group is active in both. Within the broad field of biology it focuses on neurobiology, population biology, developmental biology and morphogenesis, and biological control and rhythms. Biomedical computation, cybernetics, and applications of probability and statistics to biology also are studied and taught.

Thus mathematics may help to bring to biological theory, in the words of one member of the Chicago group, "precision, power, compactness, communicability, and elegance." In a broader context, efforts like those at Chicago may help to stimulate the interdisciplinary cooperation through which the compartmentalization of science into unrelated specialties can be overcome, leading conceivably to a new unity of science and to its more effective use in the service of man.

Mathematics can make its fullest contribution to the natural sciences only as it remains in contact with them and as an adequate supply of teachers of advanced mathematics is available. The former condition has been a cause of some concern in recent years, and a number of Sloan grants have gone to institutions which are seeking to achieve and maintain a balanced development of mathematics, including not only the more abstract aspects of pure mathematics, but also the stimulating contacts of mathematics with a wide variety of problems in the physical and other sciences. Among such institutions have been Brown University, the University of Rochester, and the Courant Institute of Mathematical Sciences at New York University.

Applications of Mathematics

The Courant Institute first received Sloan Foundation support in 1961, and during the following five years more than $3 million was paid to the Institute for both capital and operating costs. During that period the Institute was able to expand and consolidate its standing as one of the world's leading centers of teaching and research in applied mathematics. Its ambitious expansion, however, threatened to outrun the resources which the Sloan Foundation and other sources, principally the federal government, had made available. Yet the demand for its services, as for the services of all mathematics, continued to grow. Mathematics having become indispensable in most areas of science and technology, as well as in business, government, and other areas of society, the nation faces a serious problem in keeping up with the growing need for trained mathematicians and teachers of mathematics, as a recent report by a committee of

the National Academy of Sciences makes clear.* A parallel need is for the maintenance of active and vigorous research efforts, particularly in those areas where mathematics is in vital interaction with other fields of science.

On both counts—teaching and research—preservation and further strengthening of the Courant Institute's leadership seemed essential to the Sloan Foundation. A new grant of $600,000, payable over a five-year period, therefore was approved in 1968. These funds were designated for use in the Institute's program of predoctoral fellowships, through which relatively large numbers of mathematicians are trained at the doctoral level; and for its postdoctoral Visiting Membership Program, which provides internship training for brilliant young mathematicians who desire to specialize in applied mathematics.

The Foundation also provided $10,000 toward expenses of the Courant Institute's Governing Council, which assists the Institute in a broadly advisory and supportive capacity.

Growth in Science at Emory

Growing strength in the physical sciences and mathematics has been demonstrated in recent years by an institution which has been more noted for its emphasis on the biological and medical sciences, Emory University in Atlanta. Over the four years from 1964 to 1968, Emory has nearly doubled the instructional budgets of its departments of physics, chemistry, geology, and mathematics; full-time faculty in these departments has grown by 30 per cent, undergraduate majors more than 40 per cent, and graduate students nearly 100 per cent.

Emory's intention to maintain this rate of growth in the physical sciences and mathematics is indicated by its plans to expend an additional $5 million for construction and renovation, and about $2 million for new special equipment in these fields. At the same time its annual expenditures for faculty and staff will increase by about $500,000. To assist Emory in maintaining this momentum, the Foundation granted $250,000, payable over a two-year period. The University plans to use the funds to add three new faculty members in chemistry and physics, to support summer research by young faculty members and summer research and teaching by undergraduate and graduate students, and to purchase equipment. Thus Emory may come to occupy a significant place of

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* *The Mathematical Sciences: A Report.* Prepared by the Committee on Support of Research in the Mathematical Sciences for the Committee on Science and Public Policy of the National Academy of Sciences. Publication 1681 of the National Academy of Sciences. (Preparation of this report was assisted by a grant of $12,000 from the Alfred P. Sloan Foundation in 1966.)

A science student conducts an experiment in a laboratory at Emory University, Atlanta. Emory is strengthening its position in physics, chemistry, geology, and mathematics with the aid of a Sloan grant.

leadership in the physical sciences and mathematics among the private universities of the Southeast.

Single Cells: A Source of Protein

It is generally accepted that scientific progress contributes to human progress, but the connection between the two is not always clear. In the pervasive world problem of protein malnutrition it has seemed for some time that science and technology might provide a partial solution through the large-scale growing of certain yeasts, bacteria, and other protein-rich microorganisms upon substrates of carbohydrates, petroleum hydrocarbons, and various waste materials such as the sulfite liquor of the paper industry. Advantages of this process, if it could be perfected, are that it requires no agricultural land; it avoids the relatively high costs of raising animals as protein sources; and, in many of the world's less developed countries it could use existing oil-refinery technology. A considerable amount of research and development into these "single cell proteins" has been conducted in the Western world, principally by petroleum companies, as well as in the Soviet Union and the Far East. But the "breakthrough" which could make single cell protein a significant addition to the hard-pressed world food supply has not occurred.

A Problem: Uric Acid

A group of scientists at the Massachusetts Institute of Technology is now undertaking a multidisciplinary program of research to define the fundamental problems standing in the way of widespread use of single cell protein, and to suggest practical ways of resolving them. For this purpose the program initially will enlist the talents of MIT researchers from the fields of biochemical engineering, food engineering, food processing, nutritional biochemistry, and nutritional animal pathology. The research will be carried out in MIT's Department of Nutrition and Food Science under the general direction of the department's head, Dr. Nevin S. Scrimshaw. The program is being supported in part by a grant of $400,000 from the Sloan Foundation, payable over a two-year period, and in part by industry.

While single cell protein already is being factory-produced for use in animal feed in the Soviet Union, its eventual incorporation into human diet calls for more detailed studies of its nutritional characteristics, safety, palatability, and acceptability. In limited human trials thus far, consumption of the protein has been associated with elevated blood levels of uric acid which could, in individuals of certain genetic makeups, lead to gouty arthritis and the formation of uric acid kidney stones. Further clinical trials are planned, along with basic biochemical studies to determine how the protein content and amino acid patterns of the microorganisms can be controlled by varying the conditions under which they are grown. Studies also will take account of cost factors involved in making single cell protein competitive with other sources of low-cost protein.

At a later stage MIT expects to take up problems of production, marketing, and distribution of single cell protein, through its Alfred P. Sloan School of Management. Economic, political, and cultural questions involved in the introduction of this kind of protein into less developed countries also will be studied. Thus the combined resources of basic science, technology, engineering, management, international studies, and hopefully industry may yield some progress on the hitherto intractable problem of how to feed the world's multiplying millions.

Fellowships to Advance Basic Research

In a world which looks increasingly to science and technology for solutions to its growing problems, it is all too easy to lose sight of the values of basic research, which are largely abstract and long-term. Yet without the fundamental store of knowledge acquired through undirected basic research, society and the world would be ill-equipped to cope with many of the crises and emergencies that arise.

In 1955 the Sloan Foundation decided that it could best contribute to strengthening the nation's capacity for basic research through a program of largely unrestricted fellowships to young faculty scientists selected for their promise of unusual creativity in research. The Program for Basic

Research in the Physical Sciences since that time has assisted 669 young physical scientists and mathematicians in establishing themselves in their professions. The aggregate 14-year outlay by the Foundation for this program has been some $15,000,000; the rate of expenditure currently is about $1,400,000 a year. During 1968 these two-year Sloan Research Fellowships were awarded to 73 scientists on the faculties of 41 universities and colleges. Their average two-year stipend is $17,500.*

Cultivating Creativity

In making its initial determination of where to apply financial support so as to gain maximum leverage through this Program, the Foundation made several policy judgments which continue to govern the Program and its administration. Support of institutions and science departments (while not ruled out in other areas of the Foundation's activities) was deemed less important in this context than support of outstandingly creative individuals who were just embarking on faculty careers in basic research. Such individuals, carefully identified and selected, seemed to offer the greatest promise of return on the limited funds which the Foundation could commit to this purpose. Moreover, in order to assure the conditions for maximum creativity and productivity, such individuals once selected were given complete freedom to study anything that interested them and even to shift their subjects of research radically during the course of the Foundation grant. Their fields of interest when selected were known to the Foundation and its advisors, of course, but nothing in the way of a proposal for a research *project* was expected or desired. The primary consideration was the judgment of senior colleagues that candidates for fellowships possessed unusual and even extraordinary powers of imagination, insight, and skill in the conduct of basic research.

Certain limitations were placed upon the Program, largely for administrative reasons. Direct applications for fellowships are not entertained; a candidate must be nominated by a senior colleague, often the chairman of his department, for a Fellowship. While there is no formal limit on age, nearly all who have received Fellowships in recent years have been between the ages of 24 and 33, with an average age of 29. Candidates must be regular faculty members at recognized colleges or universities in the United States or Canada (nationals of other countries are eligible if they are on faculties of such institutions). The Program continues to be limited to the fields of physics, chemistry, mathematics, and certain interdisciplinary fields such as geochemistry and astrophysics.

That the Program has been successful, within the above framework, in identifying and giving early assistance to many young scientists of great future distinction is due largely to the work of its Program Committee. A rotating group of two physicists, two chemists, and two mathematicians, the Program Committee bears the major responsibility for advising the Foundation and the Program administrator, Dr. Larkin H. Farinholt, on selection of Sloan Research Fellows. It annually reviews some 500 nominations from which the final selections of some 75 to 85 recipients are made—a difficult task in view of the generally high quality of nominations received. The Committee also recommends the amount of the stipend for each Sloan Research Fellow.

The Process of Selection

Members of the Program Committee in 1968 were Dr. Franklin A. Long, Chairman, vice president for research and advanced studies and professor of chemistry, Cornell University; Dr. Lipman Bers, professor of mathematics, New York University; Dr. R. H. Bing, professor of mathematics, University of Wisconsin; Dr. E. J. Corey, professor of chemistry, Harvard University; Dr. Robert E. Marshak, professor of physics, University of Rochester, and Dr. Alfred O. C. Nier, professor of physics, University of Minnesota.

Scientists who received Sloan Research Fellowships in 1968 are the following:

UNIVERSITY OF ARKANSAS
Chemistry: Richard N. Porter
BROWN UNIVERSITY
Physics: Gerald S. Guralnik
CALIFORNIA INSTITUTE OF TECHNOLOGY
Chemistry: Jesse L. Beauchamp. *Geochemistry:* Donald S. Burnett. *Astrophysics:* Peter Goldreich, Wallace L. W. Sargent
UNIVERSITY OF CALIFORNIA, Berkeley
Chemistry: C. Bradley Moore. *Mathematics:* Saul Lubkin, Wilfried Schmid, Wu-yi Hsiang
UNIVERSITY OF CALIFORNIA, Irvine
Physics: Douglas L. Mills, William H. Parker
UNIVERSITY OF CALIFORNIA, Los Angeles
Physics: Ernest S. Abers, Charles F. Kennel. *Mathematics:* David G. Cantor
CARLETON UNIVERSITY
Chemistry: Cooper H. Langford
UNIVERSITY OF CHICAGO
Chemistry: Emil T. Kaiser, Leonard Kaplan. *Physics:* Ian Lerche
COLUMBIA UNIVERSITY
Chemistry: George W. Flynn, Stephen J. Lippard. *Mathematics:* Steven L. Kleiman
CORNELL UNIVERSITY
Physics: Bruce W. Maxfield. *Mathematics:* David W. Henderson. *Mathematical Statistics:* Lawrence D. Brown
DARTMOUTH COLLEGE
Chemistry: David M. Lemal
EMORY UNIVERSITY
Chemistry: J. William Moncrief
FLORIDA STATE UNIVERSITY
Physics: Donald Robson
HARVARD UNIVERSITY
Chemistry: Melvyn R. Churchill, Alvin L. Kwiram. *Physics:* Arthur M. Jaffe. *Meteorology and Applied Mathematics:* Peter H. Stone

* The Program for Basic Research in the Physical Sciences is the subject of a special booklet published by the Foundation in 1968. The booklet is available from the Foundation upon request.

UNIVERSITY OF ILLINOIS
Chemistry: Iain C. Paul. *Physics:* Jack M. Mochel, Jeremiah D. Sullivan. *Mathematics:* Frank B. Knight
INDIANA UNIVERSITY
Chemistry: Eugene H. Cordes, Jack K. Crandall. *Physics:* Homer A. Neal
IOWA STATE UNIVERSITY
Chemistry: James H. Espenson
JOHNS HOPKINS UNIVERSITY
Chemistry: Dwaine O. Cowan, John P. Doering
LOUISIANA STATE UNIVERSITY
Chemistry: Neil R. Kestner
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Chemistry: Daniel S. Kemp, Robert J. Silbey. *Physics:* Ira S. Gerstein. *Mathematics:* Harold M. Stark
MICHIGAN STATE UNIVERSITY
Chemistry: Peter J. Wagner
UNIVERSITY OF MICHIGAN
Mathematics: Ronald G. Douglas
CITY UNIVERSITY OF NEW YORK
Mathematics: F. William Lawvere
STATE UNIVERSITY OF NEW YORK AT ALBANY
Chemistry: William D. Closson
STATE UNIVERSITY OF NEW YORK AT BUFFALO
Chemistry: Albert Padwa
STATE UNIVERSITY OF NEW YORK AT STONY BROOK
Physics: Paul D. Grannis
UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
Chemistry: Royce W. Murray
NORTHWESTERN UNIVERSITY
Chemistry: Joseph B. Lambert
UNIVERSITY OF NOTRE DAME
Chemistry: Gerhard Binsch
UNIVERSITY OF OREGON
Physics: Gerald D. Mahan
PENNSYLVANIA STATE UNIVERSITY
Chemistry: Stephen J. Benkovic
UNIVERSITY OF PENNSYLVANIA
Physics: M. Anthony Jensen
PRINCETON UNIVERSITY
Mathematics: Frederick J. Almgren, Jr. *Astrophysics:* Philip J. E. Peebles
UNIVERSITY OF PUERTO RICO
Chemistry: Waldemar Adam
UNIVERSITY OF SOUTHERN CALIFORNIA
Chemistry: Philip J. Stephens
STANFORD UNIVERSITY
Chemistry: John I. Brauman. *Physics:* Alexander L. Fetter, Stanley G. Wojcicki
UNIVERSITY OF UTAH
Chemistry: Jean H. Futrell
UNIVERSITY OF VIRGINIA
Mathematics: Kevin M. McCrimmon, Robert E. Stong
UNIVERSITY OF WASHINGTON
Astrophysics: James M. Bardeen
UNIVERSITY OF WISCONSIN AT MADISON
Chemistry: Stephen F. Nelsen. *Physics:* David B. Cline
YALE UNIVERSITY
Geochemistry: Robert A. Berner

As the demand for trained and qualified personnel expands, it is important that an increasing number of future scientists, mathematicians, and engineers receive suitable preparation at the undergraduate college level; it is also important that an increasing number and diversity of undergraduate institutions and their students have an opportunity to participate in those dynamic developments of our time which are based on science. Such considerations moved the Foundation in 1966 to mount a College Science Program designed to strengthen and preserve science as a vital element in the educational programs of 20 four-year liberal arts colleges.

A Stimulus to Science in Colleges

At about the same time, a movement with somewhat the same goals was taking form among a number of public and private universities of the South. The outcome of this movement was the Center for Research in College Instruction of Science and Mathematics (CRICISAM), made up of 13 member universities and based at Florida State University. The goal of this consortium is the improvement of science and mathematics teaching at a number of small colleges (including some junior and predominantly Negro colleges) throughout the Southeastern region. In its first two years, CRICISAM was able to design a number of imaginative projects toward this end, and to obtain federal and other financing for some of them. One especially interesting project, for which federal funding was being sought, was a program to revitalize physics instruction at 20 small colleges in Virginia and the Carolinas. The consortium also had projects under development or already under way on a computer-assisted sequence in calculus and on the use of computer-assisted instruction and short "single concept" films for teaching sophomore physics laboratories. Interdisciplinary cooperation was emphasized in this development of new materials and techniques of instruction in science and mathematics for undergraduates.

While CRICISAM thus was off to a promising start, it lacked operating funds to stay in business until expected increases in dues income from an expanded membership and in overhead payments on projects began to come in. The Sloan Foundation made a grant of $100,000 to help sustain CRICISAM over the next two years, in the belief that its work could have not only a regional but a national impact on the teaching of undergraduate science and mathematics. The grant was paid to Florida State University as the host institution of CRICISAM. A Florida State physicist long interested in college-level science instruction, Dr. Guenter Schwarz, is director of CRICISAM.

Chemistry Sharpens Its Focus

Among smaller grants for science in 1968, two were made to assist in the purchase of nuclear magnetic resonance spectrometers, one at St. Louis University and the other to be shared by a group of research institutions in New York City. The latter instrument, one of only three of its high resolution in the country, will be housed at The Rockefeller University; the grantee was New York Medical College. Nuclear magnetic resonance has made possible the improved study by chemists of large and structurally complex molecules such as nucleic acids, proteins, steroids, and other naturally occurring products.

Another small grant was made to Elmhurst College, in Elmhurst, Illinois, to enable it to install a small linear accelerator which had been donated by the University of Chicago. This is the "Kevatron" accelerator,

designed and used by Dr. Samuel Allison, the first director of the Enrico Fermi Institute of Nuclear Studies at the University of Chicago. Of particular interest in this project is the fact that about a dozen other small colleges in the area will have access to the accelerator at Elmhurst.

Physics at Aspen

An unusual institution which has demonstrated its value to physics since its founding in 1962 is the Physics Division of the Aspen Institute for Humanistic Studies at Aspen, Colorado. Here a number of physicists gather each summer to pursue their own research undistracted, to exchange ideas with colleagues, and to discuss contemporary issues with humanists, social scientists, and business and government leaders at the Aspen Institute. The Sloan Foundation has made small grants to aid the operation of the Physics Division for the past three years. In 1968 the Physics Division was reconstituted as the Aspen Center for Physics, and the Foundation made a grant of $20,000 to assist in this transition.

A major international conference on astrophysics, the Harvard-Smithsonian Conference on Stellar Atmospheres, received a small grant to enable a number of foreign scientists to attend. The conference was held in April of 1968 under the sponsorship of the Harvard College Observatory and the Smithsonian Astrophysical Observatory.

Science and Society

Because many issues of the day—air and water pollution, pesticides and herbicides, the siting of nuclear power plants—hinge on questions of science and technology, it is important that a source of factual scientific information on such matters be available to the interested lay public. The magazine *Scientist and Citizen* has been endeavoring to fill this need while laboring under severe limitations of financing and staff. The Foundation in 1966 gave $20,000 to help sustain this publication while a study of needed steps toward its expansion and improvement was being made. Further support of $50,000 was extended in 1968 to help implement the recommendations of the study. The American Conservation Association provided an equal amount.

Man's Threatened Environment

Initially titled *Nuclear Information, Scientist and Citizen* is now concerned with all threats to the environment from whatever source. Its sponsoring organization, originally the Greater St. Louis Citizen's Committee for Nuclear Information, is now the Committee for Environmental Information.

Limited support also was renewed for two programs which approach the problem of communication of scientific information from differing perspectives. The University of Missouri School of Journalism received a third grant for its graduate program which trains communicators of science to the general public. The Rockefeller University was given

renewed support for workshops on the teaching of scientific writing *for scientists*, as part of an effort to improve communication within the scientific community.

Among past beneficiaries of the Foundation's interest in the general area of public understanding of science have been the Council for the Advancement of Science Writing, the Graduate Science Writing Program of the Columbia University School of Journalism, and the Scientists' Institute for Public Information, a national organization of scientists which has adopted *Scientist and Citizen* as its official publication. All of these past grantees are now independent of regular support from the Sloan Foundation.

While *Scientist and Citizen* endeavors to build a wider audience for its published analyses of environmental issues, Educational Station WGBH-TV of Boston will seek to stimulate greater awareness of problems of environmental conservation in both school children and adults through the medium of television. A series of films and associated teaching materials on conservation will be produced for distribution to schools and educational television stations nationally. The first phase of the series will focus, for the sake of immediacy, on ecological questions in the cities and suburbs, where most of the potential audience lives. Half the cost of the first phase, which exceeds $300,000, is being borne by the federal Department of Housing and Urban Development, the remainder being provided by various private sources including the Sloan Foundation, which contributed $20,000.

Science and Public Policy Studies

Conservation is one of many areas in which the conduct of science and technology and the making of public policy interact, each having effects upon the other. In recent years the interrelationships of science and public policy have become a subject of teaching, research, or both, at some 40 universities in the United States; other universities are interested in starting such programs. The field is not yet well defined, however, and it was not until December of 1967, at the annual meeting of the American Association for the Advancement of Science, that a substantial proportion of those directly involved in it were assembled for the first time in one place. There it was agreed that establishment of a center for exchange of information and ideas about studies in science and public policy should be explored. Subsequently a Science and Public Policy Studies Group was formed, with financial support from about a dozen universities and with a $10,000 grant from the Sloan Foundation. For the time being the Group will be housed at the Massachusetts Institute of Technology, under the chairmanship of Prof. Eugene B. Skolnikoff, head of MIT's program in science and public policy. It will facilitate communication among scholars, universities, and government officials

interested in the development of teaching and research in science and public policy, and in the application of science and technology to decision-making in government, universities, and industry.

Engineering

Among the earliest evidences of the Foundation's interest in furthering engineering education was a grant of $100,000 in 1953 to provide some basic facilities for engineering at Tuskegee Institute in Alabama. Fifteen years later, the Foundation found that engineering at Tuskegee had advanced sufficiently that further encouragement was warranted. A grant of $350,000, payable over two years, therefore was approved, to be devoted partly to construction of a new engineering building and partly to the employment of additional faculty.

Tuskegee's engineering program in recent years has been completely reorganized under Dean Z. W. Dybczak. The number and ability of students have increased markedly, and the enthusiasm of the expanded faculty for both teaching and research is high. An increasing number of students are continuing their education at graduate schools of engineering elsewhere. A further consideration which cannot be ignored is that Tuskegee is the only private, predominantly Negro institution in the South having an accredited program in engineering.

Engineers Organize for Service

The stature of the engineering profession and its organized capacity to contribute to the solution of national and international problems have been enhanced over the past three years by the National Academy of Engineering, which was created by the National Academy of Sciences and which shares quarters in Washington, D.C. with the older Academy. The Sloan Foundation granted $100,000 in 1965 to help in the initial operations of the National Academy of Engineering. Since that time the engineers' group has developed a structure of committees which are delving into such subjects as the "technological gap," housing and urban technology, civilian air transport, ocean engineering, and the interaction of engineering with biology and medicine. Like the National Academy of Sciences, the National Academy of Engineering responds to requests from government and other agencies for advice on problems within its field, and also conducts studies on its own initiative.

The two academies have been planning for some time an addition to their headquarters on Constitution Avenue in Washington which would provide space both for their expanding operations and for national and international meetings of scientific and engineering organizations. By 1968 these plans had reached the stage of realization and the Foundation, in keeping with an earlier pledge to the National Academy of Engineering, provided $400,000 for this purpose.

An Equal Start

FULFILLMENT of the principle of equality of opportunity remains high on society's list of unfinished business, as some of the events of 1968 made all too clear. While this principle has yet to be fully realized, it implies a continuing and forceful commitment to the reduction of artificial and externally imposed inequalities—to an equal start for all in the quest for available rewards. This the larger society has not yet learned to provide for its less-favored components, including its black minority.

Black leaders and black institutions showed an increasing tendency to take this problem out of the hands of the larger society in 1968. Increasing pride, a growing impatience with dependent status, and a rising insistence on assuming responsibility for their own futures characterized the mood of a significant part of the nation's Negro citizens. The trend seemed, on balance, a hopeful one.

The South's Colleges for Negroes

Significant black institutions have existed for at least a century, in the form of predominantly Negro colleges, principally in the South. The Sloan Foundation became interested in some of these institutions in the early 1950s. Events during 1968, some of them regrettable, projected the Negro colleges into the public consciousness perhaps more fully than ever before.

Pending eventual fulfillment of the ideal of desegregation of all insti-

tutions, a unique interim role seemed open to the predominantly Negro colleges. The special educational services which they could offer to their special constituency became of increasing interest. For students who had been deprived of an equal start, they could provide a "catch-up" opportunity in a hospitable setting. This the Alfred P. Sloan Foundation has supported, along with four-year college scholarships for qualifying students, through the Alfred P. Sloan Opportunity Awards inaugurated in 1965. This small and experimental pilot program is now in its terminal phase, as federal funds have come to dominate this field, largely through the Upward Bound program. It has demonstrated, the Foundation believes, that promising scholars are being overlooked through the usual testing and selection procedures, and that they can be identified by means of special efforts among "under-achievers" of high school age.

Improving Student Aid Procedures

Institutions as well as individuals can be victims of an unequal start. Most of today's predominantly Negro colleges have suffered from the effects of both poverty and segregation since their beginnings. Experience with the ten colleges in the Alfred P. Sloan Opportunity Awards demonstrated, for example, that major improvements were possible in the colleges' recruiting and admissions practices, and in the ways they assisted needy students financially. The Foundation therefore, while phasing out the Opportunity Awards program, obtained the services for one year of Robert K. Hage, director of financial aid at Dartmouth College, to consult with the ten colleges about their admissions and financial aid procedures. These matters are particularly crucial in the Negro colleges, because nearly all of their students warrant some form of financial aid. Through personal visits and through seminars and workshops for the college personnel involved, Mr. Hage is bringing expert technical assistance to bear on the colleges' special problems in selecting students for admission and for aid. He also is enlisting the interest of other agencies, private and governmental, in this matter. One of these agencies, the College Entrance Examination Board, received a Foundation grant of $3,000 to support a special committee to draw up guidelines for admissions and financial aid procedures for the 36 member colleges of the United Negro College Fund. A grant of $15,000 also was made for general support of the United Negro College Fund.

In the broader field of institutional development, there is increasing evidence of wider interest in ways of strengthening black colleges. The Sloan Foundation and the Phelps-Stokes Fund in 1965 brought together a group of 23 predominantly Negro colleges to cooperate in strengthening their individual capacities for obtaining funds for development. The membership of this Cooperative College Development Program (CCDP) was expanded to 30 colleges in 1967, and 15 other colleges joined a

parallel, federally-supported program. In 1968 the National Association of State Universities and Land Grant Colleges (NASULGC) moved to establish a similar cooperative development program for a group of public, predominantly Negro colleges, and the Sloan Foundation granted $13,000 for an initial summer conference for discussion and planning of this program. It will be sponsored by the Office for Advancement of Public Negro Colleges of NASULGC, which is based in Atlanta and is directed by Dr. Herman B. Smith, Jr., former director of development at Knoxville College. It is expected that the staff of the Cooperative College Development Program will manage development workshops and seminars for the new group of colleges.

CCDP: A Challenge Being Met

The 30 members of the Sloan-assisted CCDP continued to demonstrate growing strength in development work during 1968. Late in 1967 each of these colleges was offered an opportunity to obtain $30,000 in matching funds over a two-year period. During the first six months of that period the colleges claimed more than two thirds of the $900,000 available to them in this manner. Ten of them matched the full $30,000 in the first six months. The Foundation matches funds obtained from alumni dollar for dollar; contributions from private sources in the colleges' states and localities are matched one dollar for two dollars. An additional $100,000 will be divided among the four colleges judged to have been most outstanding in four specific categories of development effort.

CCDP and other programs to strengthen predominantly Negro colleges have placed increasing demands on the facilities and resources of a conference center at Capahosic, Virginia, operated by the Robert R. Moton Memorial Foundation. The Sloan Foundation in 1968 contributed $10,000 toward the provision of additional conference space and necessary equipment at the Capahosic center.

Physicians for the Negro Community

An essential factor in the advancement of the Negro community is the availability of trained Negro professionals, particularly in such fields as medicine. The shortage of Negro physicians has had damaging effects on the health of the black population generally. National Medical Fellowships, Inc., has worked for a decade to overcome this shortage, principally by offering financial assistance to young Negroes who seek careers in medicine. A scarcity of qualified applicants restricted the program somewhat in its early years; but in 1968, for the first time, the organization reported that it had more able candidates than it could support. The Sloan Foundation accordingly increased its annual support of this program to $120,000 (a increase of $20,000) to permit a rise in the number of National Medical-Sloan Foundation Scholarships from 10 to 12. Part of these funds also are used for small grants-in-aid to non-scholarship Negro medical students who

are in need. The Foundation's latest allocation will bring to 110 the number of black students who have entered leading medical schools with the aid of Sloan-National Medical Fellowships in the 10 years beginning in 1960.

Expanding Professional Opportunities

There is increasing interest among medical schools in recruiting and training black students, and this interest is paralleled in institutions serving other professions. During 1968 a large number of proposals of this general nature reached the Foundation. Only a small number of such requests could be accommodated, and the amounts provided were modest. Among the projects which received support was Roosevelt University's program called Business Occupational Opportunities Scholarship Trainees (BOOST). In cooperation with Chicago-area businesses, the program works to convince disadvantaged students that careers in business are open to them; it subsidizes their undergraduate education, provides extra counseling and tutorial help where needed, and arranges for summer and later full-time employment in business. Roosevelt hopes to expand this program to a level of 50 trainees in three years; the Sloan Foundation granted $12,000 in partial support of this enlarged pilot project, which may serve as a model for similar programs in other urban universities.

Another project which aroused the Foundation's interest was a program to increase the participation of minority group members in the planning and design of the urban environment. The College of Environmental Design of the University of California at Berkeley proposed to recruit and train professionals from the black and Mexican-American communities in the skills of planning and architecture, and moreover to focus the interest of all its students and faculty on the critical problems of the nation's poverty areas. Toward the latter end, it will enlist persons directly from the affected communities to serve as advisors and consultants on the problems being studied. For this purpose, and for tutorial help for the disadvantaged students, the Sloan Foundation granted $10,000.

Other imaginative proposals came from Cornell University, which is employing some of its Negro students during the summer to investigate ways of increasing employment of Negroes in industries in its area; and from Goddard College, which is starting a program of alternate work and study for minority youths, to determine which ones should apply for college admission and which should continue on jobs. The Foundation provided small amounts in partial support of both these programs. It also agreed to underwrite two fellowships at the University of Massachusetts for advanced study in the sciences by graduates of predominantly Negro colleges, and an internship for a young Negro in junior-college administration, arranged by the American Association of Junior Colleges.

Programs such as the above attempt to demonstrate ways of dealing with the observed inequality which prevails among the races; much research remains to be done on the hard facts of inequality as they pertain to individuals. At Princeton University, Dr. Sydney S. Spivak of the Department of Sociology is conducting an exhaustive study of the Negro college graduate—"his origins, work history, and current social and economic position." Negroes who graduated from college between 1930 and 1964 are being compared statistically with a matched sample of white college graduates, with results which may have a significant impact on future thinking about the meaning of an "equal start." The Sloan Foundation contributed $20,000, something less than 10 per cent of the cost of this large investigation.

The Negro College Graduate

In the continuing struggle for the reduction of inequalities, certain non-academic institutions have exercised important leadership and continue to do so. Among these are the National Urban League, the National Association for the Advancement of Colored People, and the NAACP Legal Defense and Educational Fund, all of which received continuing modest supporting grants from the Foundation in 1968. A new and already significant institution, the Urban Coalition, received a major grant of $200,000. While the Urban Coalition addresses itself to urban rather than to specifically racial problems, its impact on the latter seems certain to be considerable. Under the leadership of John W. Gardner, it seeks to knit together the efforts of business, labor, municipal, religious, and minority leaders to cope with what has been rightly described as the "urban crisis." Working through a growing array of local urban coalitions, the national Coalition disseminates productive ideas developed both locally and by its own national task forces on specific aspects of the urban problem. It conducts research and development on urban questions, and will operate a national education and information program to emphasize the need for action to come to grips with the critical social, economic, and governmental problems facing the nation's cities.

On a more limited scale, three other approaches to specific aspects of the problems of minority communities received support from the Foundation. One of these envisages an improvement of communications in the large Bedford-Stuyvesant community of Brooklyn, through creation of a cable television system to serve the area. For a feasibility study of this project the Foundation granted $20,000 to the Bedford-Stuyvesant Restoration Corporation, which is composed of residents working to revitalize the community.

Assistance to Minority Communities

In a low-income neighborhood of Detroit, a group of Wayne State University students in medicine and related professions has joined with residents of a large public housing project to create an unusual health care facility, the Jeffries Community Health Center. The goal is both to provide

better access to medical care for residents of the community, and also to instill in students "the sense of social responsibility which can be developed only as professionals work with and come to understand and respect the poor." Licensed physicians, nurses, pharmacists, social workers, and medical technologists work on a volunteer basis with students in those fields in the operation of the Center. Community residents manage the non-professional aspects of the Center. The Sloan Foundation provided $5,000 to Wayne State toward the initial funding of the Jeffries Center.

On an island off the coast of South Carolina, Penn Community Services, Inc., is expanding its program of training lay Negro leaders for rural communities of the South. Such leaders, after 15-week training sessions at Penn Center on St. Helena Island, Frogmore, South Carolina, typically return to their home communities with increased knowledge of how to direct public and private resources to individual and community needs, and how to involve residents in action to improve their communities. A number of foundations are supporting this program's operation. The Sloan Foundation contributed $10,000 toward the cost of new facilities to house the expanded program.

Who Shall Be Educated– and How?

THE educational system, its structure, and its purpose are in a period of re-examination and redefinition. The turbulence which necessarily accompanies this process is at times dismaying, but it also can be seen as evidence of opportunities to intervene at strategic points to influence the outcome of the process. Any foundation which is concerned with education must stay alert to such opportunities.

At the same time, it is not necessary or desirable to throw overboard time-tested values and aspirations. The ideal of the disciplined intelligence, developed through education, remains as valid as ever, and recent events on the campuses have served to emphasize this fact among others.

Assuming that education *is* a benefit, much time and thought were devoted in 1968 to methods of extending such benefits, and particularly those of higher education, more broadly and more evenly throughout the population in 1968. Some of these efforts are discussed in the section of this Report titled *An Equal Start*.

But the question "Who shall be educated?" transcends the question of equal justice for minorities, urgent though the latter is. Where once going to college was a matter of private choice, as Dr. Edward Sanders has pointed out, it now seems to have become a matter of public policy to encourage college enrollment in the service of such national purposes as improving economic growth, meeting manpower needs, and supporting

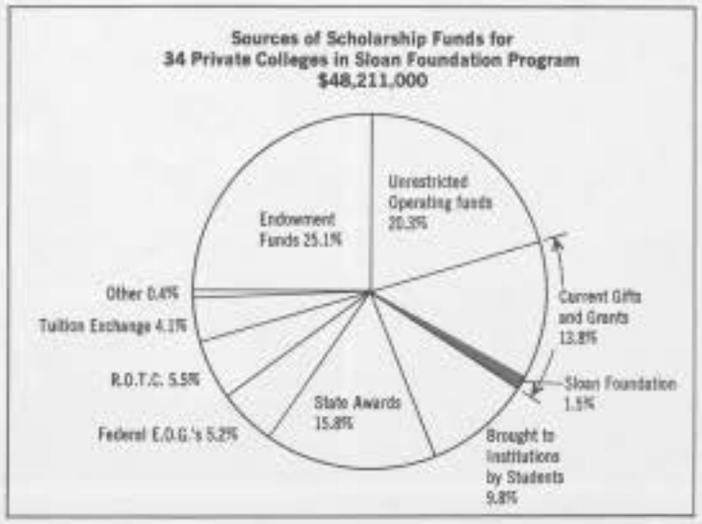
At an annual meeting of financial aid administrators from institutions in the Alfred P. Sloan National Scholarship Program, Dr. Edward Sanders discusses developments in the field. At his left is Thomas E. Ford, the Foundation's Director of Scholarships.

Maximum Enrollment—the Only Goal?

national defense. "We seem to be committed just short of compulsion to seeing a maximum enrollment of students in college, almost with no questions asked at the moment as to why they are there or what they are going to get," Dr. Sanders stated at a meeting in 1968 of financial aid officers from the 45 institutions in the Alfred P. Sloan National Scholarship Program.

Indeed, Dr. Sanders (who is vice president of the College Entrance Examination Board) discerns a developing national commitment to universal higher education, and he questions whether the nation can afford it in the immediate future in the light of other urgent claims on its finite resources.

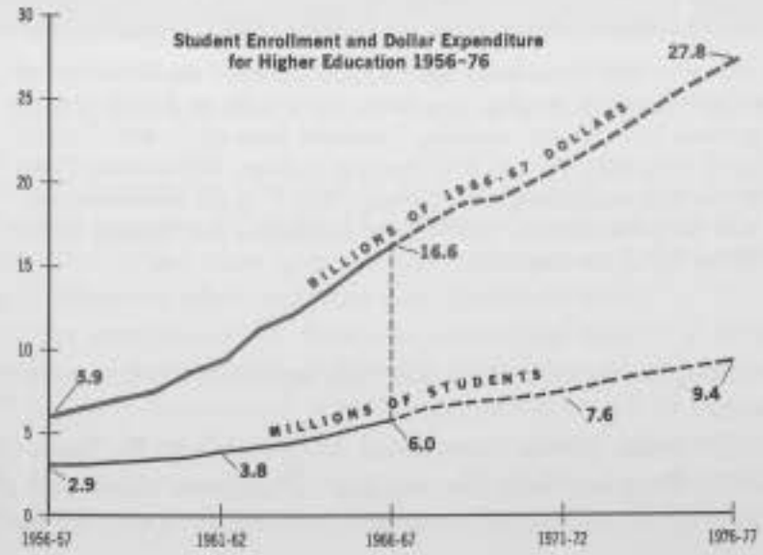
If the purpose of higher education is changing from a private to a public one, so also is the role of student financial aid. Where only a few years ago most financial aid programs were chiefly devices for raising the quality of student bodies, to continue with Dr. Sanders' reasoning, they now are becoming devices for equalizing educational opportunity and financing higher education. Considerations of national policy now attach

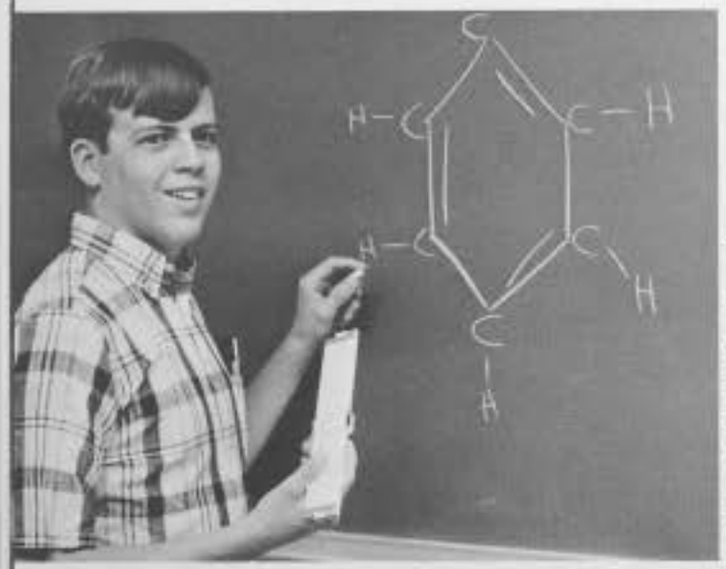


to the "pricing" of higher education and to the kinds of students who are encouraged to enroll.

The Federal Role Expands

As the national interest in higher education becomes increasingly clear and as the national government implements this interest with its own funds (which currently pay some 22 per cent of the cost of higher education), so the role of private foundation support may be changing. Interestingly, while many domestic programs have been curtailed because of the rising costs of the Vietnam war, federal undergraduate aid programs were not curtailed until late in 1968 and, in fact, received modest increases up to that time in order to keep somewhat abreast of increased enrollments. But American higher education continues to face the paradox that while its financial resources, including those for student aid, are increasing substan-





Some 600 young men are attending 45 colleges and universities with the assistance of Alfred P. Sloan National Scholarships ranging in amount from $200 to $2,600 a year. Among them are those pictured here who are attending (clockwise from upper left) Purdue University, the University of Minnesota, Purdue, and Davidson College. While many Sloan Scholars study natural science and engineering, others pursue careers in the humanities and the arts, law, medicine, and the social sciences. A full list of institutions participating in the Scholarship Program will be found on Page 35.

tially, these growing resources lag behind rapidly rising costs and increased enrollment.

At 34 of the private institutions in the Alfred P. Sloan National Scholarship Program, both the number of students aided and the total amount of aid of all kinds continued to increase in 1968. In the amount

of scholarship aid alone, there was a continuing increase, with an estimated $48 million awarded to some 38,300 students in 1967-68, for an average scholarship of $1,260 in the 34 colleges. But average tuition and fee costs were $1,860 and will exceed $2,000 in 1968-69. Some private institutions are beginning to worry that as student costs (in many cases today over $4,000 a year) increase, a growing number of talented students who could attend with the benefit of some financial aid are not even applying for admission. But it is difficult to determine whether there is any basis for this concern.

Student Costs on the Rise

Federal and state funds continue to account for the largest part of the increase in scholarship resources. The Sloan Scholarship Program, one of the larger private programs of its kind, provided a minor percentage, ranging from 0.7 to 5.4 per cent (median 1.5), of scholarship funds at the 34 private institutions surveyed in 1968. These percentages will decline, because stipends provided by the Sloan program are no longer tied to the rising cost of higher education; the program has been funded at its present level of $1.2 million a year since 1966.

A 16th class of 151 Sloan National Scholars entered the 45 participating colleges and universities in 1968, and trustees of the Foundation authorized the financing of another class for 1969. The program since its inception has aided nearly 1,850 young men in their undergraduate years.

Sloan Scholars are selected by the participating institutions on the basis of academic excellence, personal integrity, and demonstrated potential for leadership. Their scholarships are renewable for the full undergraduate course of study. The amounts of their stipends, which are set by the institutions, range from $200 honorary awards to a current maximum of $2,600 a year. About 84 per cent of graduating Sloan Scholars enter full-time graduate study. Among the program's alumni are a scientist-astronaut, a former White House Fellow who was assigned to the Secretary of Defense, and a Phi Beta Kappa student who is interrupting his training at Harvard Law School to join the Peace Corps and teach English in South Korea.

A New Class of Sloan Scholars

Helping to finance the education of such young men is both gratifying and instructive, in terms of "feedback" received from the scholars and their institutions. But certain more general questions concerning the health and relevance of American education must also receive attention.

One of the strengths of the American educational system, if it can be called a system, is its richness and diversity, its freedom to experiment and adapt. This quality is grounded in its historic pluralism and in its freedom from centralized national control, a freedom maintained thus far despite increasing federal subvention of education. The Sloan Foundation's five-year College Science Program, described in its Report for 1966, is an effort

The American Council on Education, principal voice for higher education, shares this headquarters building in Washington, D. C., with other agencies interested in education.

to strengthen one element—the private, four-year liberal arts college—in this general pattern of diversity, by helping 20 of these colleges to become more effective in science teaching and research. Colleges continued to report heartening progress through this program in 1968.

Just because of its diversity, however, American education needs some means of voluntary cooperation on matters of common interest, and some generally accepted spokesman for its interests. These needs were foreseen in 1918 when the American Council on Education was formed, initially as an emergency wartime service to the government. Since that time the Council has emerged as the principal agency representing the value of education, and in particular of higher education, in American society. Its members and affiliates in 1968 included 199 national and regional associations and organizations, 1,277 institutions of higher education, and 51 affiliated institutions and organizations.

A Voice for Education

Through its staff, commissions, and committees, the American Council on Education investigates educational problems of general interest, stimulates experimental activities, keeps abreast of pending legislation affecting education, serves as a liaison with federal agencies, and publishes widely used handbooks, informational reports, and books on social and educational developments and problems.

While the Council receives substantial income from membership dues and government contracts, it also relies on support from foundations to underwrite its fundamental strength and independence. Over the five years ending in 1972 it has projected expenditures of $8.1 million. The Sloan Foundation, by a grant of $200,000, joined in assisting the Council in the attainment of its widely shared goals for education.

That we are still far from our educational goals became at times painfully apparent in 1968, as expressions of dissatisfaction with the educational "system" reached some kind of high point for recent times. Despite the vast sums being invested in education (currently almost $17 billion a year for higher education alone), the yield in terms of developing better people was at times disappointing. The productivity of the educational effort remained low at many points, and this fact was attributable in part to inadequate planning of new programs and insufficient evaluation of their results. As education, and especially higher education, came to be recognized increasingly as a prerequisite to meaningful participation in society, educators were faced with a whole new set of challenges. A rising rate of innovation has been one response of the educational system as it attempts to cope with the multiple demands of growing enrollments, expanding knowledge, and rising expectations.

Meeting Challenges to Education

The Institute for Educational Development was established in 1965 as a nonprofit research and development corporation to assist in meeting the new challenges to education. It evaluates and catalyzes innovations in both curriculum and administration. IED is also equipped to advise private industry, which is assuming an increasing importance in the production of educational materials and systems, about methods of product development and the needs of educators, with the goal of bringing about increased collaboration and understanding between business and the academic community for the improvement of education. It also carries out studies for governmental agencies. IED maintains a small staff, calling upon specialized consultants as needed for particular projects.

Among IED's projects have been a study of curriculum development in the state of Rhode Island; studies to assist in the planning of higher education in Maine and Vermont; development of criteria for evaluating school-decentralization plans in New York City, requested by the New York State Board of Regents; and a survey and analysis of Project Head Start during its first summer.

During 1968 the Institute for Educational Development turned to the

Sloan Foundation for unrestricted support to supplement its income from contracts during its remaining formative years. The Foundation responded with a grant of $167,667, payable over a three-year period and contingent upon its being matched two for one.

A Possible Payment Plan For Students

While institutions like IED continue the search for ways of making education more efficient and effective, a complementary line of inquiry investigates ways of financing the enormous growth of higher education which seems inevitable. One possible way is through a contingent repayment loan program. Under this plan, students would borrow the funds needed for their higher education and repay the loan through a surcharge on the tax on their future income. The Sloan Foundation made a small grant for a study of this plan in 1967. Karl Shell, professor of economics at the University of Pennsylvania, proposed to carry this study a step further, to investigate the feasibility of combining the proposed student loan bank with the existing federal program of Educational Opportunity Grants. The Sloan Foundation provided $10,500 toward the cost of this extended study. Support also was provided by the Carnegie Commission on the Future of Higher Education which in its first special report endorsed a form of the student loan bank in combination with other means of financing student costs.

Service Opportunities For Youth

Education presumably can take place in settings outside the formal educational structure. Such settings could be created by the long-discussed National Service program, under which, in its broad outlines, young people would contribute a period of service to society in programs analogous to the Peace Corps, possibly as an alternative to military service. For some youths, this period of service might occur before or during their college careers, enabling them to bring added experience and perspective to their formal studies when they return. The Sloan Foundation and other foundations have contributed to the support of the National Service Secretariat, headed by Donald J. Eberly, which works to stimulate discussion and refinement of the National Service concept, and to maintain it in the public consciousness during the period when the military draft has made its implementation unlikely. During 1968 the Sloan Foundation approved an additional grant of $7,500 to the National Service Secretariat. A comprehensive book edited by Mr. Eberly, *National Service: The Report of a Conference*, is being distributed by the Secretariat to 11,000 high school debating societies for use in the current academic year's debate program. The volume is published by the Russell Sage Foundation.

The New York City Urban Corps during the past three summers has provided an out-of-classroom learning and service experience for 6,000 college students who serve as summer interns in some 80 city agencies. The program not only exposes the students to the complexities of urban

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-MELLON UNIVERSITY
Pittsburgh, Pennsylvania

CASE WESTERN RESERVE UNIVERSITY
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 UNIVERSITY
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

government but also enables them to earn and save money for the coming college year. (It is financed by federal work-study funds and by the City of New York.) The Sloan Foundation earlier gave $6,000 for part of the cost of a study of the effectiveness of the program. In 1968 it was asked to help support an additional element of formal education for a limited number of Urban Corps members. These students will attend courses and seminars at three institutions in New York on subjects related to their work experience, while serving as summer interns with city agencies. The Foundation granted $10,000, through the Administration and Management Research Association of New York City, toward this purpose.

A Center for Seniors at Bowdoin

An innovation in higher education which seems worthy of further study, analysis, and perhaps replication is the Senior Center Program at Bowdoin College. Bowdoin has created for its senior students a new environment which includes such features as special living quarters, shared with some members of the faculty; increased contacts with distinguished visitors and guest lecturers; a special curriculum which provides expanded opportunities for independent study, and senior seminars which require the student to explore ideas outside his major field of study. Now, after four years of experience with the Senior Center Program, Bowdoin is undertaking a study of the program's impact on the curriculum, teaching, educational policy, and environment of the College as a whole. The Foundation granted $20,000 for this purpose.

The recent burgeoning of two-year colleges has made all the more necessary some kind of long-range planning and professional guidance to ensure their proper integration into the educational structure and to foster productive relationships between such colleges and their communities. Such services are a function of the American Association of Junior Colleges, which received renewed support of $20,000 for forward planning. An earlier grant of the same amount supported a study of community service programs in two-year colleges, and led to establishment of a three-year program by the Association to stimulate the growth of such programs.

Economics and Management

As in the natural sciences, so in economics the need continues to strengthen institutions of research, and to foster the wise application of new insights gained through research. A pioneering institution in the field of economic measurement, the National Bureau of Economic Research, plans to broaden its contributions to economic knowledge under its recently elected president, Dr. John R. Meyer. The Bureau is studying how the tools of the economist might be applied to such problems as poverty and urban decay, processes of economic growth, the impact of technological change, and environmental improvement. To its expertise in economic measurement the Bureau proposes to add new capacity for "social measurement."

Extending Research in Economics

In order to expand and equip the National Bureau to move into such new fields, without abandoning traditional areas of research, Dr. Meyer and his directors projected a doubling of the Bureau's annual budget over the next decade, and set out to raise a 50th Anniversary Fund of $15,000,000. The Sloan Foundation contributed to this effort $1,000,000, half of it contingent upon the Bureau's raising an additional $9,000,000 by 1970.

The National Bureau, which also is active in the training of younger economists, continued to conduct research through project grants approved earlier by the Foundation. One Foundation-supported study is investigating relationships among productivity, employment, and price levels; another

is seeking to appraise the importance of non-market activities not presently included in measurements of the gross national product.

Application of economic knowledge occurs in a number of ways but perhaps most conspicuously through the art and science of management. At the Wharton School of Finance and Commerce of the University of Pennsylvania, an interdisciplinary effort to broaden the science of management will be undertaken with financial assistance from the Sloan Foundation and others.

Interaction by Managers and Scholars

The Management Science Center of the Wharton School will bring together for periods of up to one year a group of outstanding managers. They will pursue writing and research interests in close interaction with a group of visiting scholars, appointed as Fellows, from disciplines as diverse as cybernetics, communications engineering, the natural sciences, and philosophy. Selected graduate students will work as assistants to the managers and scholars.

The Center will select a general theme for research each year, such as "creativity and innovation in business and industry" and "technological obsolescence of personnel." The program will concentrate the experience and skills of the managers and academicians on such matters to learn how they can be approached in their total complexity through scientifically conducted interdisciplinary studies. Graduate students will receive valuable exposure to top-level managers and distinguished scholars, and will participate in work on the major management problems to be explored at the Management Science Center.

The Center will be housed on an estate in an outlying part of Philadelphia. Toward its initial operations the Sloan Foundation granted $300,000, payable over three years.

Back to School for Middle Management

Mid-career fellowships are now an accepted way, in many professions, of averting obsolescence of key personnel and of preparing them for larger responsibilities. A prototype of such programs in management, at the Massachusetts Institute of Technology, is now independent of Sloan Foundation support, as is a similar program at Stanford University. An analogous program of fellowships, designed to extend the benefits of such mid-career training to management in Great Britain and the Commonwealth, admitted its first class of London-Sloan Fellows in 1968. This program, at the London Graduate School of Business Studies, was established with the advice of MIT's Alfred P. Sloan School of Management, and with initial support of $75,000 a year for three years from the Foundation. In each of these programs, middle-management executives, typically in their mid-30's, are selected to spend a year in a specially designed program which is intended to enhance their perceptions of larger management problems and to increase their ability to deal with them.

Cancer and Other Aspects of Health

IN the vast fields of biomedical research, education and services, the Sloan Foundation's interests remained limited in 1968 largely to those areas, principally cancer research, which traditionally have received the Foundation's support. From two of these areas, moreover—research into vision and hearing disorders—the Foundation took steps in 1968 to execute an orderly withdrawal.

The Chemistry of Cancer

Research into the causes and mechanisms of cancer has been at the center of the Foundation's medical interests since the founding of the Sloan-Kettering Institute for Cancer Research, with the Foundation's assistance, in 1945. Since that time the Institute has received more than $10,000,000 from the Foundation in grants for general and special purposes. The Foundation continues to provide regular unrestricted support of $400,000 a year to the Institute. All of the Foundation's support of cancer research is channeled through the Sloan-Kettering Institute and through agencies affiliated with it.

During 1968 the Institute and its clinical partner, Memorial Hospital for Cancer and Allied Diseases, reported continued progress in understanding of the action of the enzyme L-asparaginase, which causes certain leukemic cells to die. Basic biochemical studies of this kind, in addition to

research in immunological characteristics of cancer cells, have yielded encouraging research results in recent years.

Memorial Sloan-Kettering Cancer Center, which embraces both the Sloan-Kettering Institute and Memorial Hospital, neared the completion of a $58,566,800 building program which will make it "the largest, most modern private cancer center in the world," according to Laurance S. Rockefeller, chairman of the Center's board of trustees. In the final phases of this program, a new 600-bed hospital will replace the present Memorial Hospital and James Ewing Hospital, which has been leased for 50 years from the City of New York. The two older hospitals will be converted to other uses. A new out-patient building will make possible greater privacy and personal care for patients visiting the Center for treatment.

Growth in Size and Scope

The Memorial Center enjoys close ties with neighboring teaching and research institutions; these links recently were strengthened by the affiliation of Memorial Hospital's Department of Diagnostic Radiology with Cornell University Medical College and The New York Hospital. Memorial Hospital provides all radiation therapy for patients at The New York Hospital. Its new Russell A. Firestone Radiation Therapy Center represents the most complete and largest concentration of radiation therapy equipment in the world.

Thus the Sloan-Kettering complex and its affiliations have grown in size and scope beyond what even its early advocates might have envisioned for it. The Foundation's annual contributions now play but a small part in supporting this massive activity; other private agencies, the public, and especially government have provided the bulk of the resources needed to support the growth of the Sloan-Kettering Institute to its present eminence in cancer research. Through its programs for the training of new investigators the Institute helps to insure that the fight against cancer will continue.

The Causes of Deafness

The Foundation's interest in hearing disorders has been expressed through a series of major grants since 1964 to the Deafness Research Foundation, which allocates the funds to selected projects in otological research. In the decade of the Deafness Research Foundation's existence, considerable progress has been made in identifying causes of deafness and in devising remedies for some types of hearing loss. Among the causes currently under study are noise, virus infections, toxic effects of drugs, congenital malformations, aging, and otosclerosis, the growth of bone that impairs the normal functioning of the stapes—the tiny bones of the middle ear. Otosclerosis now is corrected surgically, through the well-known stapes operation, but its cause remains under study.

Initially the Deafness Research Foundation supported principally the established investigators active in such research; more recently, emphasis has shifted to support of promising younger scientists with the expectation that they will be able to find federal or other support after early help from the Deafness Research Foundation expires. In 1968 research grants totaling more than $225,000 were awarded to support 30 individual projects for the ensuing year. These grants were made possible in major part by funds from the Sloan Foundation, which approved a grant of $316,250, payable over two years, to the Deafness Research Foundation in 1968. In approving this grant, Sloan Trustees agreed to consider a suitable terminal settlement for this activity upon expiration of the Sloan grant in 1970. Such a phased withdrawal is intended to give the Deafness Research Foundation the needed time to replace Sloan support with funds from other sources.

A program of research in glaucoma and uveitis, two closely related diseases of the eye, distributed grants and training fellowships amounting to approximately $100,000 in 1968. This program, supported by the Foundation since 1952, has assisted basic studies of the eye at many of the nation's major ophthalmological laboratories, and has provided scholarships for a limited number of medical students interested in this field. A group of senior medical advisors known as the Council for Research in Glaucoma and Allied Diseases advises the Foundation on selection of grant and scholarship recipients.

Glaucoma Research Support Ends

In keeping with a decision made in 1967, Foundation Trustees in 1968 approved a terminal appropriation of $250,000 for the program in eye research. These funds will support the program on a diminishing basis through 1969; and about $100,000 of the total amount will be used in two areas of greatest need—stipends for student ophthalmologists and support for young researchers not yet well established in their field. These latter allocations will be made by the Council for Research in Glaucoma and Allied Diseases. The remaining $150,000 will be allocated for research purposes by the Association of University Professors of Ophthalmology.

Grants for research in ophthalmology were made in 1968 to the schools of medicine of Columbia University, Mount Sinai Hospital (New York), Cornell University, and the Universities of California, Oregon, and Tennessee. Fellowships were provided for students at Johns Hopkins, Harvard, Yale, and Jefferson Medical College, and the New York Association for the Blind received payment for administrative expenses of the Council.

A special grant of $350,000 was made to Harper Hospital, a part of a projected $300,000,000 medical complex which will involve four voluntary hospitals and the Wayne State University School of Medicine in Detroit. Harper Hospital plans a $35,500,000 Webber Memorial Building

with 348 teaching beds which, added to 176 beds in renovated space, will make possible a sizeable increase in enrollment of entering medical students at Wayne State. Within the new facility will be a General Clinical Research Center where patients having disorders requiring further scientific and clinical study will be accommodated. This unit will have its own laboratories and diet kitchen, to make possible close control of the therapy and tests conducted there. Space for teaching and for conferences among participating specialists from diverse medical and scientific disciplines will be provided. The Sloan Foundation's contribution to Harper Hospital was designated for construction and equipment of the General Clinical Research Center.

How Mergers of Hospitals Can Work

The alarming rise in costs of medical care has accentuated the need for more efficient and economical operation of hospitals. One possible means of reducing such costs is by mergers of neighboring hospitals; through sharing of expensive professional equipment, joint purchasing arrangements, and coordination of such functions as food service, housekeeping, and laundry, significant economies may be achieved. Such mergers and affiliations are not yet widespread in this country, but a number have occurred in New England. During 1968 the Foundation granted $10,000 to assist a study of these New England hospital mergers, with a view to ascertaining their origin and effectiveness. This study will be conducted through the Graduate Program in Hospital Administration of Columbia University's School of Public Health and Administrative Medicine, under the supervision of Prof. Robert R. Lovejoy, assistant director of the Program.

Deaths and injuries resulting from improper operation of motor vehicles have become one of the nation's most serious public-health problems. The problem is a multi-faceted one, requiring for its amelioration cooperation by automotive and highway engineers, physicians and surgeons, law-enforcement officials, and of course the motoring public. Public education on the necessity for safe driving habits is a continuing task, as new drivers come of age every year and as the skills of aging motorists diminish. In this task the nation has been fortunate in the contributions of its mass media, and particularly of the electronic media upon which so much of the public depends for its information.

A program designed to give formal recognition to efforts to promote motoring safety through the electronic media, the Alfred P. Sloan Radio-TV Awards for Highway Safety, entered its third decade in 1968. This program is administered by the Automotive Safety Foundation with the assistance of an annual grant of $18,500 from the Sloan Foundation. Awards are made to individual writers and producers in the fields of both radio and television, and to stations and networks in those fields. Advertising sponsors of broadcast highway-safety programs also are honored for support of unusually meritorious programs. The awards, in the form of bronze plaques and of $1,000 cash prizes for individual recipients, are presented at a banquet in New York in May of each year.

Trustees of the Sloan Foundation in 1968 renewed their support of this program for the 21st year.

Other Grants

As was indicated in *1968: A Summary Report* earlier in this Report, the foregoing textual sections are intended to be illustrative rather than exhaustive in describing the Foundation's grant making during the year. In the interest of completeness in reporting, grants not mentioned earlier in the Report are listed and briefly described here. A definitive listing of all grantees and of amounts committed and paid to each will be found in the *Financial Review*.

All grants appearing in this section were approved by the staff of the Foundation under discretionary authority confided by the Trustees.

Administration and Management Research Association of New York City, Inc., New York, N. Y.: In support of the program of the Volunteer Coordinating Council of New York City, which encourages participation by volunteer workers in the City's services . . . . . $ 5,000

American Academy of Arts and Sciences, Boston, Mass.: Reimbursement for direct expense of distributing *U. S. Philanthropic Foundations: Their History, Structure, Management and Record*, by Warren Weaver, a project of the Academy . . . $ 3,295

The American Assembly, New York, N. Y.: For general support of the Assembly's program to stimulate discussion of public issues $20,000

The American Correctional Association, Hartford, Conn.: For a study to define organizational changes in the Association which would be required to facilitate educational options in the field of corrections $18,500

American Council for Emigrés in the Professions, New York, N. Y.: To assist the Council in initiating its Key Personnel for Business Program, which trains emigrés for positions in American business $12,000

American Friends Service Committee, Inc., Philadelphia, Pa.: For support of a citizens' conference on education of Negro pupils in certain counties of South Carolina . . . . $ 750

The American National Red Cross, Washington, D. C.: For general support, including the Red Cross' special services to the American armed forces in Vietnam $12,500

Council on Foreign Relations, Inc., New York, N. Y.: For general support $20,000

Economic Development Council of New York City, Inc., New York, N. Y.: To finance a study of the feasibility of Welfare Island as the site for a center for science and technology $18,580

Education Development Center, Inc., Cambridge, Mass.: In partial support of the Center's Legal Studies Curriculum Program $10,000

Educational Products Information Exchange, New York, N. Y.: For general support of the grantee's work in facilitating exchange of product information among the various sectors of the educational community . . . . . $ 5,000

Fresh Air Fund, New York, N. Y.: In support of the Fund's summer program to provide an experience of rural living for disadvantaged urban youth . . . . . $ 5,000

Goodwill Industries of Greater New York, Inc., New York, N. Y.: Supplementary contribution to the grantee's building and development fund $10,000

Joint Council on Economic Education, New York, N. Y.: For general support of the Joint Council's program to improve economic education in the nation's schools and colleges $10,000

THE LEGAL AID SOCIETY, New York, N. Y.: For general support to help the Society in meeting the unusual demands for legal services by the poor and disadvantaged $10,000

THE MILESTONE FOUNDATION, Washington, D.C.: For renewed support of the grantee's program of planning for the use of major national highways in time of national emergency, and of training specialists for that purpose $10,000

NATIONAL ACADEMY OF SCIENCES—NATIONAL RESEARCH COUNCIL, Washington, D.C.: To supplement the Foundation's grant of $50,000 dated November 1, 1966, to finance, in part, a study of postdoctoral education in the United States . . . . $ 5,000

For interim support of the Academy's program of enlisting U. S. scientists and engineers in volunteer work on applying science and technology to problems of development in impoverished regions of the world $15,000

NATIONAL AFFAIRS, INC., New York, N. Y.: For a study of the role of selected colleges and universities in urban affairs . $12,000

NATIONAL ASSOCIATION FOR FOREIGN STUDENT AFFAIRS, Washington, D.C.: In support of the Association's program of professional services and activities for foreign students . . . . $ 5,000

NATIONAL ASSOCIATION OF INDEPENDENT SCHOOLS, Boston, Mass.: In support of a study on "Student Concern and Institutional Response in the Independent Schools," to help administrators and teachers to understand and respond effectively to concerns of secondary-school students $10,000

NATIONAL CITIZENS' COMMITTEE FOR PUBLIC TELEVISION, New York, N. Y.: For general support of the Committee's efforts to stimulate awareness of the potentialities of the new Corporation for Public Broadcasting $15,000

NATIONAL CIVIL SERVICE LEAGUE, New York, N. Y.: For general support of the League's program of promoting efficiency and quality in the management of government $20,000

NATIONAL INFORMATION BUREAU, New York, N. Y.: Toward operational expenses of the Bureau's information services concerning nonprofit organizations . . . . . $ 1,000

NATIONAL MEDICAL FELLOWSHIPS, INC., Downers Grove, Ill.: Contribution to The Franklin C. McLean Fund for Negroes in Medicine, to be administered by the grantee . . . . . $ 1,000

NEW YORK ACADEMY OF MEDICINE, New York, N. Y.: To assist in financing a conference on Health Careers for the Disadvantaged sponsored by the New York Metropolitan Regional Medical Program of the Associated Medical Schools of Greater New York . . . . . $ 3,000

NEW YORK FRIENDS GROUP, INC., New York, N. Y.: Toward the donee's proposed preliminary study of voluntary organizations and their response to the problem of war . . . . . $ 5,000

PAN AMERICAN DEVELOPMENT FOUNDATION, Washington, D.C.: To support the Tools for Freedom program of providing contributed equipment for technical training in less developed countries $12,500

PLANNED PARENTHOOD-WORLD POPULATION, New York, N. Y.: To support methodological pilot studies in the establishment of domestic family planning programs $20,000

POLYTECHNIC PREPARATORY COUNTRY DAY SCHOOL, Brooklyn, N. Y.: Toward the School's Anniversary Fund . . . . $ 5,000

SOLDIERS', SAILORS', AND AIRMEN'S CLUB, INC., New York, N. Y.: For general support of the Club's services to members of the armed forces . . . . . $ 2,500

STANFORD UNIVERSITY, GRADUATE SCHOOL OF BUSINESS, Stanford, Calif.: Contribution toward fund to complete a research project on "Top Management Direction and Control" . . . . $ 5,625

UNIVERSITY OF ARIZONA, Tucson, Ariz.: Toward cost of laboratory equipment and instrumentation for Professor Bert E. Nordlie's research on volcanic gases $10,000

UNIVERSITY OF CALIFORNIA AT SANTA CRUZ, Santa Cruz, Calif.: For support of a symposium on the future of science in public policy held during the dedication of Crown College . . $ 5,930

WASHINGTON AND LEE UNIVERSITY, Lexington, Va.: For support of an on-campus seminar for selected secondary-school science teachers on "Individualized Instruction in the Sciences," to be held in April of 1969 . . . . . $ 2,760

Financial Review

Financial statements of the Foundation's assets, obligations and funds at December 31, 1968; its income, expenses and appropriations for the year then ended; and the securities owned at year end with their book and quoted market values appear on pages 48-57. The independent accounting firm of Haskins & Sells audited these statements and has given its opinion on page 50 that the statements present fairly the Foundation's financial position at December 31, 1968 and the results of its operations for the year then ended.

The Foundation's assets at ledger value increased by $5,542,403. This increase consisted of additions to cash of $292,223 and a net addition to investments of $5,250,180. The portfolio of fixed income securities showed an increase of $1,889,253; and common stock investments increased by $3,360,927. Short-term U.S.A. Treasury Bills account for $1,457,125 of the $33,252,154 investment in fixed income securities maturing in five years or less.

A comparative summary of the Foundation's investments in marketable securities at quoted market values at December 31, 1968 and December 31, 1967 follows:

	1968 AMOUNT	PERCENT	1967 AMOUNT	PERCENT
Fixed income:				
U.S. Government and agency obligations	$ 37,885,962	11.5	$ 41,373,426	12.7
Other bonds and notes	22,020,111	6.7	17,198,806	5.3
Total fixed income	59,906,073	18.2	58,572,232	18.0
Common stocks:				
General Motors	121,905,197	37.1	126,334,612	38.8
All other	146,671,498	44.7	141,001,378	43.2
Total common stocks	268,576,695	81.8	267,335,990	82.0
Total investments	$328,482,768	100.0	$325,908,222	100.0

A summary of grants by classifications followed by a listing of grants made during 1968 will be found on pages 58-63. A summary of grants authorized and payments for the year ended December 31, 1968 follows:

Grants unpaid January 1, 1968	$25,713,592
Grants authorized during the year	9,138,172
	34,851,764
Payments during the year	15,787,305
Grants payable but not due at December 31, 1968	$19,064,459

After taking account of the foregoing, the net worth of the Foundation at December 31, 1968, based on quoted market values, was divided as follows:

General Fund	$300,707,013
General Motors Dealers Appreciation Fund	9,649,554
	$310,356,567

A disposition of funds summary showing the sources of funds and their application is presented below:

SOURCES OF CASH:	
Excess of value on sales of securities over ledger value	$ 2,682,759
Investment and other income	13,701,923
Distributions from Trusts and the Estate of Alfred P. Sloan, Jr.	5,750,602
Appropriations unexpended	78,449
	$22,213,733
APPLICATION OF CASH:	
Grant payments	$15,787,305
Increase in ledger value of investments	5,250,180
Payments for special projects	104,417
Administrative expenses	779,608
Increase in cash balances	292,223
	$22,213,733

HASKINS & SELLS
CERTIFIED PUBLIC ACCOUNTANTS

TWO BROADWAY
NEW YORK 10004

ACCOUNTANTS' OPINION

Alfred P. Sloan Foundation:

We have examined the balance sheet of Alfred P. Sloan Foundation as of December 31, 1968 and the related statement of income and funds for the year then ended, and the supplemental schedules of marketable securities 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, 1968 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.

February 14, 1969

Haskins & Sells

Balance Sheet

December 31, 1968 and December 31, 1967

	1968	1967
ASSETS		
Marketable Securities (at cost or quoted market at date of gift or receipt):		
Fixed Income Securities:		
U.S. Government and agency obligations	$ 39,142,957	$ 42,339,436
Other bonds and notes	22,722,502	17,636,770
	61,865,459	59,976,206
Common Stocks	147,733,320	144,372,393
Total (quoted market 1968—$328,482,768; 1967—$325,908,222)	209,598,779	204,348,599
Cash	1,016,707	724,484
TOTAL	$210,615,486	$205,073,083
OBLIGATIONS AND FUNDS		
Grants Authorized but Not Due for Payment	$ 19,064,459	$ 25,713,592
Appropriations Unexpended	78,449	
Fund Balances:		
General Fund	185,659,285	173,716,420
General Motors Dealers Appreciation Fund	5,813,293	5,643,071
TOTAL	$210,615,486	$205,073,083

NOTES:

(1) In accordance with the policy of the Foundation, no effect has been given to income accrued but not due at December 31, 1968 and 1967.

(2) As residuary legatee of the Estate of Alfred P. Sloan, Jr., the Foundation expects to receive certain additional assets which are not included in the above balance sheet.

Schedule of Marketable Securities

December 31, 1968

Fixed Income	Principal Amount	Ledger Amount	Quoted Market Value
U.S. Government and Agency Obligations:			
Treasury Bills:			
January 31, 1969	$ 1,470,000	$ 1,457,125	$ 1,462,018
Treasury Bonds:			
4%—August 15, 1973	5,921,000	5,863,617	5,450,991
Treasury Notes:			
5.625%—May 15, 1969	2,000,000	1,997,945	1,991,240
5.375%—February 15, 1971	2,500,000	2,496,063	2,446,875
5.75% —November 15, 1974	3,000,000	3,002,812	2,902,500
6% —May 15, 1975	2,000,000	2,003,750	1,985,000
Federal Land Bank 4.50%—			
October 1, 1970	1,285,000	1,251,269	1,233,600
Federal National Mortgage Association:			
5.75% —June 23, 1969	1,500,000	1,500,000	1,490,625
5.50% —April 1, 1970	1,500,000	1,498,125	1,470,000
4.50% —July 1, 1970	1,800,000	1,732,500	1,741,500
6% —March 11, 1971	2,000,000	1,998,750	1,970,000
6.30% —April 8, 1971	2,500,000	2,500,000	2,468,750
5.75% —June 23, 1971	300,000	301,500	292,875
5.125%—February 10, 1972	2,350,000	2,358,813	2,241,313
5.50% —April 1, 1972	1,640,000	1,637,438	1,594,900
4.70% —December 1, 1972	1,000,000	955,000	935,000
4.50% —July 1, 1973	2,790,000	2,580,750	2,573,775
5.20% —January 19, 1977	3,000,000	3,011,250	2,707,500
6.05% —February 1, 1988	1,000,000	996,250	927,500
Total U.S. Government and Agency Obligations		39,142,957	37,885,962
Other Bonds and Notes:			
General Motors Acceptance Corporation Bonds:			
5.75% —May 1, 1971	1,000,000	973,260	962,500
3.625%—September 1, 1975	1,000,000	810,600	810,000
5% —September 1, 1980	1,300,000	1,300,000	1,079,000
5% —March 15, 1981	1,500,000	1,492,500	1,215,000

Schedule of Marketable Securities

December 31, 1968
—continued—

Fixed Income	Principal Amount	Ledger Amount	Quoted Market Value
Norfolk & Western Railway Co. 7.25% Conditional Sales Contracts—August 1, 1973	$2,150,000	$2,150,000	$2,155,375
Florida Power & Light Co. 1st Mortgage 3.50%— January 1, 1974	1,000,000	862,520	852,500
National Dairy Products Corp. 3.13%—June 1, 1976	200,000	158,664	159,250
Household Finance Corp. Debentures 4.63%— January 15, 1977	1,015,000	870,118	825,956
Public Service Electric & Gas Company Debenture Bonds 4.63%—March 1, 1977	1,223,000	1,096,630	1,051,780
American Telephone & Telegraph Company, Debenture Bonds 4.38%—April 1, 1985	1,500,000	1,518,210	1,158,750
Burlington Industries, Inc. Convertible Debenture Bonds 5%—September 15, 1991	1,000,000	1,000,000	1,200,000
Tenneco Corporation, Convertible Debenture Bonds 6.25%— October 1, 1992	1,500,000	1,500,000	1,740,000
General Telephone & Electronics Corporation, Convertible Debenture Bonds 5%— December 15, 1992	3,000,000	3,000,000	3,240,000
Standard Oil Company (New Jersey) Debenture Bonds 6%— November 1, 1997	5,000,000	5,000,000	4,650,000
Standard Oil Company of Indiana Debenture Bonds 6%— January 15, 1998	1,000,000	990,000	920,000
Total other bonds and notes		22,722,502	22,020,111
Total fixed income securities		$61,865,459	$59,906,073

Schedule of Marketable Securities

December 31, 1968
—continued—

Common Stocks	Number of Shares	Ledger Amount	Quoted Market Value
American Can Company	67,300	$ 3,846,032	$ 3,852,925
American Metal Climax, Inc.	58,000	1,955,181	3,008,750
American Telephone & Telegraph Company	120,000	4,993,811	6,360,000
Avon Products, Inc.	13,100	822,375	1,663,700
Babcock & Wilcox Company, The	70,000	1,491,478	2,782,500
Caterpillar Tractor Company	80,000	1,448,479	3,490,000
Central & South West Corporation	25,000	653,569	1,087,500
Chase Manhattan Bank, N.A., The	16,505	777,677	1,336,905
Corning Glass Works	9,598	1,030,430	2,761,825
Cutler-Hammer, Inc.	27,500	1,192,936	1,130,938
E. I. duPont deNemours & Company	9,700	1,674,816	1,600,500
Eastman Kodak Company	103,954	2,499,064	7,614,631
FMC Corp.	50,000	1,725,928	1,912,500
First National Bank of Boston, The	22,500	851,683	1,833,750
First National Bank of Chicago	18,114	753,105	1,168,353
First National City Corp.	17,452	527,600	1,289,267
General Electric Company	39,810	2,741,464	3,737,164
General Foods Corp.	22,000	1,930,181	1,793,000
General Motors Corporation	1,540,666	70,384,314	121,905,197
Gillette Company	31,200	1,536,011	1,618,500
Gulf Oil Corporation	56,768	578,073	2,448,120
Household Finance Corp.	67,600	1,165,556	2,906,800
International Business Machines Corp.	68,000	5,251,600	21,420,000
International Nickel Co. of Canada, Ltd.	96,500	1,971,791	3,763,500
International Paper Company	68,600	2,266,584	2,581,075
Kennecott Copper Corporation	60,000	2,519,809	3,007,500
Merck & Co., Inc.	24,400	256,742	2,196,000
Middle South Utilities, Inc.	60,600	1,022,692	1,461,975
Mobil Oil Corporation	74,000	2,047,176	4,347,500
Morgan Guaranty Trust Company of N.Y.	29,818	1,912,527	3,786,886
National Cash Register Company	14,660	1,864,676	1,685,900
Northern Natural Gas Company	34,000	1,908,369	2,006,000
Northwest Bancorporation	21,000	615,477	1,475,250
Owens-Corning Fiberglas Corp.	21,800	1,778,408	1,722,200

Schedule of Marketable Securities

December 31, 1968
—continued—

Common Stock	Number of Shares	Ledger Amount	Quoted Market Value
Phelps Dodge Corp.	26,400	$1,147,438	$1,366,200
Procter & Gamble Company	35,500	883,581	3,070,750
Public Service Electric & Gas Company	68,000	1,458,746	2,388,500
Royal Dutch Petroleum Company	92,070	2,362,854	4,661,044
Scott Paper Company	60,000	1,750,058	1,845,000
Sears, Roebuck and Company	78,605	1,689,531	4,893,161
Security Pacific National Bank (L.A.)	23,083	735,471	1,286,877
Shell Oil Company	59,986	2,402,589	4,236,511
Southern Company, The	52,000	950,596	1,475,500
Standard Oil Company (New Jersey)	53,967	2,632,740	4,243,155
TRW, Inc.	60,000	788,317	2,685,000
Texaco, Inc.	59,326	1,839,222	4,938,890
Virginia Electric & Power Company	49,844	823,638	1,439,246
Xerox Corporation	12,300	272,925	3,290,250
Total common stocks		147,733,320	268,576,695
Total fixed income securities		61,865,459	59,906,073
Total marketable securities		$209,598,779	$328,482,768

Statement of Income and Funds

For the years ended December 31, 1968 and 1967

	TOTAL		GENERAL FUND		GENERAL MOTORS DEALERS APPRECIATION FUND	
INCOME	1968	1967	1968	1967	1968	1967
Investment Income:						
Dividends	$ 10,511,355	$ 9,765,702	$ 10,141,355	$ 9,403,549	$ 370,000	$ 362,153
Interest	3,066,330	2,442,798	2,958,395	2,351,857	107,935	90,941
Income received as residuary legatee under will of Alfred P. Sloan, Jr. and as remainderman of trusts	93,840	450,500	93,840	450,500		
Other	30,398	24,385	30,398	24,385		
Total	13,701,923	12,683,385	13,223,988	12,230,291	477,935	453,094
Grants and Expenses:						
Grants authorized	9,138,172	13,504,234	8,738,172	13,104,234	400,000	400,000
Cost of special projects	104,417	111,680	104,417	111,680		
Administration, including investment counsel and custodial services	779,608	795,965	779,608	795,965		
Total	10,022,197	14,411,879	9,622,197	14,011,879	400,000	400,000
Excess of income over Grants and Expenses for the year	3,679,726	(1,728,494)	3,601,791	(1,781,588)	77,935	53,094
Cumulative excess of Grants and Expenses over income from inception to:						
Beginning of year	(43,146,386)	(41,417,892)	(43,818,035)	(42,036,447)	671,649	618,555
End of year	(39,466,660)	(43,146,386)	(40,216,244)	(43,818,035)	749,584	671,649
PRINCIPAL						
Balance at beginning of year	222,505,877	207,773,449	217,534,455	203,057,926	4,971,422	4,715,523
Assets received as residuary legatee under will of Alfred P. Sloan, Jr. and as remainderman of trusts	5,750,602	7,250,000	5,750,602	7,250,000		
Net profit on disposals of securities	2,682,759	7,482,428	2,590,472	7,226,529	92,287	255,899
Balance at end of year	230,939,238	222,505,877	225,875,529	217,534,455	5,063,709	4,971,422
FUND BALANCES AT END OF YEAR	$191,472,578	$179,359,491	$185,659,285	$173,716,420	$5,813,293	$5,643,071

Alfred P. Sloan Foundation

Summary of Grants

	AUTHORIZED BUT NOT DUE DECEMBER 31, 1967	1968 GRANTS AUTHORIZED	1968 PAYMENTS	AUTHORIZED BUT NOT DUE DECEMBER 31, 1968
College Science Program (18 colleges and 2 universities)	$6,000,000		$ 1,500,000	$ 4,500,000
National Scholarship Program (592 students in 22 colleges and 23 universities)	3,421,962	$1,054,813	1,179,380	3,297,395
Fellowships for Research in the Basic Sciences (73 fellowships in 52 universities and 6 colleges)	617,930	1,410,382	1,411,378	616,934
Cooperative College Development Program (22 colleges and 9 universities)	1,000,000	43,111	580,348	462,763
Major Grants to colleges and universities	9,510,000	2,400,000	6,520,000	5,390,000
Other Major Grants:				
American Council on Education		$ 200,000	$ 40,000	$ 160,000
Association of University Professors of Ophthalmology		150,000		150,000
Deafness Research Foundation, The		316,250	172,500	143,750
Harper Hospital		350,000	70,000	280,000
Institute for Educational Development		167,667		167,667
Memorial Sloan-Kettering Cancer Center	$1,000,000		1,000,000	
Menninger Foundation, The	100,000		100,000	
National Academy of Sciences	750,000	400,000	650,000	500,000
National Bureau of Economic Research, Inc.	100,000	1,000,000	350,000	750,000
National Medical Fellowships, Inc.	175,000	120,000	85,000	210,000
Phelps-Stokes Fund	168,000		84,000	84,000
Sloan-Kettering Institute for Cancer Research	2,100,000	400,000	500,000	2,000,000
Urban Coalition, The		200,000	200,000	
	4,393,000	3,303,917	3,251,500	4,445,417
Opportunity Awards (8 colleges and 2 universities)	512,200		202,000	310,200
Staff Grants		728,280	728,280	
Other Grants (none over $100,000)	258,500	197,669	414,419	41,750
TOTAL	$25,713,592	$9,138,172	$15,787,305	$19,064,459

Grants

	AUTHORIZED BUT NOT DUE DEC. 31, 1967	1968 GRANTS AUTHORIZED	1968 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1968
Administration and Management Research Association of New York City, Inc.		$ 15,000	$ 15,000	
Albion College	$ 49,862	13,520	17,255	$ 46,127
American Academy of Arts and Sciences		3,295	3,295	
American Assembly, The		20,000	20,000	
American Association of Junior Colleges		30,000	30,000	
American Correctional Association, The		18,500	18,500	
American Council for Emigres in the Professions, Inc.		12,000	12,000	
American Council on Education		200,000	40,000	160,000
American Friends Service Committee, Inc.		750	750	
American National Red Cross, The		12,500	12,500	
Amherst College	89,522	21,545	27,910	83,157
Antioch College	343,922	10,470	91,135	263,257
Arizona, University of	8,050	10,000	18,050	
Arizona State University	8,050		8,050	
Arkansas, University of		24,150	16,100	8,050
Aspen Institute for Humanistic Studies		20,000	20,000	
Association of University Professors of Ophthalmology		150,000		150,000
Automotive Safety Foundation		18,500	18,500	
Bedford-Stuyvesant Restoration Corporation		20,000	20,000	
Bethune-Cookman College	48,600		19,200	29,400
Bishop College	52,800		20,400	32,400
Bowdoin College	54,900	40,400	41,600	53,700
British Columbia, University of	8,050	889	8,939	
Brown University	84,260	50,620	45,710	89,170
Bryn Mawr College	8,200		8,200	
California, University of	146,715	196,798	235,224	108,289
California Institute of Technology	2,497,015	127,505	1,217,415	1,407,105
Carleton College	455,230	17,760	117,080	355,910
Carleton University		16,100	8,050	8,050
Carnegie-Mellon University	166,512	59,150	60,700	164,962
Case Western Reserve University	109,402	33,430	39,715	103,117
Chicago, University of	36,750	435,000	263,000	208,750
City University of New York		22,724	11,224	11,500
Colby College	27,220	10,040	10,170	27,090
Colgate University	404,007	30,890	108,845	326,052
College Entrance Examination Board		3,000	3,000	
Colorado, University of	11,500		11,500	
Columbia University	623,034	113,354	435,420	300,968
Committee for Environmental Information		50,000	25,000	25,000
Cornell College	300,000		75,000	225,000
Cornell University	545,817	129,202	188,402	486,617
Council on Foreign Relations, Inc., The		20,000	20,000	
Dartmouth College	1,758,980	76,060	86,730	1,748,310
Davidson College	221,707	8,370	58,885	171,192
Deafness Research Foundation, The		316,250	172,500	143,750
Dillard University	49,500	33,711	53,511	29,700
Duke University		8,750	8,750	
Economic Development Council of New York City, Inc.		18,580	18,580	

	AUTHORIZED BUT NOT DUE DEC. 31, 1967	1968 GRANTS AUTHORIZED	1968 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1968
Education Development Center, Inc.		$ 10,000	$ 10,000	
Educational Products Information Exchange Institute		5,000	5,000	
Elmhurst College		10,000	10,000	
Emory University	$ 11,000	267,500	144,750	$ 133,750
Fisk University	57,000		22,200	34,800
Florida, University of	8,050		8,050	
Florida State University		118,400	58,855	59,545
Fresh Air Fund		5,000	5,000	
Georgia, University of	8,050		8,050	
Georgia Institute of Technology	15,000	6,000	6,000	15,000
Goddard College		10,000	10,000	
Goodwill Industries of Greater New York, Inc.		10,000	10,000	
Grinnell College	347,510	10,120	90,010	267,620
Hamilton College	30,197	10,420	9,531	31,086
Hampshire College	200,000		200,000	
Hampton Institute	52,500		21,000	31,500
Harper Hospital		350,000	70,000	280,000
Harvard University	245,772	118,920	191,145	173,547
Haverford College	320,000		80,000	240,000
Hope College	300,000		75,000	225,000
Illinois, University of	50,560	78,500	63,300	65,760
Indiana University		55,360	27,635	27,725
Institute for Educational Development		167,667		167,667
Iowa State College		16,100	8,050	8,050
Jefferson Medical College of Philadelphia, The		2,500	2,500	
Johns Hopkins University	120,657	66,290	66,945	120,002
Joint Council on Economic Education		10,000	10,000	
Kalamazoo College	320,000		80,000	240,000
Kansas State University		8,050	8,050	
Knox College	252,125	7,730	64,560	195,295
Knoxville College	48,600		19,200	29,400
Legal Aid Society, The		10,000	10,000	
Lehigh University	57,005	18,060	19,530	55,535
Lincoln University	17,225	6,580	6,830	16,975
London Graduate School of Business Studies, The	75,000		75,000	
Louisiana State University		16,100	8,050	8,050
McMaster University	18,800		18,800	
Massachusetts, University of	7,075	6,700	13,775	
Massachusetts Institute of Technology	3,398,685	558,570	2,923,010	1,034,245
Memorial Sloan-Kettering Cancer Center	1,000,000		1,000,000	
Menninger Foundation, The	100,000		100,000	
Michigan, University of	34,625	25,100	29,175	30,550
Michigan State University		16,750	9,850	6,900
Middlebury College	320,000		80,000	240,000
Milestone Foundation, The		10,000	10,000	
Minnesota, University of	30,550	9,000	17,050	22,500
Missouri, University of		15,000	15,000	
Morehouse College	325,022	5,950	94,385	236,587
Moton Memorial Foundation		10,000	10,000	
Mount Holyoke College	300,000		75,000	225,000

Grants

	AUTHORIZED BUT NOT DUE DEC. 31, 1967	1968 GRANTS AUTHORIZED	1968 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1968
Mount Sinai Hospital, The		$ 15,000	$ 15,000	
NAACP Legal Defense and Educational Fund, Inc.		10,000	10,000	
NAACP Special Contribution Fund		20,000	20,000	
National Academy of Sciences	$ 750,000	420,000	670,000	$ 500,000
National Affairs, Inc.		12,000	12,000	
National Association for Foreign Student Affairs		5,000	5,000	
National Association of Independent Schools		10,000	10,000	
National Association of State Universities and Land-Grant Colleges		13,000	13,000	
National Bureau of Economic Research, Inc.	100,000	1,000,000	350,000	750,000
National Citizens' Committee for Public Television		15,000	15,000	
National Civil Service League		20,000	20,000	
National Information Bureau, Inc.		1,000	1,000	
National Medical Fellowships, Inc.	175,000	121,000	86,000	210,000
National Service Secretariat, Inc.		7,500	7,500	
National Urban League		10,000	10,000	
New York Academy of Medicine		3,000	3,000	
New York Association for the Blind		10,000	10,000	
New York Friends Group, Inc.		5,000	5,000	
New York Medical College		10,000	10,000	
New York University		619,250	199,250	420,000
North Carolina, University of		16,100	8,050	8,050
Northwestern University	8,000	16,375	15,625	8,750
Notre Dame, University of	89,505	37,210	55,080	71,635
Oberlin College	481,327	24,880	130,465	375,742
Occidental College	344,072	10,170	90,395	263,847
Ohio State University, The	20,250	17,050	14,800	22,500
Oregon, University of	22,930	39,600	54,480	8,050
Pan American Development Foundation		12,500	12,500	
Penn Community Services, Inc.		10,000	10,000	
Pennsylvania, University of		334,675	126,850	207,825
Pennsylvania State University, The		24,150	16,100	8,050
Phelps-Stokes Fund	168,000		84,000	84,000
Planned Parenthood-World Population		20,000	20,000	
Polytechnic Preparatory Country Day School		5,000	5,000	
Pomona College	25,607	9,490	9,020	26,077
Princeton University	81,310	140,970	125,330	96,950
Puerto Rico, University of		17,020	8,510	8,510
Purdue University	22,500	9,000	9,000	22,500
Reed College	300,000		75,000	225,000
Research Foundation of State University of New York, The	19,550	58,672	48,322	29,900
Rice University	20,000		20,000	
Rochester, University of	750,000		250,000	500,000
Rockefeller University, The		22,720	22,720	
Roosevelt University		12,000	12,000	
Saint Louis University		12,500	12,500	

	AUTHORIZED BUT NOT DUE DEC. 31, 1967	1968 GRANTS AUTHORIZED	1968 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1968
Sloan-Kettering Institute for Cancer Research	$2,100,000	$ 400,000	$ 500,000	$2,000,000
Smith College	200,000		50,000	150,000
Smithsonian Institution		9,920	9,920	
Soldiers', Sailors', and Airmen's Club, Inc.		2,500	2,500	
Southern California, University of	17,500	18,750	26,875	9,375
Southern Research Institute	75,000		75,000	
Stanford University	740,175	140,765	640,575	240,365
Swarthmore College	300,000		75,000	225,000
Talladega College	32,400		12,800	19,600
Tennessee, University of		3,000	3,000	
Tougaloo College	33,200		13,000	20,200
Tulane University	296,202	18,230	268,515	45,917
Tuskegee Institute	82,597	355,770	207,625	230,742
United Negro College Fund, Inc.		15,000	15,000	
Urban Coalition, The		200,000	200,000	
Utah, University of		15,800	7,750	8,050
Vanderbilt University	71,765	35,650	36,300	71,115
Virginia, University of		32,200	16,100	16,100
WGBH Educational Foundation		20,000	20,000	
Wabash College	51,552	14,430	19,365	46,617
Washington, University of	8,050	13,800	14,950	6,900
Washington and Lee University	200,000	2,760	52,760	150,000
Wayne State University		13,050	13,050	
Wesleyan University	8,750		8,750	
Whitman College	21,100	8,000	8,350	20,750
Williams College	490,657	35,990	141,495	385,152
Wisconsin, University of	29,400	48,935	48,430	29,905
Yale University	396,580	52,360	359,130	89,810
Yeshiva University		9,000	9,000	
Cooperative College Development Program	1,000,000	43,111	580,348	462,763
	25,713,592	9,156,033	15,805,166	19,064,459
Reduction for Grant Transfers		17,861	17,861	
TOTAL	$25,713,592	$ 9,138,172	$15,787,305	$19,064,459

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CREDITS

Except as noted below, illustrations were provided by the institutions with which the subjects are identified.

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PAGE 7—IRA HILL (DR. ZURCHER)
FABIAN BACHRACH (MR. KREIDLER, MR. SINGER)

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Alfred P. Sloan Foundation

Founded in 1934 by Alfred P. Sloan, Jr. (1875-1966)

REPORT for 1969

Alfred P. Sloan Foundation
630 Fifth Avenue
New York, N.Y. 10020

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President's Statement

President's Statement

DURING 1969 philanthropic foundations had thrust upon them a new prominence, not entirely welcome. Foundations became front-page news, counseled, chastened, occasionally assailed and occasionally lauded in editorial columns, scrutinized in magazines and scholarly journals, alternately mauled and praised. Now that the gauntlet has been run it is salutary to look back and try to profit from the experience.

What was revealed during the year was the depth and the extent of an attitude of suspicion toward philanthropic foundations. Most of those who manage the large, general-purpose foundations were astonished at the degree to which that suspicion had grown over the years, astonished at the misconceptions upon which most of it rested, and astonished that some of those who might be expected to be first to defend the private philanthropic foundation were instead in the forefront of the attack.

The American commitment, from the earliest days of our society, has been to a pluralism which involves the encouragement of private initiative as well as a responsible role for government. The events and attitudes of the past few decades have brought about an enormous governmental invasion of fields that were for centuries the domain of private philanthropy; the private foundation is engaged in maintaining some kind of balance between the private sector and the government sector.

In such an engagement, the government inevitably preempts the "popular" activities—those which have immediate general appeal. It preempts them, moreover, with a weight of financial resources which makes foundation resources appear almost minuscule. What is left to the private founda-

tion, if it is to carve out its own place and play any kind of vital role, is just those philanthropic activities which are not yet manifestly popular, which are venturesome, and which may possibly fail. The alternative is to leave all institutionalized philanthropy, as distinct from that philanthropy which flows from individuals, in the hands of a central government—scarcely an outcome that those who have most sharply criticized the foundations would advocate.

The substantive misconceptions that were displayed during the encounter of the past year were disturbing at the time, but perhaps less so in the long run. They are, for the most part, simple errors of fact, and presumably can be corrected by an infusion of information.

There was, to begin with, the notion that private foundations are growing so rapidly as to become an "invisible government" whose powers and influence by sheer weight of financial resources will challenge the powers and the influence of our political institutions. It is true that in absolute terms the resources and the sheer number of private philanthropic foundations are growing. But it is also true, and far more important, that as a percentage of the growing national wealth foundation assets are declining, and there is no indication that they will do anything in the immediate future but continue to decline. Foundations, like other institutions, hope for influence, but they could never achieve it by brandishing their dollars.

There was also a whole family of misconceptions growing out of the ambiguity of the term "private foundation." That term describes a legal status, conferred upon institutions which meet certain criteria set forth by the Treasury Department under terms established by law and statute. As in any such case, there is always the possibility that criteria will be formally met despite the fact that the purposes those criteria are intended to serve are instead disserved: in short, that there will be abuses of foundation status of varying degrees of gravity. Those abuses must be eradicated. But the task is to set about the process of correcting abuses in a fashion that preserves the principles upon which the criteria were initially based. To abandon those principles is to punish the institutions that loyally and ethically adhered to them, while those who are disposed to be unethical simply seek about for other instrumentalities to serve their ends. Most foundations have nothing to fear from any action that is directed toward the correction of abuses. They have much to fear from constraints arbitrarily imposed.

Finally, there was revealed during the year a widespread belief that foundations were tending to become so venturesome and so experimental that they threaten to shatter the established social and political order. Of all the misconceptions, this is perhaps the most fundamental to the foundations themselves, and the one which requires the most subtle consideration.

In a real and significant sense, the activities of a well-managed general-purpose foundation are concerned with change. They have that aspect in common with the activities of almost every major institution that can be conceived: the schools, the universities, the large corporate enterprises, the labor unions, the political parties and other voluntary organizations of citizens, and above all of Congress itself. It is the nature of a living society that it is always undergoing change and refinement, and that institutions spring up or are brought into being to guide and to stimulate change and refinement; the only social and political order immune to threat of any kind is one that is dead.

It is the fundamental obligation of the foundation to bring to the process of change the best intelligence, the highest energies, and the most fruitful accumulation of knowledge that can be brought to bear. Largely in association with the great universities, the foundation only lays bare the options that are available to those who must ultimately make decisions; the foundation itself does not make those decisions, nor indeed has it ever possessed the power to do so.

The foundation's efforts, far from threatening to shatter the established social and political order, are intended to assure that changes will take place in an atmosphere of concord and reason. Needless to say, foundations are managed by fallible humans, who make mistakes and upon occasion demonstrate a lack of judgment; this is not peculiar to those who work in foundations. But the overall performance of the general-purpose foundations in providing a base of knowledge for the exercise of choice is one for which the world of foundations need never apologize.

The existence of these misconceptions represents a fact of life, of which the foundations themselves are obliged to take cognizance. Like any other major institution, the foundation exists on the sufferance of society, and will not exist for very long in the face of a hostile society.

In general, the foundations themselves have a responsibility for generating a better understanding of foundations. Some steps are inescapable. The larger and better-known foundations have for years spread upon the public record their grants and their financial resources. All foundations should do so. Similarly, there is an obligation upon the individual foundation to make known the standards and the practices under which it operates. Both these actions are an important aspect of the accountability of an enterprise which, although it carries the name of a private foundation, is clearly at the same time a public trust.

Proposals are now being circulated to create a form of self-regulation or accreditation for foundations, and they will be debated during the year ahead. Some sort of accrediting action would no doubt help identify those foundations that meet the highest standards, but there is also the shortcoming that affects any kind of self-regulation: those who need regulation the most are also the most likely to resist it. Thus as discussions proceed on self-regulation, consideration should be given to alternative and complementary ways of serving the public interest.

It will always be difficult, however, to find means by which the foundations themselves can take any aggressive approach to the better understanding of foundations. There is an understandable reluctance to spend funds on self-promotion. There is the long-held belief that good works speak for themselves. It can be maintained that efforts at publicity are in bad taste and defeat the very motivations that are presumed to underlie philanthropy. Yet the public must have a better understanding of the results that flow from foundation benefactions.

It will perhaps be more fruitful and more in tradition with the best practices of philanthropy if foundations devote their efforts to assuring so far as it is within their power that there will be no ground upon which misconceptions may thrive. The foundations must demand of themselves what they have long since demanded of the institutions they support: that they be well run, that there be a reassuring transparency in their operations, and that they be innovative.

During the past year, the Sloan Foundation has initiated two steps which are intended to have a significant effect upon its own operation. The first of these is a new and novel conceptualization of the process of grant-making; the second is intended to lead to the institution of a formal process of evaluation of foundation activities.

Grant-making within a general-purpose foundation is customarily governed by a fairly well defined procedure. The foundation establishes for itself (or perhaps has established for it by the terms of its creation) broad areas of activity within which it will act. For the Sloan Foundation those areas in the recent past have been science, with emphasis on basic research; technology; economics and management; and medical research in the field of cancer. In all those fields, the Foundation has been particularly concerned with higher education, and more recently with related, and pressing, social problems. Having established its areas of activity, a foundation then entertains proposals which fall within those areas, analyzes them, measures them against its own resources, and makes its grants accordingly.

In practice exceptions are made to these procedural requirements. Most major foundations are prepared upon occasion to go beyond their stated areas of interest, and most major foundations play some role now and then in shaping the proposals that come before them. Nonetheless, the identification of areas of interest is in principle broad, and the foundation itself is of necessity to a degree passive with respect to the proposals that it entertains.

Some of the consequences that flow from these procedures seem not entirely desirable. Breadth of definition, while it leaves the foundation free to act over wide areas, makes it difficult to recognize over any period of time any cumulative coherence in the foundation's program. The processing of proposals does not take account of one of the major assets of the foundation: the special capabilities that professional officers and staff derive from being at once immersed in an intellectual field and yet in an important aspect retaining objectivity with respect to that field. It would be lamentable if a well-established, serious foundation found itself with nothing to offer within the fields of its interests but money.

The operational concept under which the Sloan Foundation now is acting is intended to make the Foundation better able to meet its opportunities. Its principal fields of interest remain unchanged, and it will continue to operate conventionally within those fields with a substantial portion of its resources. Beyond that, however, the Foundation plans to have in operation at all times two or more special programs, which are called *particular programs*.

Each such program, for the immediate future at least, will be drawn from the accepted fields of interest to the Foundation. But in several important respects the *particular programs* will be different from the general program of the Foundation. First, they will be sharply focused: each *particular program* will respond to a special, well-defined problem within the general field. For each particular program, a definite term will be set, ranging from a minimum of three years to a maximum of perhaps seven. During this period the Foundation will be prepared to make sizeable investments in the program. The decision to embark upon a *particular program* will be made within the Foundation by its Trustees, on the basis of the Foundation's own assessment of needs and priorities.

The shaping of *particular programs* was an important Foundation activity during the year under review, and will continue to be so in the future. In adopting the concept the Foundation has assumed the responsibility of seeing that the *particular programs* it establishes are in each case coherent, fully explored and comprehended, and significant enough to warrant the commitment of substantial Foundation resources.

One *particular program* has already been put in motion. It is concerned with the stimulation of the flow of minority students into the professions of management and medicine, and will draw in a major way upon the resources of the Foundation over a period of perhaps five years. As should be expected, the program is beginning slowly; some grants have been made and are described later in this Report.

In both medicine and management the minority representation at the professional level is far smaller than the sizes of the several minorities would indicate to be the norm. A broad spectrum of activities may be necessary to remedy or alleviate this state of affairs. It will certainly be necessary to arrive at mechanisms for assuring financial aid for graduate students. But in addition, there are on the one hand steps which must be taken in earlier schooling, including counselling and remedial education, and steps which must be taken to ensure that qualified graduates will in fact move into the professions for which they have been trained. It will be to a large extent the Foundation's responsibility to assure that the program it devises will be comprehensive enough to address itself to the whole problem, and not to an isolated part of it, even though its support can represent only a part of the total needed.

First steps were also taken during the year toward a *particular program* in neuroscience. The Foundation has long had a major interest in fundamental scientific research. Here the opportunity is recognized in a new and extraordinarily promising field of basic research which deals with the great unsolved problems of brain function. The field is badly in need of special resources if it is to gain rapidly the impetus it requires. Because it is a new field, and does not fit tidily into the established disciplines, many conventional sources of support are closed to it, or are difficult to open. Foundation funds, over a relatively brief period of time, may help establish the field by reducing interdisciplinary barriers and bringing into being new research centers of excellence devoted to neuroscience, and may open to it the substantially greater support from other sources which it will ultimately require. The Foundation is now engaged in searching out the opportunities in the field with the intention of developing a coherent program with funding to begin during 1970.

In the year under review the Foundation also took some first steps toward creating a mechanism for the evaluation of its grant-making activities. The difficulties in creating such a mechanism are perhaps greater than they might at first appear.

The simplistic view is initially attractive: a foundation, having made a grant under certain terms and with certain objectives, would measure the success of the grant by the degree to which the terms were met and the objectives attained. But under scrutiny, the adequacy of such an evaluation quickly is seen to be limited. The grant itself, in many cases, provides funds for exploration, and it is in the very nature of an exploratory process that the terms of its conduct cannot possibly be completely defined in advance. But this is the less serious of the two aspects: it is with respect to the attainment of objectives that the graver problems are encountered.

If it is conceded that it is the business of the private foundation to be venturesome, it becomes at once obvious that for some proportion of its grants the objectives will not be met. The foundation, open-eyed, takes risks, and must be prepared to accept failure.

Under such circumstances only the extremes are clear-cut; if all the grants meet their objectives, the foundation is not being venturesome but timid; if none of the grants meet their objectives, the foundation is not being venturesome but simply eccentric, or worse. Where, if anywhere, a line may be drawn between those two extremes is by no means easy to determine, but it is at least clear that the work of the foundation cannot be evaluated solely by the detailed examination of individual grants in terms of their success or failure.

A well-conceived evaluatory process is bound to be more intricate. The foundation should be prepared to evaluate not only the grant itself but the grant-making *process*. Once activities under a grant are completed, and the entire process becomes open to examination, it is quite reasonable to ask, not only whether the grant itself met its objectives, but whether in the light of the full knowledge then available the grant-making process itself was wisely and prudently conducted. Were the institution, and the persons within that institution, wisely chosen? Could the foundation have anticipated difficulties that arose during the conduct of the supported activity? Was the task truly worth undertaking? Did the grant, in its outcome, impose upon the foundation further obligations which it is not prepared to assume? And did the foundation possess, at the time the grant was made, all the relevant information it might have gathered?

These are all reasonable questions. What is more to the point, the answers can be fed back into the grant-making process itself, so that each evaluation of a grant already made will serve to perfect the process by which future grants are made. The evaluation does not commit the foundation to a clean record of uninterrupted success in its grants, but rather to a procedure which will improve staff judgment and the grant-making process.

A second area of evaluation is more difficult still. The foundation should be in a position to ask itself, at intervals, whether it is in fact making the wisest possible use of the funds at its disposal. Here again, the record of successful outcomes has little bearing. It is clear that an unbroken rec-

ord of trivial successes is of no consequence at all, but even a record of large successes can be questioned if still larger opportunities remained unexplored.

The *particular programs*, because they are sharply focused and are limited in term, lend themselves well to evaluation. But in this larger sense of evaluation, it may be advisable that the major fields of interest of the general program of the foundation be scrutinized as a whole, from time to time, in order to determine whether the foundation is indeed making a real difference within those fields, and indeed whether it is within the power of the foundation to make a real difference.

There are also the risks of evaluation to be considered. There is, for example, the danger that in its own process of evaluation the foundation will make demands upon those to whom grants are made in a fashion that will impede the activities the foundation is supporting. The attention of the recipient may be seriously diverted from his proper business, or the foundation, in its zeal for evaluation, may find itself exerting undue influence upon the activity it has backed. There is even the danger that the evaluation will become paramount and the activity itself secondary; something of this sort happens from time to time in education, where the student is encouraged to study not for the knowledge that exists within the field but simply in order that he may pass an examination.

Whatever the difficulties and the risks, the Foundation is concerned with establishing a formal evaluation procedure, to be made part of its regular activities. It is our hope, of course, to avoid the risks of undue interference, but we do not intend to let those risks be an excuse for avoiding the difficult tasks of evaluation, out of which can come a far richer, and far better informed, operating procedure. Accordingly, trial evaluations will be undertaken to help develop a body of experience out of which a constructive evaluative process can be created.

In all, it has been a year of appraisal and change. It has by no means been a placid year, but in retrospect we have all benefitted; placidity, after all, is not so laudable a state as to be worth establishing as a way of life, for a foundation any more than for an individual. The pages that follow reflect some of the consequences that flowed from the appraisal and the change; they will continue to flow during the year ahead.

Chester I. Barnard

General Program

Science and Technology

DURING 1969 considerable staff and Trustee time was devoted to a new articulation and redefinition of the Foundation's program interests, as is indicated in the President's introductory statement. Within the Foundation's newly defined General Program the areas of science, technology, and engineering continue to occupy a major position. The Foundation's interests in related areas of education, of management, and of pressing social needs will be discussed in later pages.

A Period of Adjustment for Science

For a foundation deeply interested in science, 1969 was an anomalous year. Foundations traditionally have explored in areas which later have become subjects of governmental concern, and this has been true in some areas of scientific reseach—in molecular genetics, agriculture, rocketry, nuclear physics, cancer, and population control—which were swept largely under the Federal wing during World War II and during the enormous growth of the Federal science establishment which occurred during the ensuing two decades. Given the increasing dominance of Federal funding, science-oriented foundations faced the options of moving on to other fields, or of using their acquired expertise to identify and meet needs which were overlooked or unforeseen in the rampant growth of Federally-supported science.

This growth inevitably has slowed in recent years, and by 1969 it appeared that the rate of annual increases in support of basic research and training had been arrested or reversed in the appropriations for two key civilian agencies, the National Science Foundation and the National Insti-

tutes of Health. In the basic research community, long accustomed to rising expenditures for research and to growth in numbers of active research scientists, there was talk of disbanding productive research teams and of a shortage of jobs for young Ph.D. scientists. Reductions in expected Federal funds for research equipment and facilities also caused distress.

Many foundations felt the effects of Federal retrenchments, in the form of a growing volume of requests and appeals for aid, some of them of an emergency nature. But by 1969 the nation's scientific enterprise, which foundations had helped to stimulate in its early years, had so increased in magnitude that foundations could not hope to resolve the overall problem created by the slackening in Federal support of the physical and biomedical sciences. Thus a difficult period of readjustment for scientific research and training seemed inevitable.

As one of the foundations which have maintained an interest in the sciences, the Sloan Foundation endeavored to chart a course which took account of both prior obligations and emerging opportunities in science and technology, as in the new Particular Program in neuroscience described elsewhere.

The Program for Basic Research in the Physical Sciences, established by the Foundation in 1955, was addressed to a need which has become much more acute in the current budgetary situation—the need of young new Ph.D. scientists on university faculties for research funds to enable them to gain a foothold as recognized academic scientists. As part of its commitment to scientific progress, the Sloan Foundation therefore has continued to emphasize support of the highly creative beginning scientist.

Free support for Basic Research

Advisors to the Sloan Foundation identified this area of opportunity in the early 1950s, and the decision was made to institute a program providing essentially unrestricted research fellowships for potentially outstanding but still unrecognized young physical scientists and mathematicians in faculty positions. Whatever success the program has enjoyed has been due largely to the advice and selectivity of a succession of distinguished scientists who have served on the Program Committee for the Program for Basic Research in the Physical Sciences.* One of their choices, Murray Gell-Mann, received the Nobel Prize in Physics in 1969.

Awards under this Program, called Sloan Research Fellowships, are made for a two-year period to young scientists nominated by senior scientists who are in a position to appraise their potential for making original contributions to fundamental knowledge in chemistry, physics, mathematics, and certain interdisciplinary fields. The amount of each award is based on a judgment of the Fellow's need in his particular research area, and currently averages $17,500 over a two-year period. The grant is paid to the Fellow's university or college for his use and, subject to the policies of his institution, may be used for a variety of purposes including support of scientific and technical assistance, purchase of equipment and supplies, professional travel, summer salary (within specified limits), computer time, and support of predoctoral and postdoctoral fellows. Sometimes the Fellow, with the approval of his department chairman, may use his grant for relief from part or all of his teaching duties for a time, either at his own institution or on leave at some other institution.

750 Aided in 15 Years of Program

The Program is large in relation to the Foundation's limited resources, involving expenditures of some $1.4 million a year. This amount currently helps to support 149 scientists in 60 institutions in the United States and Canada. Over the Program's 15-year lifetime, some 750 scientists have been aided at an aggregate cost of more than $16 million. Trustees of the Foundation renewed the annual appropriation for this Program for 1969 at their meeting in January and for 1970 in December. Scientists who received Sloan Research Fellowships in 1969 are the following:

BROWN UNIVERSITY
Chemistry: Ronald G. Lawler, Harold R. Ward

CALIFORNIA INSTITUTE OF TECHNOLOGY
Astrophysics: Jack R. Jokipii. *Biochemistry:* Michael A. Raftery. *Chemistry:* Vincent McKoy. *Physics:* David L. Goodstein

UNIVERSITY OF CALIFORNIA, Berkeley
Mathematics: Oscar E. Lanford, III, Donald E. Sarason. *Physical Biochemistry:* James C. Wang

UNIVERSITY OF CALIFORNIA, Los Angeles
Chemistry: David Eisenberg, Jerome V. V. Kasper. *Crystallography:* Wayne A. Dollase. *Mathematics:* Theodore W. Gamelin

UNIVERSITY OF CALIFORNIA, Riverside
Chemistry: Phillip C. Radlick

UNIVERSITY OF CALIFORNIA, San Diego
Astrophysics: Robert J. Gould. *Geophysics:* Robert L. Parker

UNIVERSITY OF CALIFORNIA, Santa Cruz
Chemistry: John E. McMurry. *Physics:* David E. Dorfan

CANISIUS COLLEGE
Chemistry: Richard E. Stanton

CARNEGIE-MELLON UNIVERSITY
Physics: John F. Nagle

CATHOLIC UNIVERSITY OF AMERICA
Chemistry: Ying-Nan Chiu

UNIVERSITY OF CHICAGO
Astrophysics: Dimitri M. Mihalas. *Chemistry:* Karl F. Freed, Yuan-tseh Lee

COLUMBIA UNIVERSITY
Chemistry: Bruce J. Berne, Charles R. Cantor. *Geophysics:* Lynn R. Sykes

CORNELL UNIVERSITY
Astrophysics: Robert V. Wagoner

UNIVERSITY OF GEORGIA
Chemistry: John K. Ruff

HARVARD UNIVERSITY
Physics-Metallurgy: Michael F. Ashby

UNIVERSITY OF ILLINOIS
Chemistry: Victor A. Bloomfield

INDIANA UNIVERSITY
Physics: Frank A. Franz

JOHNS HOPKINS UNIVERSITY
Chemistry: Harris J. Silverstone. *Physics:* Herman Z. Cummins, Paul D. Feldman

* Present members of the Program Committee are Franklin A. Long, Cornell University, chairman; Lipman Bers, Columbia University; R. H. Bing, University of Wisconsin; E. J. Corey, Harvard University; Robert E. Marshak, University of Rochester, and Alfred O. C. Nier, University of Minnesota.

UNIVERSITY OF MARYLAND
Astrophysics: George Gloeckler. *Physics:* Richard A. Brandt
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Chemistry: Jeffrey I. Steinfeld, George M. Whitesides. *Mathematics:* Stephen Grossberg, Victor W. Guillemin, Bernard Maskit. *Physics:* Roman W. Jackiw
UNIVERSITY OF MASSACHUSETTS, Amherst
Chemistry: C. Peter Lillya
UNIVERSITY OF MASSACHUSETTS, Boston
Chemistry: Jean-Pierre Anselme
UNIVERSITY OF MICHIGAN
Chemistry: Lawrence L. Lohr, Jr.
UNIVERSITY OF MINNESOTA
Astrophysics: Wayne A. Stein
STATE UNIVERSITY OF NEW YORK AT STONY BROOK
Chemistry: Jerry L. Whitten. *Physics:* Daniel Freedman
NEW YORK UNIVERSITY
Mathematics: Srinivasa S. R. Varadhan
UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
Chemistry: Maurice M. Bursey
NORTHWESTERN UNIVERSITY
Physics: Donald E. Ellis
OREGON STATE UNIVERSITY
Chemistry: Gerald J. Gleicher
PENNSYLVANIA STATE UNIVERSITY
Chemistry: Jack E. Baldwin
UNIVERSITY OF PENNSYLVANIA
Physics: Gino C. Segre. *Physics and Mathematics:* Robert T. Powers
PRINCETON UNIVERSITY
Chemistry: Zoltan G. Soos. *Physics:* Henry D. I. Abarbanel, George F. Bertsch, Stephen E. Schnatterly
RICE UNIVERSITY
Chemistry: Robert V. Stevens
UNIVERSITY OF ROCHESTER
Chemistry: Robert W. Kreilick. *Physics:* Karl H. Bennemann, Daniel S. Koltun
ROCKEFELLER UNIVERSITY
Chemistry: William C. Agosta
RUTGERS—THE STATE UNIVERSITY
Mathematics: Charles C. Sims
UNIVERSITY OF SOUTHERN CALIFORNIA
Chemistry: Kenneth L. Servis
UNIVERSITY OF TENNESSEE
Mathematics: William T. Eaton
UNIVERSITY OF TEXAS
Astrophysics: Brian Warner
UNIVERSITY OF UTAH
Mathematics: Leslie C. Glaser, Joseph L. Taylor
UNIVERSITY OF VIRGINIA
Mathematics: Charles H. Giffen
UNIVERSITY OF WISCONSIN
Mathematics: Kenneth Kunen, Daniel G. Rider
YALE UNIVERSITY
Chemistry: R. James Cross, Jr., Allan L. Smith

The more humane use of science and technology seems a necessity if these disciplines are to continue to enlist the support of public representatives and of the young people who are needed to man these professions in the future. Where engineering education once was deficient in its grounding in the sciences, a condition which the Sloan Foundation and others sought to correct, it is now argued by some that much of engineering education lacks a sufficient relationship to pressing problems of the real world. The Foundation has recognized previously, principally in grants to Dartmouth College for its Thayer School of Engineering, that engineers can be too narrowly educated and that exposure to the social sciences and liberal arts, along with personal involvement in the solution of real engineering problems, is a necessary part of the education of an engineer.

The Education of an Engineer

During 1969 two somewhat dissimilar institutions—Harvey Mudd College and Rensselaer Polytechnic Institute—received grants to assist them in broadening and strengthening the content of their engineering programs. Harvey Mudd and RPI are alike in that both are devoted primarily to the education of engineers and scientists. However, Harvey Mudd opened its doors in 1957 whereas RPI has existed since 1824 and was the first institution to award engineering degrees in this country. Both are private institutions which view the engineer as a creator of solutions to technological problems of an ever-changing society.

As a new and still small institution, Harvey Mudd College has an excellent opportunity to experiment and innovate in its curricular offerings. Its place in the group of Claremont Colleges in Claremont, Calif., gives its students access to a broad array of courses in closely related liberal arts institutions. Its annual output of more than 50 engineers and scientists with engineering training compares favorably with that of many large universities where engineering is only one of many areas of study.

Harvey Mudd is now endeavoring to increase its enrollment by about one third, while modifying and expanding its courses. Both faculty and students are working on projects to introduce more materials from the

Students at Harvey Mudd College hold an informal session to discuss curriculum changes made possible by a Sloan grant.

A student gets acquainted with a piece of equipment in an engineering laboratory at Rensselaer Polytechnic Institute. A Sloan grant of $600,000, authorized in 1969, helps RPI keep its programs in tune with the times.

humanities and social sciences into the engineering and science curricula of the college's lower division; to develop programs of study for students whose interests lead them to choose nontraditional scientific and engineering majors; to experiment with alternatives to the lecture system; and to develop new intercollegiate courses among the Claremont Colleges, especially in teaching non-science students about science and engineering.

Training for Leadership in Engineering

The Foundation granted $600,000, payable over a three-year period, to enable Harvey Mudd to institute these innovations. When these new features are added to Harvey Mudd's present emphasis on breadth of education and on students' exposure to real problems in engineering design, they should help to insure the continuing education of engineers and scientists who are qualified "to assume leadership in their fields with an understanding of the impact of their work on the rest of society."

Rensselaer Polytechnic Institute in the 1960s has been implementing a series of changes designed to respond to the needs of both a changing student body and a changing society. The goal has been to develop for its students a perspective which will enable them to cope with a technological environment characterized by rapid growth and increasing breadth of problem areas in which engineering must be involved. Since 1945, RPI, at

Troy, N.Y., has transformed itself from primarily an undergraduate engineering school to an institution with substantial graduate and research programs, and with schools of science, humanities and social sciences, architecture, and management. Thus it is well equipped to offer the breadth of education which today's enlightened practice of engineering demands.

RPI, under a ten-year plan, is implementing a broad range of continued improvements in engineering education. The Foundation granted $600,000, payable over a three-year period, to assist in making certain changes. These include strengthening of faculty in certain crucial areas and the creation of a stronger interdisciplinary base for education in creative design, wherein students are expected to make significant contributions to the solution of actual engineering problems. RPI also plans to develop courses to relate engineering more closely to its social context, and to develop further a liberal Bachelor of Science program with majors in engineering fields. The latter program makes possible an alternate career course for students who complete RPI's three-year pre-engineering program but who do not choose to complete the five-year Master's degree in engineering.

Social Science Meets the Computer

The use of the computer in the time-sharing mode as an instrument of education and research has reached a high level of development at Dartmouth College. With more than 100 access terminals available on the campus, Dartmouth has encouraged its students to make use of the computer as a regular part of their daily educational activity. It is estimated that some 80 per cent of Dartmouth undergraduates have experience with the computer, and the instrument's use is further shared with 16 colleges and 22 high schools in the New England area. A simplified computer language called BASIC (Beginners All-Purpose Symbolic Instruction Code), developed at Dartmouth, helps to make this widespread use possible.

With the use of the computer well established among students and teachers in the natural sciences and mathematics, Dartmouth is now extending its use into the social sciences through Project IMPRESS (Interdisciplinary Machine Processing for Research and Education in the Social Sciences). This will involve the creation of a new computer language designed for use by social science students and researchers, and the acquisition and storage of large amounts of data in such subjects as sociology, economics, political science, biology, and certain medical disciplines. Dartmouth has made several appointments to its social science faculty of scholars who are interested in applying a more quantitative approach to their disciplines.

Initial expenses of starting up the IMPRESS program were borne by Dartmouth and the Carnegie Corporation of New York. The College then requested support over a three-year period to pay part of the salaries of new faculty and of programmers and assistants, and to provide for instructional

manuals, additional teletype terminals, and administrative costs. The Foundation granted $167,500, with $67,500 of the grant being conditional on Dartmouth's success in obtaining a large memory storage unit needed for IMPRESS. The Carnegie Corporation provided three-year support on a similar basis. Through conferences, seminars, and other means, Dartmouth plans to share its experience in using the computer as a tool of the social sciences with the broader academic community.

Continuing Innovation at MIT

Continued progress in electronics and electrical engineering, with particular emphasis on communications research and biomedical engineering, was assisted by a Foundation grant of $1 million to Massachusetts Institute of Technology. The grant, payable over five years, will be used principally for the Department of Electrical Engineering and the Research Laboratory of Electronics.

MIT's curriculum in electrical engineering, established 87 years ago, was the first in the nation and the Department of Electrical Engineering is now the Institute's largest department. It has been in the forefront of innovation in engineering education, and has contributed substantially to the development of the "electronics age" and now the "computer age." Currently housed in facilities scattered across the campus, the department will become almost completely consolidated in a planned Electrical Engineering and Electronics Complex.

The new complex also will house the Research Laboratory of Electronics which, like the Department of Electrical Engineering, is deeply involved in research relating the physical sciences and engineering to the life and medical sciences. Among the Laboratory's major activities are studies of communication in living systems. This research is conducted by six groups centered on communications biophysics, cognitive information processing, neurophysiology, linguistics, speech communications, and artificial intelligence.

Foundations, as stated earlier, do not possess resources of a size sufficient to compensate for reductions in Federal support of research, even if their policies inclined them to attempt to do so. The Sloan Foundation has had to decline numerous requests for aid on this basis. In the case of one institution, however, the Foundation felt its obligation to be so compelling that an exception was necessary.

The special relationship of the Foundation to the Sloan-Kettering Institute for Cancer Research dates to 1945, when the Institute was established with the aid of initial grants totalling $4,562,500 from the Foundation. The Foundation thereafter made regular support grants, which increased over the years from $200,000 to $400,000 annually, to the Institute. By

1966 the Institute's original building, the Howard Laboratory, had become inadequate for modern research operations, and the Foundation granted $3 million which helped to finance the reconstruction and remodeling of the laboratory.

Over the past quarter century, then, the Foundation has made sizeable investments in the Sloan-Kettering Institute and has watched with satisfaction as it grew to be one of the world's leading centers of research in the causes and mechanisms of cancer. The Foundation's contributions were paralleled by personal benefactions, including a final bequest of $10 million, from the late Alfred P. Sloan, Jr., to the Institute.

Extra Help for Cancer Research . . .

Trustees of the Foundation in 1969 renewed the Foundation's standing five-year commitment to unrestricted support of the Institute's research and teaching programs at $400,000 a year. By 1969, however, constantly rising costs of research coupled with a reduction in Federal support had created a projected operating deficit for the year of $1.6 million. This was despite the fact that the Institute during the year discontinued seven research sections, curtailed the activities of nine other sections, and otherwise effected stringent economies throughout its operations. Similar deficits were predicted for 1970 and 1971, given the present trends of Federal support and costs of research.

Officers of the Institute expressed the belief that any further reduction in the level of research activity would seriously impair the mission of the Institute and its structure. The Foundation's long and close relationship with the Institute made it imperative that action be taken to insure the stability and continued viability of the Institute. Trustees of the Foundation therefore approved an additional grant equal to half the projected deficit, or $800,000, bringing total Foundation support of the Institute for the year to $1.2 million.

. . . and for Memorial Hospital

Memorial Sloan-Kettering Cancer Center, which includes the Sloan-Kettering Institute and Memorial Hospital for Cancer and Allied Diseases, also received Foundation support in 1969. In this instance the principal need was for a new hospital and supporting facilities to replace the present Memorial Hospital. The Center is seeking to obtain $31 million to complete a major building program initiated in 1960. The new hospital will nearly double in-patient capacity and will release space in the present Memorial Hospital for conversion to doctors' offices, conference and teaching areas, and associated clinical laboratories. The present James Ewing Pavilion will be converted to patient-oriented clinical research and basic research laboratories.

The Foundation in its support of cancer studies, as in other scientific areas, has focused more on basic research than on applied research or treatment. However, Foundation Trustees recognized that the line between

basic and applied research cannot always be neatly drawn, particularly in a context as interdependent and mutually supportive as that of the Memorial Sloan-Kettering complex. The Trustees therefore, in an exception to policy and with hope of stimulating other gifts for the hospital, approved a grant of $2.5 million, payable over the next three years.

The grants to both the Sloan-Kettering Institute and Memorial Sloan-Kettering Cancer Center will be paid from the General Motors Dealers Appreciation Fund for Cancer and Medical Research. The Fund was established in 1948 by gifts totaling $1,525,000 from the dealer organization of General Motors, in appreciation of Mr. Sloan's contributions as chief executive officer of General Motors Corporation. Currently the Fund has income of about $500,000 a year and assets of about $10.0 million at market value.

Terminal Support for Chemotherapy

A program of cancer research at the Southern Research Institute in Birmingham, Ala., received a terminal grant of $131,250, payable over two years. Southern Research operates, among other activities, a research project in cancer chemotherapy, the study of chemical compounds which may be effective against certain forms of cancer. The Foundation's support of this program since 1953 has amounted to $1,212,500, not including the 1969 grant.

The remaining activities in medical science still being supported by the Foundation are those of the Deafness Research Foundation, which received a two-year grant of $316,250 in 1968, and the Association of University Professors of Ophthalmology, a group established to administer the terminal phase of the Foundation's support of research and training in glaucoma and allied diseases of the eye. In connection with the latter interest, the Foundation made a terminal grant of $4,000 to supplement a 1966 grant of $40,000 toward the cost of equipping a new research wing for the Institute of Ophthalmology at Presbyterian Hospital in New York City.

Other grants for scientific research and education:

American Academy of Arts and Sciences, Boston, Mass., two grants: In partial support of a conference in Nairobi to determine the feasibility of an International Center on Insect Physiology and Endocrinology $10,000

In partial support of the American Pugwash Symposium to be held near Racine, Wis., in June 1970, on the impact of new technologies on the arms race $12,500

American Statistical Association, Washington, D. C.: To support a curriculum project on the teaching of statistics and probability jointly sponsored by the American Statistical Association and the National Council of Teachers of Mathematics $15,000

Antioch College, Yellow Springs, Ohio: In support of a conference on Teaching of Science for a Humane Society and of a committee to evaluate conference results $12,010

Aspen Center for Physics, Aspen, Colo.: Second grant in support of operating expenses of the Aspen Center for Physics (formerly Physics Division, Aspen Institute for Humanistic Studies) $20,000

Conference Board of the Mathematical Sciences, Washington, D. C.: In support of the initial program of the Conference Board to formulate a plan for development of a unifying information system in the mathematical sciences $10,000

Dartmouth College, Hanover, N. H., two grants: In partial support of a Working Seminar on the Role of the History of Physics in Physics Education, to be held at the Massachusetts Institute of Technology in July of 1970 under the auspices of the International Commission on Physics of the International Union of Pure and Applied Physics $10,000

In support of a Dartmouth College-Tuskegee Institute cooperative program in engineering education . . . . . $ 9,500

Howard University, Washington, D. C.: To support partially the 1969 Spring Colloquium Series on Science and Cosmology, a series of lectures by visiting scientists to aid in the development of the University's new curriculum on space science . . . . . $ 7,520

Institute of Food Technologists, Inc.: In partial support of the Third International Congress of Food Science and Technology, to be held in Washington, D. C. in August of 1970 . . . . . $ 5,000

National Academy of Sciences, Washington, D. C.: To provide support for the activities, during an initial two-year period, of the newly formed Society for Neuroscience $20,000

Rutgers—The State University, New Brunswick, N. J.: In support of research in the Neuroscience Program of the Institute of Animal Behavior at Rutgers $20,000

Smithsonian Institution, Washington, D. C.: Partial support for the Third International Symposium held in May 1969 on Comparative Social Behavior to consider the application of scientific studies of animal behavior to the needs of mankind . . . . . $ 5,000

Stony Brook Foundation, Stony Brook, N. Y.: In partial support of the Eighth International Congress of the International Union of Crystallography, held at the State University of New York at Stony Brook during August of 1969 . . . . . $ 5,000

Voorhees College, Denmark, S. C.: For the purchase of physics teaching equipment and supplies to strengthen the College's program in physics $ 5,000

Education

IF the problems besetting higher education are viewed as opportunities for constructive philanthropy, there was no lack of such opportunities in 1969. Indeed, they have grown so numerous that it becomes necessary to target a foundation's efforts ever more precisely if any noticeable benefits are to emerge. This the Sloan Foundation attempted to do in 1969 through support of a number of new ventures in higher education and especially through its new Particular Program in expanding professional opportunities for minorities, discussed elsewhere in this Report.

Scholarship Program Will End

Foundation Trustees at their meeting in September of 1969 reached a decision to redirect into such new programs the resources currently being invested in the Alfred P. Sloan National Scholarship Program. The decision to terminate one of the Foundation's oldest and most substantial programs was not an easy one. It was made somewhat less difficult by the wealth of opportunities which have arisen to contribute to higher education in more innovative ways. Thus the $1.2 million annually committed to the Scholarship Program will not be lost to higher education, but will be redeployed into activities having the same general goals.

The termination of the Scholarship Program will occur gradually. Foundation Trustees approved support of one additional and final class of some 150 Sloan Scholars, entering college in September of 1970. These scholars, like those presently in course, will be supported to graduation provided they continue to meet the standards of the program. Thus the last of the Sloan Scholars will receive their baccalaureate degrees in 1974.

By the time of its conclusion the Scholarship Program will have helped to assure the undergraduate education in high-quality institutions of more than 2,000 young men whose personal qualities appear to mark them as future leaders in society. The program has helped the 45 participating institutions to attract such students, and it has contributed to the general educational funds of the 37 private colleges and universities in the program.

An area in which the potential for social gain is especially high is higher education for minorities and the disadvantaged. Even within this limited field, however, it is necessary to focus resources on carefully defined aspects of the general problem. Several approaches to the task of enabling minority-group members to participate more fully in higher education and in society received Foundation support in 1969.

Alfred P. Sloan National Scholarship Program

Participating Institutions

Albion College
Amherst College
Antioch College
Bowdoin College
Brown University
California Institute of Technology
California, University of
Carleton College
Carnegie-Mellon University
Case Western Reserve University
Colby College
Colgate University
Columbia University
Cornell University
Dartmouth College
Davidson College
Georgia Institute of Technology
Grinnell College
Hamilton College
Harvard University
Illinois, University of
Johns Hopkins University
Knox College
Lehigh University
Lincoln University
Massachusetts Institute of Technology
Michigan, University of
Minnesota, University of
Morehouse College
Notre Dame, University of
Oberlin College
Occidental College
Ohio State University
Pomona College
Princeton University
Purdue University
Stanford University
Tulane University
Tuskegee Institute
Vanderbilt University
Wabash College
Whitman College
Williams College
Wisconsin, University of
Yale University

Strengthening Colleges for Blacks

The Foundation's early experience in this field was largely with what are now called black colleges. The Alfred P. Sloan Opportunity Awards, a program which provided compensatory education and scholarships for a small group of students at ten black institutions, entered its terminal phase in 1967 after Federal funds came to dominate this field of activity through the Upward Bound Program of the Office of Economic Opportunity. The Cooperative College Development Program (CCDP) was established in 1965 to help strengthen the development capacities of 23 (later 30) Negro colleges. A group of black colleges continued to receive technical assistance on strengthening admissions and financial aid procedures in 1969 through the services of Robert K. Hage, a consultant to the Foundation on leave from his position as director of financial aid at Dartmouth College.

During the year under review an opportunity arose to help strengthen certain black colleges in yet another way, by contributing to faculty development. The Intensive Summer Studies Program, jointly operated by Harvard, Yale, and Columbia Universities since 1966, has built a successful record of preparing disadvantaged students from developing colleges in the South for graduate and professional study. In 1968 a limited number of faculty members from Southern colleges were added to the Intensive Summer Studies Program on a trial basis. This Visiting Faculty Phase received support from the Sloan Foundation for the summer of 1969 through a grant of $106,000 to Yale University. The 50 visiting faculty members were able to audit summer graduate courses, engage in independent research, work on their scholarly writing, develop new courses, or in other ways strengthen their scholarly backgrounds in order to serve better the institutions to which they returned.

Expanding Enrollment at Tougaloo

At Tougaloo College, a predominantly black institution already of superior quality, a principal need is for space to enable the institution to expand its small enrollment of 715 students. The College in Tougaloo, Miss., near Jackson has an architecturally unusual master plan and is seeking to implement the first phase of it, a library and two dormitories whose cost is estimated at $2.5 million. Completion of this phase will make possible an increase in enrollment to a more viable level of 1,000.

Although the Sloan Foundation normally declines to support building projects, the Tougaloo proposal contained a number of features which made it unique. The construction process to be employed, though widely and successfully used in West Germany, is new to this country. It promises to demonstrate significant cost savings which may be applicable to institutional and housing construction of many kinds. Building components are cast on the construction site in the form of flat concrete panels which later are fitted together. Electrical conduits and mechanical chases are integrated in the panels. Economies inherent in this technique made it possible for

Novel design for two new dormitories and a library is depicted in this architect's model of planned development at Tougaloo College. Completion of this phase by means of an innovative construction process will enable the College to increase its enrollment to 1,000 students. Further expansion is planned later.

the Winston A. Burnett Construction Company, one of the largest black construction companies, to enter a bid which significantly reduced the estimated cost of construction.

The new building technique, moreover, makes possible the employment of large numbers of local, unskilled workers. In an industry as labor-intensive as the building industry, this offers an opportunity to provide useful employment for large numbers of those who have had no opportunity to develop skills.

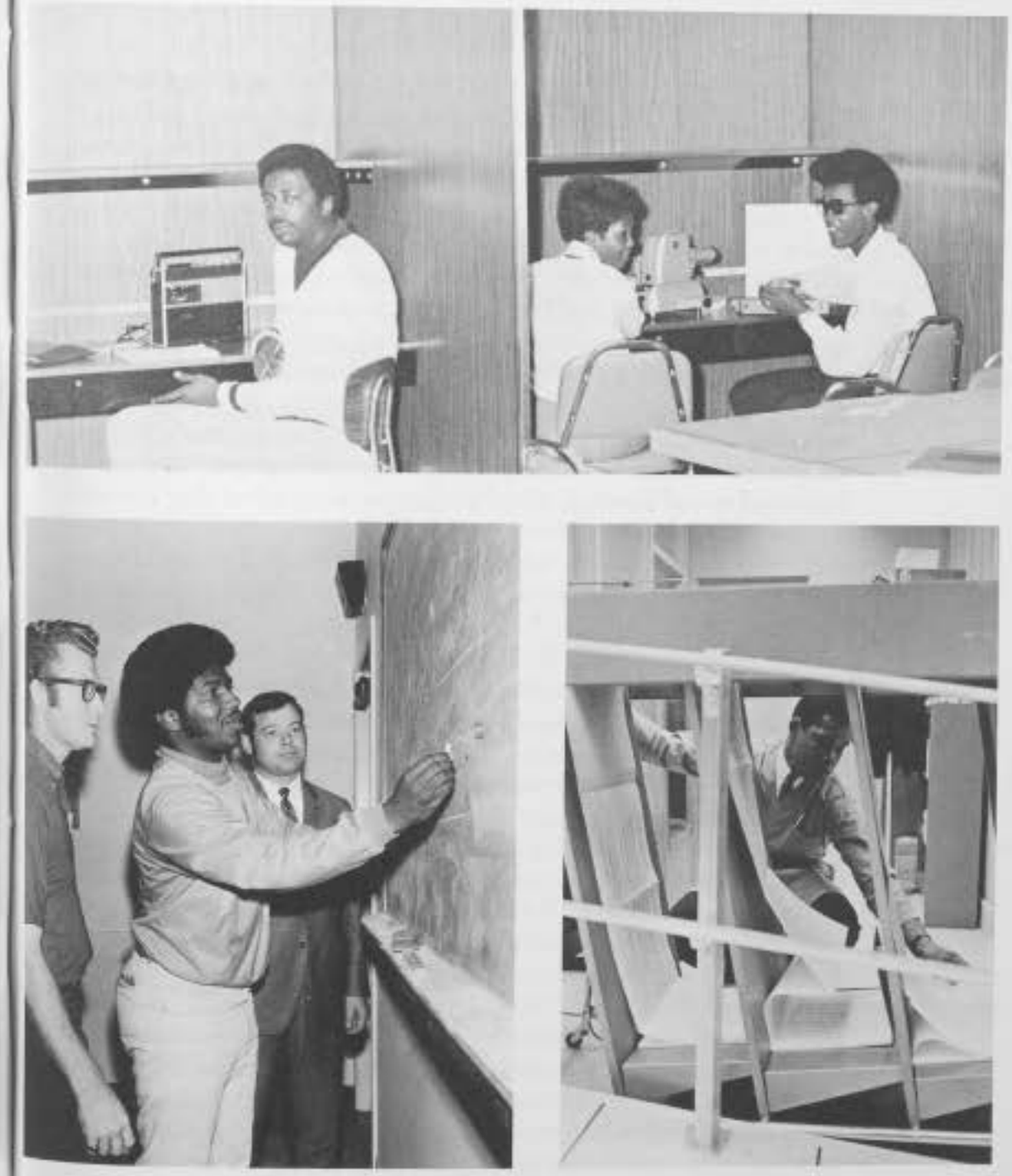
These elements of innovation, together with the desirability of extending a Tougaloo education to more young people, moved the Foundation to approve a grant of $200,000 toward the project, contingent on Tougaloo's raising the balance of funds needed to complete the financing.

The education of leaders for minority communities—professional, business, and political leaders—is one of the crucial needs of the time. This implies education at the graduate and professional levels, where the scarcity of black students is most acute. In exploring ways to overcome this social

James Savage, a Martin Luther King Fellow in educational psychology at Northwestern University, makes friends with a pre-schooler.

deficit, the Woodrow Wilson National Fellowship Foundation in 1968 started a small pilot program of Martin Luther King, Jr. Fellowships for returning Negro veterans who held college degrees. The intent was to supplement the veteran's GI benefits with a fellowship stipend of sufficient size to make it possible for him to gain some advanced education rather than going immediately to a job.

The program aroused widespread interest, and the Woodrow Wilson Foundation undertook to expand it in 1969. The Sloan Foundation granted $175,000 for 25 two-year fellowships, with preference to be given applicants interested in medicine, management, and engineering. Initial and major support has come from the Rockefeller Foundation. By the fall of 1969 the program was helping to support 77 Martin Luther King, Jr.



Examples of activities receiving Sloan support at fourteen technical institutions: future technicians at Ohio College of Applied Science (top) try out tape recorders and controlled reading machines in the Learning Resource Center; a student at Northrop Institute of Technology (left) tackles a differential equation with the aid of a student tutor and a faculty member; and a participant in Golden Gate College's Cooperative Education Program learns on the job. (See Page 30 for discussion.)

Fellows (including 13 in their second year of the fellowship) and extending partial assistance to eleven other graduate and professional students.

Technologists from the Disadvantaged

The unfilled demand for personnel at another level of education and training, that of the para-professional technologist and technician, prompted the creation of a short-term Foundation program to see what could be done to increase the flow of blacks and other minorities into education for these occupations. The need for close technical support in today's increasingly complex scientific and engineering operations is such that the shortage of trained technicians will approach the critical stage in the 1970s unless the output of the nation's technical institutes is sharply expanded.

The institutes, however, face a general shortage of qualified, well-motivated students seeking to enter programs of technical education. Many students are deficient in science, mathematics, and communications skills. Some need special post-high school preparatory work before they are ready to enter college-level studies in technical institutes. And many high-school students, particularly among the urban disadvantaged, are not even aware that satisfying and rewarding careers as technicians might be open to them.

Technical education is a college-level course of study of about two years' duration which typically culminates in a degree of Associate in Science or Associate in Engineering, and which equips the graduate to enter the work force at a level considerably above that of the high-school graduate. In some cases it can be a stepping stone to further studies toward a baccalaureate or other degree.

Attacking a Shortage of Manpower

The paradox of a growing shortage of this kind of trained manpower, existing alongside a socially unacceptable level of unemployment among the urban poor, suggested the desirability of new efforts to prepare disadvantaged youths for useful futures as technicians. The Foundation invited a few of the nation's more than 500 technical institutions to propose such programs. Fourteen institutions received grants totaling $870,246 to help them to identify, recruit, and give special help to minority youths who show aptitude for profiting from technical education.

Most of the grantee institutions are in urban settings, and many have had valuable prior experience in educating the disadvantaged. Their individual responses to the problem as propounded by the Foundation were somewhat diverse; out of this diversity may emerge some viable models for more substantial undertakings in the future. The institutions and the amounts granted them are:

University of Dayton Technical Institute, Dayton, Ohio. $68,000.

Florida Institute of Technology, Melbourne, Fla. $72,060.

Detroit Institute of Technology. $75,700.

Franklin Institute of Boston. $50,000 (paid to the Franklin Foundation).

Golden Gate College, San Francisco, Calif. $75,000.

Milwaukee School of Engineering. $75,000.

Newark College of Engineering. $25,000.

Northrop Institute of Technology, Inglewood, Calif. $75,600.

Ohio College of Applied Science, Cincinnati, Ohio. $69,340.

The Pennsylvania State University, University Park, Pa. $40,000.

Princeton University, Princeton, N. J., in collaboration with Mercer County Community College, Trenton, N. J. $43,756.

Saint Louis University, St. Louis, Mo. $64,400.

Spring Garden College, Philadelphia, Pa. $75,000.

Wentworth Institute, Boston, Mass. $61,390.

A University Moves into Its Community

The responsibility of an urban university system to serve the educational needs of disadvantaged populations has been recognized and acted upon with unusual vigor by the City University of New York. By some measures the largest institution of higher education in the country, City University consists of seventeen senior and junior colleges having an enrollment of 175,000 full- and part-time students. By 1968 one-third of its freshman class consisted of Negro and Puerto Rican youths, most of them in special programs providing educational supports to make up for past deficiencies.

In an effort to develop still more direct links with minority communities, the University proposed through its Office of Urban Studies to establish University-in-the-Neighborhood Centers in five low-income areas of New York City where the University system has campuses. The Foundation granted $175,000 for the first experimental year of this program.

The University regards it as vitally important to have a conspicuous physical presence in neighborhoods which heretofore have viewed it as remote and unapproachable. The University-in-the-Neighborhood Centers, to be staffed in part by persons drawn from the communities, are intended to represent the availability of the University's resources to the residents, and to provide a two-way communications link between the neighborhoods and the University.

The programs of the various Centers will vary, since each is being shaped in consultation with a panel of advisors drawn from the community. However, it is anticipated that the Centers will engage in many of the following kinds of activities: admissions information and advice on appli-

A Spectrum of Services to Neighbors

cation procedures; recruitment for special programs for the disadvantaged already being operated by the University; processing of requests from community groups for the use of college facilities; counseling of students, and setting up study centers for University students who live in the community; seminars and workshops on educational and other issues of interest to the community; cooperation with organized neighborhood groups to tap University resources for programs of the groups, especially educational and college-preparatory programs; and continuous assessment of community sentiment about the University's programs and advice to the University administration.

While the above list of functions is tentative and the entire effort is distinctly experimental, this demonstration should yield some valuable lessons for other universities similarly situated.

Other grants directed toward the special needs of minority and disadvantaged students:

ALUMNI ASSOCIATION OF THE CITY COLLEGE OF NEW YORK, New York, N. Y.: In partial support of a National Conference on Black Students in Medicine and the Sciences held at City College in December of 1969 . . $ 4,000

THE CITY UNIVERSITY OF NEW YORK, New York, N. Y.: In partial support of Project Beacon, a program of science education for disadvantaged youth, sponsored by York College of The City University of New York . . $11,580

EDUCATIONAL TESTING SERVICE, Princeton, N. J.: To finance a working conference on development of an information service to assist college and universities in recruitment and retention of disadvantaged students . . . $20,000

HARLEM CULTURAL COUNCIL, INC., New York, N. Y.: In support of a mathematics and science demonstration project, designed to identify disadvantaged junior high school students of high potential and to stimulate their interest in scientific careers $20,000

NEW YORK UNIVERSITY, New York, N. Y.: For the analysis and publication of data on early childhood compensatory programs for disadvantaged children at the Institute for Developmental Studies $15,000

PHELPS-STOKES FUND, New York, N. Y.: Partial support for the development of a handbook on Negro culture $10,000

YALE UNIVERSITY, New Haven, Conn.: To finance the first year of a program to recruit minority group students for the Yale Graduate School and the professional schools . . . . . $ 9,000

While the Sloan Foundation in one area of its General Program supports the advancement of certain aspects of science and technology, it also has a concern of long standing for research and teaching about the impact of science and technology on the society of which they are a part. The common theme that runs through such activities is

the public need to understand the economic and social implications of rapid scientific and technological advance so that wise policy decisions can be made.

An Initiative in Relevance at Cornell

At Cornell University both students and faculty from many fields recognized this need. The result is a new Program on Science, Technology, and Society drawing students, faculty, and research workers from many areas of the university including the physical and biological sciences, social sciences, engineering, the humanities, business, and public administration. Its director is Dr. Franklin A. Long, who was designated last year as Henry Luce Professor of Science and Society. Dr. Robert S. Morison, director of Cornell's Division of Biological Sciences, will devote full time to this program, and a number of other prominent Cornell scientists also are involved.

The Cornell program will add interdisciplinary undergraduate courses in several schools of the University, and experiments are planned with informal participatory courses which respond to students' desires for more direct involvement in activities relevant to such current problems as urbanization, rapid population growth, and deterioration of the environment. At the graduate level, students will be trained in research under the interdisciplinary conditions which are essential to the study of science and society. A number of individual faculty research projects also will be conducted in such areas as the impact of new technology on the strategic arms balance, the moral and legal implications of modern biology, and the world food situation.

The Foundation granted $300,000 in partial support of the Program on Science, Technology, and Society over a five-year period.

Science for the Non-Scientist

Wesleyan University is trying a new approach to one of the most difficult of pedagogical problems, the teaching of science to non-science students. Abandoning the usual introductory or survey approach to the problem, the Wesleyan course proceeds by comparing and contrasting two different scientific disciplines—mathematics and biology in the initial year, and psychology and biology in the current academic year. The course was developed by Dr. Robert A. Rosenbaum, a mathematician, provost and academic vice president of Wesleyan, and Dr. Earl D. Hanson, professor of biology.

It appeared that a widely applicable solution to the problem of "science for the non-scientist" might emerge from the Wesleyan technique of having two or more scientists discuss with students the way in which they formulate problems, what constitutes explanation in their respective fields, the approaches they use to solve their problems, and the relationship of their work to other human activities.

Wesleyan therefore applied to the Sloan Foundation for assistance in

broadening, extending, and further testing the course over a two-year period. The Foundation granted $106,000 for this purpose. In the current phase Wesleyan is testing the effectiveness of the course on students from more diverse backgrounds by extending it to other educational institutions in its area. It is experimenting with the use of film strips, motion pictures, and audio tapes as instructional devices and with the use of junior and senior science students as teaching assistants. Materials being developed for the course may be made available generally if subsequent evaluation proves the effectiveness of this new teaching concept.

Shedding Light on the Issues in Science

From a perspective outside the formal educational structure the Scientists' Institute for Public Information (SIPI) works to stimulate enlightened communication about public issues involving science and technology. The range and number of such issues obviously are enormous. The siting of nuclear power reactors, shipment and storage of chemical and biological weapons, nuclear testing, lead poisoning of children from ingestion of peeling paint in slum housing, and the many other forms of environmental pollution are among the numerous issues, all of them controversial to some degree, to which SIPI has devoted attention since its founding in 1963. It is the function of SIPI to shed light on such matters through the dissemination of information developed in accordance with accepted standards of scientific objectivity.

SIPI is a limited-membership organization of distinguished scientists. Its president is Dr. Margaret Mead of the American Museum of Natural History in New York; its chairman is Dr. Barry Commoner of Washington University in St. Louis. SIPI serves to stimulate and support a network of local science information committees in all sections of the country. These committees, made up of scientists and concerned laymen, have assumed the task, on a volunteer basis, of making available scientific information which bears on environmental and other issues in their regions. SIPI provides informational and organizational support to the committees, and encourages the formation of new ones.

Environment: a Matter of Concern

SIPI, which was established with initial support from the Sloan Foundation, proposed during 1969 to expand its staff capacity to assist the local committees and to develop materials on environmental subjects for use in schools and colleges. It also proposed to assemble task forces of leading scientists to examine available information on scientific and technological issues and to distribute such information to local science information committees and other interested scientists. The Foundation granted $210,000 to support this expanded operation for one year and to provide partial support, subject to matching requirements, for the succeeding two years.

A conspicuous interface between technology and society is that represented by the growing use of computers. As tools for processing and storing vast amounts of information, computers have an obvious potential for revolutionizing some aspects of contemporary life—banking, the securities industry, communications, the conduct of large and complex operations generally. But in many respects this potential has yet to be realized; and some observers have expressed concern about the uses to be made of this new capability, especially where data about individual persons are involved.

It seemed timely in 1969, therefore, to take a searching new look at the impact of computers on society. As a means of doing this, the Johns Hopkins University and the Brookings Institution proposed to present a series of distinguished lectures on Computers, Communications, and the Public Interest under the direction of Prof. Martin Greenberger of Johns Hopkins. The Sloan Foundation granted $40,000 to Johns Hopkins for this purpose, and the series, drawing upon the knowledge and thought of leading authorities in the field, is currently under way in Washington, D.C. Proceedings will be published. Support for the lecture series also was provided by the American Federation of Information Processing Societies.

Computers and the Public Interest

To encourage government administrators to begin considering the social implications of new knowledge in ecology, genetic manipulation, and the like, the University of Wisconsin's Center for Advanced Study in Organization Science conducted a seminar on Problems in the Ethics and Technology of Social Engineering with partial support of $8,000 from the Foundation. The Foundation also granted $10,000 to Columbia University in partial support of a study program on Problems of Federal Government Policy on Technology and the Environment, to be conducted under the sponsorship of Columbia and the Subcommittee on Science and Law of the Association of the Bar of the City of New York.

Information about Foundations

Certain more general educational concerns led to grants in 1969. One of these concerns was for the availability of information about foundations themselves to the interested public. The Foundation Library Center was established in 1956 to carry out this educational function. It is financed by grants from a number of major foundations, including the Sloan Foundation, which granted $200,000 over a three-year period in 1963.

The Foundation Center, as it is now called, systematically collects, classifies, and maintains on file the annual reports and other information issued by foundations. It copies the information returns filed annually by foundations with the Internal Revenue Service, and makes these available for public inspection at its libraries in New York and Washington, as well as in seven regional depositories in major libraries around the country. In this way scholars, fund raisers, students, journalists, and others seeking

general or specific information about foundations can obtain data from a central and authoritative source.

As a further service, the Foundation Center compiles and edits triennially *The Foundation Directory*, the basic guide to individual foundations and their interests. It publishes the bimonthly journal *Foundation News* which reports on trends and developments in the field and contains a record of grants of $10,000 and over. It also issues certain occasional papers, and encourages and cooperates in scholarly studies of various aspects of foundation operations.

Expanding Services to Philanthropy

Recently the Center has undertaken to broaden its services to the public and to the foundation field. A counseling service for newer foundations has been established, and information resources on foreign foundations are being increased. Educational seminars and a series of special books for foundation administrators are being instituted.

The Center asked a number of larger foundations to help support its projected expansion of program and to assure the continuance of existing services. The Sloan Foundation granted $105,000 to be used for this purpose over a three-year period.

Other grants for educational purposes:

THE ACADEMY OF POLITICAL SCIENCE, New York, N. Y.: To support a research study on financing higher education to be undertaken jointly by the Academy of Political Science and the Council for Financial Aid to Education $20,000

AMERICAN ASSOCIATION FOR HIGHER EDUCATION, Washington, D. C.: For general support during a period of transition to independent status . . $10,000

AMERICAN ASSOCIATION OF JUNIOR COLLEGES, Washington, D. C.: To help finance an International Assembly on the Community Junior College to be held in Honolulu in early 1970 . . . . . $10,000

EDUCATION DEVELOPMENT CENTER, Newton, Mass.: To conduct a study of the feasibility of establishing a Wall Street "High School of Finance." $10,000

FOUNDATION FOR THE ADVANCEMENT OF MEDICAL EDUCATION AND RESEARCH IN NEW JERSEY, Jersey City, N. J.: In support of the Cooperative Planning Group, established to coordinate physical and program development of four institutions of higher education in Newark: the Newark campus of Rutgers University, the Newark College of Engineering, the Essex County Community College, and the New Jersey College of Medicine and Dentistry $15,000

PIEDMONT UNIVERSITY CENTER OF NORTH CAROLINA, Winston-Salem, N. C.: For a two-day workshop for faculty new to the teaching profession . $ 2,250

UNITED STATES NATIONAL STUDENT ASSOCIATION, Washington, D. C.: In partial support of a National Conference on the Legal Rights of Students, held in St. Louis in February of 1969 . . . . . $ 2,700

Management

THERE were management crises almost wherever one looked in 1969, whether in hospitals, in universities and educational systems, in city governments, or in many of the ambitious new public programs intended to cure one or another social ill. It was clear that the need for innovative and adaptive organizational leadership in an era of rapid social change was every bit as pressing in the public sphere of activity as in the business world. Thus there was heightened interest in the education of administrators for the governmental and non-profit sector.

A New Look in Management at Vanderbilt

Against this kind of background Vanderbilt University in Nashville, Tenn., carried forward plans to create a new Graduate School of Management. Vanderbilt expressed determination to create a management school of a distinctly new kind in a region where there was a need for more management training opportunities. As dean of the School the University appointed Dr. H. Igor Ansoff, then professor of industrial administration in the Graduate School of Industrial Administration of Carnegie-Mellon University.

It is Dean Ansoff's view that accumulated knowledge has brought management education to a level of conceptual development where it is now possible to educate managers for many diverse kinds of purposive, efficiency-seeking organizations in both nonprofit and profit-making contexts. Managers thus educated would be leaders-generalists rather than specialists in either "public administration" or "business management." Moreover, Dean Ansoff expects to draw upon both the intuitive-historical and the theoretical-analytical themes in management education in molding the curriculum of the School. The goal is to produce managers capable of bringing to bear relevant parts of both the humanistic and the

Planning a new kind of management school at Vanderbilt University, Dean H. Igor Ansoff (gesturing) leads a faculty discussion. The school will seek to impart broad concepts of management applicable to both profit and nonprofit sectors.

scientific traditions on problems of managing change in a variety of kinds of institutions.

In carrying out such an eclectic mission the School at Vanderbilt is assembling a faculty whose previous work and research experience have been in many different organizational environments. The first students, admitted in the Fall of 1969, are of similarly heterogeneous backgrounds and interests. The School's planners have recognized a responsibility to recruit disadvantaged students and to make special provisions for them as needed. In addition to its regular Master's Degree program, the School intends to establish a continuing education program for executives through the senior level and a doctoral program which will focus on research in change processes in organizations, the adaptation of organizations to a changing environment, and the design of innovative organizations.

The Foundation contributed $500,000 toward the cost of establishing the Graduate School of Management at Vanderbilt.

Concern for a more specialized field of management, that of managing institutions of higher education, led a small group of individuals to form the Institute for Educational Management. The Institute is physically situated at the Harvard Business School and makes use of faculty from the Business School, although it is legally an independent and separate entity. Its chairman is Charles A. Coolidge, former chairman of the Corporation of Harvard University.

Improving Management of Colleges

The Institute for Educational Management proposed to establish a six-week summer training course for forty to fifty persons annually drawn from the middle and junior management levels in colleges and universities, fund-raising firms, and divisions of corporations concerned with support of higher education. A preliminary survey indicated that there is widespread demand among college and university administrations for such a means of upgrading the abilities of their personnel.

The Foundation, through a grant of $280,000 preceded by a planning grant of $20,000, agreed to provide tuition subsidies for the first two years, beginning in 1970, for the college and university personnel who will attend the Institute course.

Advancing Public Administration

One of the continuing efforts to improve the management of public and nonprofit agencies and institutions is that of the National Academy of Public Administration, established in 1967 by the American Society for Public Administration. The Academy's membership is elected from among leading administrators in the Federal Government and in universities, with lesser numbers coming from state and local government, research organizations, and various types of public affairs institutions. Its chairman is John D. Millett, chancellor of the Ohio Board of Regents, and its executive director is George A. Graham.

The Academy engages in studies of administrative questions for governmental and other agencies, bringing together panels of experts in the fields under study. In addition, it conducts occasional colloquia on subjects of interest to public administrators. In seeking to broaden its base of financial support the Academy in 1969 turned to several major foundations, and the Sloan Foundation contributed $50,000, paid to the American Society for Public Administration.

In seeking ways to improve the administration of cities the Alfred P. Sloan School of Management at Massachusetts Institute of Technology has been experimenting with intensive four-week courses for selected urban executives. This program, which may be the forerunner of a more extensive program, received partial support of $15,000 from the Foundation in 1969. For another effort in this general area the Rand Corporation received $20,000 for planning an educational program for urban managers.

Related Problems of Society

WHILE the Foundation's interests in science, technology, management, and education continued to govern the development of its programs in 1969, some grants also took account of the need to apply these and other capabilities to the solution of problems which have placed grave strains upon the fabric of society. It is unnecessary to rehearse the lengthy list of such problems; suffice it to say that they are of such overriding urgency that the Foundation felt obliged to confront some of them even where they presented challenges not distinctly central to the Foundation's traditional concerns.

An Attack on Problems of Cities

Perhaps the most broadly conceived attack on pressing problems of the nation's cities is that of the national Urban Coalition and its affiliated local coalitions, which now number more than forty. The national and local coalitions seek to pull together the leadership of major segments of affected communities—from government, business, labor, minority groups, and churches—to analyze problems and establish priorities for concerted action. Their concerns extend over the areas of manpower and employment, housing, health, education, economic development, and the administration of justice.

The national Urban Coalition, headed by John W. Gardner, supports the efforts of local coalitions through conferences and briefings, publications, a clearinghouse for exchange of information, and advisory and consultant services. The Coalition's research in urban problems and assessments of program results are made available to local coalitions and the public.

In a few communities local coalitions have foundered. The over-all effort, however, implies a long-term commitment by the Coalition which began to be fully implemented only in the latter half of 1968 with support from industry and the Sloan and other foundations. The Sloan Foundation in 1969 granted the Urban Coalition renewed support of $250,000.

A New Thrust at Urban Poverty

An organization with a much longer history, the National Urban League, began in 1968 to restructure itself to implement a "new thrust in mobilizing the black community in America toward equal results through social change." The Foundation granted $250,000, payable over two years, toward the cost of mounting the New Thrust program.

The Urban League, an interracial organization which long has worked through its local units for social betterment, has made the decision to involve itself more directly in the problems of impoverished ghetto dwellers. This led to creation of a Field Services department and a reassessment of activities of local affiliates, in the interest of shifting their operations from a program-oriented to a problem-solving approach. The Field Services department, headed by Sterling F. Tucker, provides the local units with technical assistance, staff training services, assistance in development of special projects, and special funding for projects. Five "Model Leagues" are being developed to serve as examples. Local projects are going forward in community organization, economic development of the ghetto, housing, education, and police-community relations.

While the private sector, as exemplified by the Urban Coalition and the Urban League, can make valuable contributions to the solution of urban problems, the major share of the burden probably will continue to fall on city governments. A potential source of advice and personnel for municipal administrations should be the colleges and universities.

Fresh Faces and Ideas at City Hall

The government of New York City has taken a number of steps to strengthen its ties with institutions of higher education. Thousands of students from throughout the nation have served as summer interns in City agencies during the past four summers through the New York Urban Corps. An Office of University Relations has been created within the Mayor's office. In 1968 the City began to formulate an Urban Fellowship Program which would deepen the involvement of students in municipal government. The Sloan Foundation early in 1969 granted $189,104 to the Administration and Management Research Association of New York City, Inc. for the first two years of this program.

New York Urban Fellows, twenty each year, are chosen competitively by the City from among nominations received from colleges and univer-

Mayor John V. Lindsay meets the first class of New York City Urban Fellows in September of 1969. The students work with top City administrators for a year to learn at first hand how a municipal government functions.

sities. Those selected are assigned to positions directly under the heads of various City agencies and in the offices of the Mayor and Deputy Mayors. In addition they participate in off-the-record seminars with leaders of government, business, communications, culture, and higher education in the city. Fellows are granted academic credit for their New York year by their colleges and universities, and each is required to write a report analyzing and summarizing his experiences. The Foundation grant pays a stipend of $3,500 plus travel expenses, and the Fellow's college or university is expected to make a supplementary grant of at least $500.

As this is written the first group of Urban Fellows is at work on assignments in a variety of City agencies having to do with education, city planning, consumer affairs, economic development, police, health, budgeting, personnel, and housing, among other subjects. Nearly 400 colleges and universities have been invited to nominate Fellows for the next class. The hope is that the Fellows will bring fresh ideas and creative new insights into city government, and that some will decide to make their careers there.

Yale University is initiating a sequence of formal undergraduate instruc-

A New Major in the City at Yale

tion in the study of the city with the help of a $250,000 Sloan grant, payable over three years. With the approval of the faculty of Yale College, an academic major in the study of the city will be offered, with concentration either in social science or the humanities. New, urban-oriented courses are being developed in political science, economics, sociology, psychology, law, and other key disciplines.

Yale students taking the major in study of the city all will gain some actual experience of working in a city administration. This may occur during a summer, during an academic year, during a full year away from the Yale campus, or in some combination of the three. While working away from Yale in a city, students will continue to engage in seminar and course work designed to provoke analysis of their working experience while it is occurring.

While there was much discussion in 1969 of the proper role of colleges and universities vis-a-vis urban and minority affairs, and while urban studies centers continued to multiply, it was evident that not enough progress was being made. What might help, it appeared, was some central coordinating body which could exert leadership to focus the existing multiplicity of efforts on problems identified as crucial.

For this task the American Council on Education, which acts as a principal spokesman for higher education in American life, proposed to establish a new urban affairs program to act as a focal point for concentrating the efforts of its staff and membership on the social and racial problems of the cities. The Foundation agreed to provide $180,000 to cover the cost of a new program officer and secretarial support over a four-year period.

Refocusing Educational Activities

The new urban affairs officer will have the major responsibility within the Council for identifying urban problems that warrant priority attention of the Council's established commissions and other educational organizations. He will work with representatives of other educational organizations, urban associations, colleges and universities, and federal personnel to develop and maintain an agenda of necessary urban studies, research, and action programs for colleges and universities. The urban affairs officer will be responsible for providing assistance, upon request, to other higher education associations and to federal agencies in formulating new legislative proposals; and for planning a program of training institutes and internships for minority-group college administrators.

In further support of efforts to define the role of higher education in urban life, the Foundation granted $88,000 to the National Council of Churches for a two-year study by a newly established Commission on Higher Education and Urban Society. The Commission, chaired by Dr. Morris T. Keeton, academic vice president of Antioch College, is examining three principal subjects: the general place of higher education in urban life, with attention to developing educational opportunities for youths

Finding a Role for Churches in Urban Life

and adults of widely varying needs and capacities; patterns of race in institutions of higher education and their implications for the total needs of urban society; and the possible development of "community development colleges," institutions whose purposes, standards of admission, location, and curricula would be appropriate and indigenous to the interests of blacks and other minority groups in urban communities.

It is evident that church leadership and church-related institutions have a potential contribution to make in this area. The rapid urbanization of society makes it imperative for them to reassess their roles and to develop the necessary commitment and resources to meet the new roles which are emerging. Given the more than 800 existing church-related colleges and universities and the reservoir of leadership which exists in the many religious institutions of this country, the reorientation toward urban needs which the present study may help to stimulate seemed to the Foundation to be worthy of encouragement.

Other grants for related problems of society:

UNIVERSITY OF CALIFORNIA, Berkeley, Calif.: In support of the program of the College of Environmental Design to train minority group students in architecture and the design professions, the proceeds of this grant to provide tutorial services and student aid for disadvantaged students admitted to the College in the Fall of 1969 . . . . . $20,000

FAIR HOUSING, INC., Roxbury, Mass.: In support of general operating expense and of the Home Ownership Revolving Fund of the grantee . . $15,000

HAWTHORNE HOUSE, INC., Roxbury, Mass.: In support of the Highland Park Free School, an independent, experimental, community-controlled elementary school for children primarily from low-income families . . . $12,000

INSTITUTE FOR ARCHITECTURE AND URBAN STUDIES, New York, N. Y.: In partial support of a research program to study the street as a component of the urban environment $12,500

JOBS FOR YOUTH, INC., New York, N. Y.: In support of expansion of counseling and placement services for minority-group and disadvantaged young people $15,000

NEW YORK URBAN COALITION, INC., New York, N. Y.: To finance a study on the role of universities in furthering the goals of the New York Urban Coalition $10,000

ORGANIZATION FOR SOCIAL AND TECHNICAL INNOVATION, INC., Cambridge, Mass.: Partial support for a conference on university response to the urban crisis, held in June 1969 . . . . . $10,000

TEXAS CHRISTIAN UNIVERSITY, Fort Worth, Texas: To publish the proceedings of a Conference on the Transfer of Technology to Urban Uses $ 6,000

UNITED NEIGHBORHOOD HOUSES OF NEW YORK, INC.: New York, N. Y.: To assist in the development of educational materials directly related to specific jobs for which disadvantaged persons are to be trained $15,000

Particular Programs

Expanding Professional Opportunities

AMONG the Foundation's Particular Programs, the first to be implemented was in the area of improving the access of Negroes and other minorities to the professions of management and medicine. The Foundation plans to concentrate some of its efforts in these areas, where the scarcity of minority practitioners is at its most acute, over the next five years.

Of the disadvantaged minorities, the Negro is greatest in number. Accordingly, this program will deal primarily with the Negro, and the initial grants are so directed. It is clear however, that the steps which are recommended will be applicable as well as to the Puerto Rican community in the East, to the Mexican-American community in the West, and to other smaller disadvantaged minorities in American society.

The Missing Professionals

Where specialized knowledge can be readily gained without long and intensive academic preparation, the Negro has long since made his mark: in music, in entertainment, in athletics, and in creative literature. In the learned professions and in the vocational professions the Negro is enormously under-represented; in some of them he is practically not represented at all.

The need exists along the entire spectrum of those professions that require extended academic preparation. If professionalism is equated with graduate education, it is sufficient to point out that the Negro is repre-

sented in very small numbers in the graduate schools of the major universities, and with only a few exceptions, he has no graduate institutions of his own to which he can turn. This is true in graduate schools of arts and sciences as in the more vocational graduate schools of law, medicine, dentistry, education, or architecture.

The Sloan Foundation has decided to concentrate its efforts in this Particular Program in the two fields of management and medicine. These are both fields of endeavor in which the Foundation has engaged itself in the past and therefore can bring some experience to bear upon the problems it will encounter. The decision to concentrate in this fashion is not meant to imply that the needs are not great elsewhere, but only that the resources of the Foundation are limited, and if it is to exert a measurable difference in this Particular Program, some specific focus of this kind is essential.

Problems in Management...

The problems of engaging larger numbers of Negro students in graduate management education are manifold. Some can be approached directly through the formal educational process; some lie outside it. Some of them are:

¶ Recruitment. The able student must be encouraged to seek a career in management, and must be encouraged to pursue graduate management education to that end.

¶ Identification. There must be better means of identifying, no later than the early college years, the student who will be likely to enjoy success in a managerial career.

¶ Adjustment. The graduate schools of business must adjust their teaching processes and their curricula to take cognizance of the special needs, the special difficulties, and the special career objectives of Negro students.

¶ Finances. The Negro student must be provided with greater financial assistance than the average white student requires.

As a result of discussions of these matters initiated by the Foundation, nine of the nation's leading graduate schools of management* organized the Council for Opportunity in Graduate Management Education to increase the flow of blacks and members of other minority groups into positions of significant responsibility in management. The Council will try to make

* Graduate School of Business Administration, University of California (Berkeley); Graduate School of Industrial Administration, Carnegie-Mellon University; Graduate School of Business, Columbia University; Graduate School of Business and Public Administration, Cornell University; The Amos Tuck School of Business Administration, Dartmouth College; Graduate School of Business Administration, Harvard University; Alfred P. Sloan School of Management, Massachusetts Institute of Technology; Wharton School of Finance and Commerce, University of Pennsylvania; Graduate School of Business, Stanford University.

minority students aware that graduate management programs exist, that they offer the possibility of careers relevant to the concerns and aspirations of minority persons, and that one can prepare for such careers in certain ways. The Council will devise means of interesting such students in graduate management study while they are still completing their bachelor's degrees, and will develop ways of assisting them financially through their graduate management studies.

By the end of the Council's existence, currently seen as some time in 1975, it is expected that each management school will be able to continue activities of this kind without a joint effort of the Council's magnitude.

The Foundation granted $1,000,000 through Columbia University for the first year of operations by the Council for Opportunity in Graduate Management Education. Financial requirements for the support of the Council and of the minority students to be enrolled in the nine member schools will considerably exceed the amount the Foundation can provide, and other funds will be sought.

Earlier in the year, a grant of $15,000 was made to the Graduate School of Business Administration of Harvard University for planning expenses of the Council. A related grant of $8,500 was made in 1969 to Fisk University for a conference on The Role of Black Managers in Society.

* * *

... and in Medicine

The need for a greater flow of Negro students into medicine has two distinct aspects. One of these relates to the general health needs of the nation, the other to the special health needs of the Negro community. Viewed from either aspect, the need is great; in sum it is drastic.

The difficulties of devising remedies for this situation will be enormous. Some are immediately apparent:

¶ Of all professional training, medical education is the most arduous and extends over the longest period of time before the student becomes self-supporting.

¶ The decision to embark upon a medical career must be made relatively early in the education process. Unlike decisions to enter careers in management, for instance, the choice of a medical career must be made during the first years of higher education.

¶ Both premedical and medical education require facilities for science education; this is precisely the area in which predominantly Negro colleges are most deficient.

These difficulties signify that each of the four steps outlined earlier for

engaging larger numbers of Negro students in management careers must be intensified where medical careers are concerned.

¶ Recruitment. The recruitment process must begin earlier, and probably must include serious efforts to improve guidance and counseling services in secondary schools and colleges serving predominantly Negro students.
¶ Identification. There must be some means of identifying, no later than the early college years and perhaps before college admission, the student who will be likely to enjoy success in a medical career.
¶ Adjustment. Broad curricular changes must be invented and put into practice: in the colleges, to provide the necessary premedical education for students whose earlier scientific education has been deficient; in the graduate schools, to take cognizance of the special needs, special difficulties, and above all the special careers that will characterize the potential Negro medical practitioner.
¶ Finances. Financial requirements, in view of the longer duration of medical education, will be most pressing.

The Sloan Foundation first took an interest in this field in 1959. The Foundation has been the principal supporter of National Medical Fellowships, Inc., having granted nearly $1 million to provide substantial financial aid for more than 100 black students in medical schools, and significant partial aid for more than 100 others. As important as this effort has been, it has clearly not been adequate.

Another Method: NMF

The Foundation during 1969 continued its support of National Medical Fellowships (NMF) while exploring other ways of broadening opportunities for minority students to pursue medical careers. The 1969 grant of $100,000 to NMF was made on a challenge basis, to be matched one for one, to help NMF meet an emergency situation created by a tripling in the number of black students admitted to medical schools and applying for support from NMF. Ways of strengthening NMF in its vital role of providing financial support for black medical students are being explored.

As in management, the Foundation is investigating means of stimulating cooperative efforts among schools of medicine to increase opportunities for minority students. A grant of $11,800 to the Stanford University School of Medicine is supporting a series of planning meetings for this purpose among a group of West Coast medical schools. Representatives of major national organizations in the field of health and medicine are exploring a broad cooperative program for increasing minority representation in medicine with the aid of a $20,000 planning grant to the Association of American Medical Colleges (AAMC). A task force for this project will report to an inter-association committee which includes representatives

of the AAMC, American Hospital Association, American Medical Association, and the National Medical Association.

As a means of exploring ways to help academically talented and highly motivated minority-group high-school students to work toward medical careers, the Foundation granted $11,000 to the New York University Medical Center for its Pre-Medical Research and Education Program.

* * *

By the initiation of this program in management and medicine the Foundation believes it can make a significant contribution toward the solution of an urgent problem: access to the professions for minority students. The approach here, dealing as it does with only management and medicine, is admittedly partial; but it has the advantages of being manageable in terms of Foundation resources, of being amenable to immediate and direct approaches, and of being in the mainstream of previous Foundation activities.

Neuroscience

IN the second of its Particular Programs the Foundation will devote a part of its resources over the next five to seven years to basic research in the emerging scientific discipline of neuroscience. This work promises to contribute significant new insights into what is perhaps the ultimate scientific problem—the nature of man himself as a biological organism.

The Mystery of the Brain

Scientists, and to a growing extent the general public, are becoming increasingly aware that one of the most important new frontiers for science is the brain and its relation to behavior. As yet we know little indeed about this master system which to so great an extent makes us what we are and affects our thought and actions. There is a sense of urgency in the need to gain this knowledge, for a better understanding of how the central nervous system works can make a great difference in our ability to live with one another, in the character and impact of education, and in other far-reaching concerns affecting mankind.

As a scientific activity directed toward the comprehension of brain function, neuroscience promises the needed knowledge. But the field now is at a critical stage of its development, analogous to that which molecular biology experienced in the 1930s. Then the convergence of many disciplines and the consequent application of the physical techniques of X-ray and electron diffraction revealed the structure of biologically important molecules. This work eventually led to the discovery of the form and function of DNA—a discovery which has revolutionized scientific thought.

Now as then, there is a vital role for carefully guided private funds in aiding the emergence of important new knowledge. In neuroscience at this time, the returns from small investments can possibly be far greater than

those in well-established areas of science such as particle physics or space exploration that now receive substantial federal support.

The core of neuroscience might be defined to include the following sub-disciplines:

NEUROANATOMY—the study of brain tissues at all levels, but particularly at the cellular level.

NEUROPHYSIOLOGY—the study of the function of nerve cells.

NEUROCHEMISTRY—the study of the metabolism of brain cells and their chemical sensitivity.

NEUROPATHOLOGY—the study of the response of nervous tissue to disease.

NEUROLOGY—the clinical approach to an understanding of the nervous system.

NEUROPHARMACOLOGY—the study of the chemical aspects of brain-behavior relation.

The Disciplines Involved

Impinging directly upon these central fields of neuroscientific investigation are a number of other disciplines, each with a conceptual framework and a methodology of its own, and each in its own way fundamental to a knowledge of the central nervous system. Some of these are:

¶ Molecular biology and genetics, which may among other things hold the key to an understanding of memory and learning.

¶ Electrical engineering, and in particular communications and information sciences, which provide tools for theoretical analysis and for experimental techniques.

¶ Linguistics, which is obliged to postulate models of the brain in its search for a comprehension of the most fundamental of all human behavior patterns.

¶ Ethology, which is concerned with animal behavior in naturally occurring situations.

¶ Biophysics, an area encompassing quantitative considerations of the physical phenomena underlying biological processes.

¶ Psychology, and particularly physiological psychology.

¶ Psychiatry, a clinical area whose practitioners are likely in the long run to become increasingly dependent upon an increased knowledge of the relationship between brain function and behavior.

This catalogue only suggests the scope of neuroscience. Many important aspects have been omitted. What should be clear, however, is the essential continuity and unity of purpose of the discipline. What is required for significant advances in the field are new, synthesizing modes of thought that ignore disciplinary boundaries, and a common language in which broadly accepted scientific criteria can be phrased.

* * *

For the purpose of evaluating the success of a program in neuroscience, objectives can be formulated at many levels and can apply to more than one sphere of activity. At the most fundamental level, that of the individual research project, returns will be in the traditional form of contributions to basic knowledge, e.g.: "How is the molecular structure of nerve cells altered during learning?" But the cumulative effect of this knowledge cannot be so concisely expressed. Most broadly phrased, it rests in the firm belief that a better understanding of the biological basis of behavior can improve man's ability to live with himself and with his fellows.

The Potential Impact

In the area of medicine, particularly mental health, the effects of neuroscience research can be far reaching. We have as yet only the first hints of the degree to which brain function can be affected by chemicals. But already the total economics of our mental hospitals has been profoundly altered by the introduction of tranquilizers. There is no doubt that new knowledge will lead to even more sweeping changes.

It is by no means visionary to suppose that we will eventually know how beneficially to affect learning and memory. Certainly many of the present approaches to education will be substantially improved as a result. Finally, flexible interdisciplinary programs for research and research training as envisioned here are only slowly being adopted by academic institutions. Despite compelling examples of the necessity for new forms set by molecular biology, rigid compartmentalization of traditional academic disciplines continues to be the rule. Neuroscience, requiring an even more global integration of knowledge, cannot advance within this framework. What can be expected from the kind of support the Foundation can give is a convincing demonstration of the need to alter this framework and constructive suggestions for ways in which this might be done.

The Multiple Approaches

The account given above of neuroscience conveys by implication the nature of the problems now being encountered in this field of investigation. Briefly stated, neuroscience is not yet one discipline but rather an interrelated set of disciplines, all converging toward the solution of common problems but approaching them from different viewpoints that will eventually merge into one comprehensive picture.

Thus, characteristically the neurochemist may be deeply involved in the investigation of the chemical basis of memory. To this study he brings the training of the chemist, the conceptual framework within which chemical investigations are conducted, and the methodology of the chemist. Elsewhere a molecular biologist, trained as a biologist and equipped to work as a biologist, may be engaged in a parallel undertaking; an electrical engineer, deep in information theory, may be hard at work on closely related problems. Each of them recognizes his task as one that fits within the discipline with which he is associated; none of them may be aware that

in other disciplines work is being conducted (perhaps almost in another language) that is of central significance to his own undertakings.

What must be done now is to demonstrate that research programs of broad scope, combining, for example, ethologists and molecular biologists, are essential for realizing the imminent breakthroughs in neuroscience. Coupled with these must be equally new and comprehensive training programs, both to prepare new young scientists and to broaden adequately the skills of men who have already demonstrated their competence in some restricted aspect of neuroscience. Some individual scientists with distinguished records of accomplishment are bold enough to move across boundaries, even at considerable risk to their own careers. Farsighted universities here and there have begun to establish centers which set out to be interdisciplinary. In one way or another, communications can be established among disciplines to enable the initiation of joint undertakings.

And the Need for Support

It is precisely during this period of emergence that a private foundation can be of most service. The funds that are needed are small in comparison with total federal expenditures for science but are of critical importance. The uses to which those funds must be put are definable, and the institutional avenues through which they must pass are readily identified. The individual scientists involved, motivated as they are to press toward new frontiers rather than settle comfortably within frontiers already established, are just those persons who are likely to be most energetic and able. The impetus which a foundation can give to the new discipline comes at a critical time, when modest support could have enormous consequences.

Other Grants

In the interest of completeness in reporting, all grants not mentioned in preceding sections of this Report are listed and briefly described here. These staff grants are awarded within three categories: (1) exploratory and seed grants, intended to help determine future Foundation programs or to initiate activities which promise to become self-sustaining at an early date; (2) civic and support grants, made in recognition of obligations by the Foundation toward its geographical and professional communities, and (3) *ad hoc* grants for activities of unusual interest for which no continuing commitment is implied. Staff grants falling within the first category have already been described; thus the list that follows consists of those in the second and third classifications.

Administration and Management Research Association of New York City, Inc., New York, N. Y.: For support of the program of the Volunteer Coordinating Council of New York City . . . . . $ 5,000

American Cancer Society, New York City Division, New York, N. Y.: Contribution in support of the first Alfred P. Sloan, Jr. Memorial Award Dinner, held in New York, June 4, 1969 . . . . . $10,000

The American National Red Cross, Washington, D. C.: For general support $10,000

Automotive Safety Foundation, Washington, D. C.: In support of the 22nd year of the Alfred P. Sloan Radio-TV Awards for Highway Safety $18,500

Colby College, Waterville, Me.: Contribution toward the Raymond P. Sloan Lectureship Fund in Health and Hospital Administration . . . $ 5,000

Council on Foreign Relations, New York, N. Y.: For general support $20,000

Council on Foundations, Inc., New York, N. Y.: Contribution toward support of the Council's operations for 1969 . . . . . $ 5,000

The Milestone Foundation, Washington, D. C.: Final grant in support of the Emergency Highway Traffic Regulation Program of the National Highway Users' Conference $10,000

NAACP Legal Defense and Educational Fund, Inc., New York, N. Y.: In partial support of a project to equip civil rights lawyers to give advice in the field of business $20,000

NAACP Special Contribution Fund, New York, N. Y.: For general support of the programs of the NAACP Special Contribution Fund . . . $20,000

National Council on Hunger and Malnutrition in the United States, Washington, D. C.: For general support $10,000

National Information Bureau, New York, N. Y.: Toward operational expenses of the Bureau's information services concerning nonprofit organizations . . . . . $ 1,000

The New York Public Library, New York, N. Y.: For general support of the Library's Research Division . . . . . $ 5,000

Population Reference Bureau, Inc., Washington, D. C.: For general support $10,000

The Salk Institute, San Diego, Calif.: For two workshops on the problems of drugs and drug addiction $15,000

United Negro College Fund, Inc., New York, N. Y.: For general support $15,000

Welfare Island Planning and Development Corporation, New York, N. Y.: In partial support of a study by the Welfare Island Planning and Development Corporation of possible alternatives regarding the use of Welfare Island $10,000

Internal Operations

THE Foundation welcomed two new Trustees to its Board in 1969 and paid tribute to two retiring Trustees. Carl E. Allen, a vice president of General Motors Corporation and former president of the Federal Reserve Bank of Chicago, was elected to the Board in April. He now serves as chairman of the Foundation's Investment Committee. Henry H. Fowler, general partner in Goldman, Sachs & Co. and former Secretary of the Treasury, joined the Board in September.

Retiring from the Board was General Lucius D. Clay, senior partner in Lehman Brothers. Also retiring was Devereux C. Josephs, former Chairman of the Board of Trustees of the Foundation. Larkin H. Farinholt resigned as a Trustee but continues to serve as Vice President of the Foundation.

Several appointments to the staff occurred during the year. Lucius P. Gregg joined the Foundation as a program officer on June 1. Previously he was associate dean of sciences at Northwestern University. Stephen White, formerly director of special projects at the Salk Institute and a part-time consultant to the Foundation, became a full-time program officer of the Foundation in September.

In February Dr. Kenneth A. Klivington, a neuroscientist and electrical engineer with experience in urban design problems, became a program associate of the Foundation. Thomas E. Ford, formerly director of scholarships and program associate, assumed new administrative responsibilities and was designated administrative officer and program associate. Robert K. Hage, on leave as director of financial aid at Dartmouth College, served the Foundation as a consultant for a second year.

CARL E. ALLEN

HENRY H. FOWLER

KENNETH A. KLIVINGTON

LUCIUS P. GREGG

ROBERT M. OGDEN

STEPHEN WHITE

Trustees of the Foundation at their December meeting elected Robert M. Ogden as Secretary and Treasurer of the Foundation. Mr. Ogden previously had been a partner in Stanley Simon & Associates, a New York financial and management consulting firm. As Secretary and Treasurer he succeeded Charles E. Hewitt, who has returned to the banking and investment field.

The text of the Report for 1969 describes in some detail all grants and appropriations approved during the year. Amounts committed and paid to each grantee, together with information on income, assets, and investments, will be found in the *Financial Review*.

Financial Review

The financial statements of the Foundation, which have been audited by Haskins & Sells, independent certified public accountants, appear on the following pages. They include the balance sheet, the statement of income and funds and the schedule of marketable securities.

The total of grants authorized and expenses during 1969 amounted to $18,180,340. Over the Foundation's thirty-five year history, the cumulative excess of grants and expenses over income has amounted to $43,122,686. Cash expenditures were $16,868,734 in 1969, compared with $16,612,733 in 1968. The excess of cash expenditures over income was $2,344,420 in 1969, compared with $2,910,810 in 1968.

Based upon ledger values which reflect cost or quoted market value of securities at date of gift or receipt, the Foundation's assets totalled $210,869,362 at December 31, 1969. This is $253,876 more than assets of $210,615,486 at the previous year end. Based upon quoted market values, the Foundation's assets totalled $302,864,260 at the close of 1969, compared with $329,499,475 a year earlier.

A disposition of funds summary showing the sources of funds and their application is presented below:

SOURCE OF FUNDS:		
Investment and other income		$14,524,314
Net profit on disposals of securities		1,327,555
Distribution from the Estate of Alfred P. Sloan, Jr.		1,270,741
		17,122,610
APPLICATION OF FUNDS:		
Grant payments	$15,740,882	
Special Projects	100,000	
Administrative expenses	1,061,000	
	16,901,882	
Less—Appropriations unexpended	33,148	
		16,868,734
INCREASE IN FUNDS CONSISTING OF:		
Increase in ledger value of investments	$ 553,196	
Less decrease in cash balances	299,320	$ 253,876

A comparative summary of the Foundation's assets at quoted market values at December 31, 1969 and December 31, 1968 follows:

	1969 AMOUNT	1969 PERCENT OF TOTAL INVESTMENTS	1968 AMOUNT	1968 PERCENT OF TOTAL INVESTMENTS
Fixed income:				
U.S. Government and agency obligations	$ 33,343,217	11.0	$ 37,885,962	11.5
Other bonds and notes	22,363,290	7.5	22,020,111	6.7
Total fixed income	55,706,507	18.5	59,906,073	18.2
Common stocks:				
General Motors	106,498,537	35.2	121,905,197	37.1
All other	139,941,829	46.3	146,671,498	44.7
Total common stocks	246,440,366	81.5	268,576,695	81.8
Total investments	302,146,873	100.0	328,482,768	100.0
Cash	717,387		1,016,707	
Total assets at quoted market values	$302,864,260		$329,499,475	

A summary of grants by classifications followed by a listing of grants made during 1969 will be found on pages 70-75. Grants authorized and payments for the year ended December 31, 1969 are summarized in the following table:

Grants unpaid January 1, 1969	$19,064,459
Grants authorized during the year	17,019,340
	36,083,799
Payments during the year	15,740,882
Grants payable but not due at December 31, 1969	20,342,917
Appropriations unexpended	111,597
Total grants and appropriations unexpended at December 31, 1969	$20,454,514

Income from investments credited to the General Motors Dealers Appreciation Fund during 1969 amounted to $511,112. Grants authorized and applied against such Fund totalled $3,831,250 of which $2,500,000 represented a grant to the Memorial Sloan-Kettering Cancer Center, $1,200,000 a grant to the Sloan-Kettering Institute for Cancer Research and $131,250 a grant to the Southern Research Institute. Grant payments from such Fund during the year 1969 totalled $1,275,000 and grants outstanding and unpaid at the end of 1969 were $4,556,250.

After taking account of the foregoing, the net worth of the Foundation at December 31, 1969, based on quoted market values, was divided as follows:

	TOTAL ASSETS AT MARKET VALUE	COMMITMENTS AND APPROPRIATIONS UNEXPENDED	FUND BALANCES AT MARKET VALUE
General Fund	$292,839,453	$15,898,264	$276,941,189
General Motors Dealers Appreciation Fund	10,024,807	4,556,250	5,468,557
Total	$302,864,260	$20,454,514	$282,409,746

HASKINS & SELLS
CERTIFIED PUBLIC ACCOUNTANTS

TWO BROADWAY
NEW YORK 10004

ACCOUNTANTS' OPINION

Alfred P. Sloan Foundation:

We have examined the balance sheet of Alfred P. Sloan Foundation as of December 31, 1969 and the related statement of income and funds for the year then ended, and the supplemental schedules of marketable securities 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, 1969 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.

February 2, 1970

Haskins & Sells

Balance Sheet

December 31, 1969 and December 31, 1968

ASSETS	1969	1968
MARKETABLE SECURITIES (at cost or quoted market at date of gift or receipt):		
Fixed Income Securities:		
U.S. Government and agency obligations	$ 36,185,832	$ 39,142,957
Other bonds and notes	25,810,002	22,722,502
	61,995,834	61,865,459
Common Stocks:	148,156,141	147,733,320
Total (quoted market 1969—$302,146,873; 1968—$328,482,768)	210,151,975	209,598,779
CASH	717,387	1,016,707
TOTAL	$210,869,362	$210,615,486

OBLIGATIONS AND FUNDS		
GRANTS AUTHORIZED BUT NOT DUE FOR PAYMENT	$ 20,342,917	$ 19,064,459
APPROPRIATIONS UNEXPENDED	111,597	78,449
FUND BALANCES	190,414,848	191,472,578
TOTAL	$210,869,362	$210,615,486

Statement of Income and Funds

For the years ended December 31, 1969 and 1968

INCOME	1969	1968
Investment Income (recorded on cash basis):		
Dividends	$ 10,750,652	$ 10,511,355
Interest	3,522,556	3,066,330
Income received as residuary legatee under will of Alfred P. Sloan, Jr. and as remainderman of trusts	246,651	93,840
Other	4,455	30,398
Total	14,524,314	13,701,923
Grants and Expenses:		
Grants authorized	17,019,340	9,138,172
Cost of special projects	100,000	104,417
Administration, including investment counsel and custodial services	1,061,000	779,608
Total	18,180,340	10,022,197
Excess of Grants and Expenses over income for the year	(3,656,026)	3,679,726
Cumulative excess of Grants and Expenses over income from inception to:		
Beginning of year	(39,466,660)	(43,146,386)
End of year	(43,122,686)	(39,466,660)
PRINCIPAL		
Balance at beginning of year	230,939,238	222,505,877
Assets received as residuary legatee under will of Alfred P. Sloan, Jr. and as remainderman of trusts	1,270,741	5,750,602
Net profit on disposals of securities	1,327,555	2,682,759
Balance at end of year	233,537,534	230,939,238
FUND BALANCES AT END OF YEAR	$190,414,848	$191,472,578

Schedule of Marketable Securities

December 31, 1969

Fixed Income	Principal Amount	Ledger Amount	Quoted Market Value
U.S. Government and Agency Obligations:			
Treasury Bonds:			
4%—August 15, 1973	$ 5,921,000	$ 5,863,617	$ 5,117,935
Treasury Notes:			
5.375%—February 15, 1971	2,500,000	2,496,063	2,421,875
5.75% —November 15, 1974	3,000,000	3,002,812	2,705,610
6% —May 15, 1975	2,000,000	2,003,750	1,826,240
6.50% —May 15, 1976	2,000,000	1,997,945	1,885,000
Federal Land Bank 4.50%—			
October 1, 1970	1,285,000	1,251,269	1,235,206
Federal National Mortgage Association:			
5.50% —April 1, 1970	1,500,000	1,498,125	1,473,750
4.50% —July 1, 1970	1,800,000	1,732,500	1,748,250
6% —March 11, 1971	2,000,000	1,998,750	1,932,500
6.30% —April 8, 1971	2,500,000	2,500,000	2,412,500
5.75% —June 23, 1971	300,000	301,500	286,125
5.125%—February 10, 1972	2,350,000	2,358,813	2,176,688
5.50% —April 1, 1972	1,640,000	1,637,438	1,529,300
4.70% —December 1, 1972	1,000,000	955,000	897,500
4.50% —July 1, 1973	2,790,000	2,580,750	2,444,738
5.20% —January 19, 1977	3,000,000	3,011,250	2,437,500
6.05% —February 1, 1988	1,000,000	996,250	812,500
Total U.S. Government and Agency Obligations		36,185,832	33,343,217
Other Bonds and Notes:			
Commercial Paper—Short Term	2,530,000	2,530,000	2,530,000
General Motors Acceptance			
Corporation Bonds:			
5.75% —May 1, 1971	1,000,000	973,260	950,000
3.625%—September 1, 1975	1,000,000	810,600	787,500
5% —September 1, 1980	1,300,000	1,300,000	994,500
5% —March 15, 1981	1,500,000	1,492,500	1,132,500
Norfolk & Western Railway Co.			
7.25% Conditional Sales			
Contracts—August 1, 1973	1,720,000	1,720,000	1,642,600

Schedule of Marketable Securities

December 31, 1969
(continued)

Fixed Income	Principal Amount	Ledger Amount	Quoted Market Value
Florida Power & Light Co.			
1st Mortgage 3.50%—			
January 1, 1974	$ 1,000,000	$ 862,520	$ 822,500
National Dairy Products Corp.			
3.125%—June 1, 1976	200,000	158,664	146,000
Household Finance Corp.			
Debentures 4.625%—			
January 15, 1977	1,015,000	870,118	761,250
Public Service Electric &			
Gas Company, Debenture Bonds			
4.625%—March 1, 1977	1,223,000	1,096,630	953,940
American Telephone & Telegraph			
Company, Debenture Bonds			
4.375%—April 1, 1985	1,500,000	1,518,210	1,005,000
Burlington Industries, Inc.			
Convertible Debenture Bonds			
5%—September 15, 1991	1,000,000	1,000,000	982,500
Tenneco Corporation, Convertible			
Debenture Bonds 6.25%—			
October 1, 1992	1,500,000	1,500,000	1,395,000
General Telephone & Electronics			
Corporation, Convertible			
Debenture Bonds 5%—			
December 15, 1992	3,000,000	3,000,000	2,362,500
Quebec Hydro-Electric Commission			
Debenture Bonds 9.75%—			
December 15, 1995	1,000,000	987,500	1,015,000
Standard Oil Company (New Jersey)			
Debenture Bonds 6%—			
November 1, 1997	5,000,000	5,000,000	4,087,500
Standard Oil Company of Indiana			
Debenture Bonds 6%—			
January 15, 1998	1,000,000	990,000	795,000
Total other bonds and notes		25,810,002	22,363,290
Total fixed income securities		$61,995,834	$55,706,507

Schedule of Marketable Securities

December 31, 1969
(continued)

Common Stocks	Number of Shares	Ledger Amount	Quoted Market Value
American Can Company	48,800	$ 2,725,898	$ 1,994,700
American Metal Climax, Inc.	60,000	1,305,194	2,175,000
American Telephone & Telegraph Company	120,000	4,993,811	5,835,000
Avon Products, Inc.	13,100	822,375	2,246,650
Babcock & Wilcox Company, The	30,000	679,983	798,750
Baxter Laboratories, Inc.	10,000	264,814	296,250
Caterpillar Tractor Company	80,000	1,448,479	3,400,000
Central & South West Corporation	25,000	653,569	1,006,250
Chase Manhattan Corporation	24,757	777,677	1,287,364
Clorox Company, The	50,000	409,294	1,200,000
Coca-Cola Company, The	12,000	946,463	987,000
Corning Glass Works	9,598	1,030,430	2,442,691
Cutler-Hammer, Inc.	27,500	1,192,936	876,563
Walt Disney Productions	4,080	376,022	546,720
E. I. duPont deNemours & Company	12,000	1,916,128	1,260,000
Eastman Kodak Company	103,954	2,499,064	8,563,211
First Chicago Corporation	18,114	753,105	930,607
First National Bank of Boston, The	22,500	851,683	1,507,500
First National City Corporation	17,452	527,600	1,143,106
General Electric Company	39,810	2,741,464	3,085,275
General Foods Corporation	25,000	2,186,566	2,078,125
General Motors Corporation	1,540,666	70,384,314	106,498,537
Gillette Company	25,000	1,230,998	1,312,500
Gulf Oil Corporation	56,768	578,073	1,759,808
Household Finance Corporation	40,000	737,671	1,610,000
International Business Machines Corp.	68,000	5,251,600	24,786,000
International Nickel Company of Canada, Ltd.	96,500	1,971,791	4,197,750
International Paper Company	70,000	2,317,666	2,598,750
Johnson & Johnson	3,000	422,053	540,000
Kennecott Copper Corporation	60,000	2,519,809	2,805,000
Merck & Company, Inc.	24,400	256,742	2,757,200
Middle South Utilities, Inc.	60,600	1,022,692	1,318,050

Schedule of Marketable Securities

December 31, 1969
(continued)

Common Stocks	Number of Shares	Ledger Amount	Quoted Market Value
Minnesota Mining & Manufacturing Co.	10,000	$ 1,121,804	$ 1,096,250
Mobil Oil Corporation	74,000	2,047,176	3,404,000
J. P. Morgan & Company, Inc.	59,636	1,912,527	3,525,979
National Cash Register Company, The	17,000	2,216,501	2,728,500
Northern Natural Gas Company	40,000	2,260,412	1,640,000
Northwest Bancorporation	42,000	615,477	1,501,500
Owens-Corning Fiberglas Corp.	21,800	1,778,408	1,902,050
Phelps Dodge Corporation	27,300	1,186,853	1,371,825
Polaroid Corporation	3,000	405,724	375,000
Procter & Gamble Company	25,090	650,493	2,747,355
Public Service Electric & Gas Company	68,000	1,458,746	1,810,500
Royal Dutch Petroleum Company	102,300	2,362,854	4,053,566
Schlumberger, Ltd.	5,000	504,577	419,375
Scott Paper Company	60,000	1,750,058	2,040,000
Sears, Roebuck and Company	78,605	1,689,531	5,345,140
Security Pacific National Bank (L.A.)	27,699	735,471	1,090,648
Shell Oil Company	59,986	2,402,589	2,654,381
Southern Company, The	52,000	950,596	1,326,000
Standard Oil Company (New Jersey)	53,967	2,632,740	3,332,462
TRW, Incorporated	60,000	788,317	2,310,000
Texaco, Incorporated	118,652	1,839,222	3,633,718
Virginia Electric & Power Company	49,844	823,638	1,115,260
Xerox Corporation	30,000	226,463	3,172,500
Total common stocks		148,156,141	246,440,366
Total fixed income securities		61,995,834	55,706,507
Total marketable securities		$210,151,975	$302,146,873

Summary of Grants

	AUTHORIZED BUT NOT DUE DECEMBER 31, 1968	1969 GRANTS AUTHORIZED	1969 PAYMENTS	AUTHORIZED BUT NOT DUE DECEMBER 31, 1969
College Science Program (18 colleges and 2 universities)	$ 4,500,000	—	$ 1,500,000	$ 3,000,000
National Scholarship Program (594 students in 22 colleges and 23 universities)	3,297,395	$ 1,068,965	1,187,270	3,179,090
Fellowships for Basic Research in the Physical Sciences (76 fellowships in 48 universities and 5 colleges)	616,934	2,812,915	1,356,773	2,073,076
Cooperative College Development Program (22 colleges and 9 universities)	462,763	—	313,481	149,282
Technical Institutes (14 institutes offering training for technical careers)	—	870,246	870,246	—
Major Grants to colleges and universities	5,390,000	5,004,500	5,821,000	4,573,500
Other Major Grants:				
Administration and Management Research Association of New York City, Inc.	—	$ 189,104	$ 94,552	$ 94,552
American Council on Education	$ 160,000	180,000	140,000	200,000
Association of University Professors of Ophthalmology	150,000	—	150,000	—
Deafness Research Foundation, The	143,750	—	143,750	—
Foundation Center, The	—	105,000	105,000	—
Harper Hospital	280,000	—	70,000	210,000
Institute for Educational Development	167,667	—	75,000	92,667
Institute for Educational Management	—	280,000	70,000	210,000
Memorial Sloan-Kettering Cancer Center	—	2,500,000	—	2,500,000
National Academy of Sciences	500,000	—	250,000	250,000
National Bureau of Economic Research, Inc.	750,000	—	250,000	500,000
National Medical Fellowships, Inc.	210,000	100,000	202,500	107,500
National Urban League	—	250,000	100,000	150,000
Phelps-Stokes Fund	84,000	—	84,000	—
Scientists' Institute for Public Information	—	210,000	120,000	90,000
Sloan-Kettering Institute for Cancer Research	2,000,000	1,200,000	1,200,000	2,000,000
Southern Research Institute	—	131,250	75,000	56,250
Urban Coalition, The	—	250,000	250,000	—
Woodrow Wilson National Fellowship Foundation	—	175,000	175,000	—
TOTAL OTHER MAJOR GRANTS	4,445,417	5,570,354	3,554,802	6,460,969
Opportunity Awards (8 colleges and 2 universities)	310,200	—	153,200	157,000
Staff Grants	—	1,495,860	745,860	750,000
Other Grants (none over $100,000)	41,750	196,500	238,250	
TOTAL	$19,064,459	$17,019,340	$15,740,882	$20,342,917

Grants

	AUTHORIZED BUT NOT DUE DEC. 31, 1968	1969 GRANTS AUTHORIZED	1969 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1969
Academy of Political Science, The		$ 20,000	$ 20,000	
Administration and Management Research Association of New York City, Inc.		194,104	99,552	$ 94,552
Albion College	$ 46,127	16,890	16,518	46,499
Alumni Association of the City College of New York		4,000	4,000	
American Academy of Arts and Sciences		22,500	22,500	
American Association for Higher Education		10,000	10,000	
American Association of Junior Colleges		10,000	10,000	
American Cancer Society, New York City Division, Inc.		10,000	10,000	
American Council on Education	160,000	180,000	140,000	200,000
American National Red Cross, The		10,000	10,000	
American Society for Public Administration		50,000	50,000	
American Statistical Association		15,000	15,000	
Amherst College	83,157	25,970	28,028	81,099
Antioch College	263,257	23,330	102,413	184,174
Arkansas, University of	8,050		8,050	
Aspen Center for Physics		20,000	20,000	
Association of American Medical Colleges		20,000	20,000	
Association of University Professors of Ophthalmology	150,000		150,000	
Automotive Safety Foundation		18,500	18,500	
Bethune-Cookman College	29,400		14,550	14,850
Bishop College	32,400		15,750	16,650
Bowdoin College	53,700	21,200	21,300	53,600
Brown University	89,170	67,620	55,740	101,050
California, University of	108,289	228,034	213,614	122,709
California Institute of Technology	1,407,105	129,300	1,229,885	306,520
Canisius College		18,500	4,750	13,750
Carleton College	355,910	15,160	118,370	252,700
Carleton University	8,050		8,050	
Carnegie-Mellon University	164,962	63,300	64,013	164,249
Case Western Reserve University	103,117	36,130	39,273	99,974
Catholic University of America, The		18,800	9,400	9,400
Chicago, University of	208,750	72,500	253,750	27,500
City University of New York	11,500	163,500	175,000	
Colby College	27,090	13,240	15,230	25,100
Colgate University	326,052	30,690	109,068	247,674
Columbia University	300,968	1,105,476	296,141	1,110,303
Committee for Environmental Information	25,000		25,000	
Conference Board of the Mathematical Sciences		10,000	10,000	
Cornell College	225,000		75,000	150,000
Cornell University	486,617	377,100	256,968	606,749
Council on Foreign Relations, Inc.		20,000	20,000	
Council on Foundations, Inc.		5,000	5,000	
Dalhousie University		11,500	11,500	
Dartmouth College	1,748,310	267,760	1,209,220	806,850
Davidson College	171,192	8,260	58,528	120,924
Dayton, University of		68,000	68,000	
Deafness Research Foundation, The	143,750		143,750	
Detroit Institute of Technology		75,700	75,700	
Dillard University	29,700		14,850	14,850
Education Development Center, Inc.		10,000	10,000	

Grants
(continued)

	AUTHORIZED BUT NOT DUE DEC. 31, 1968	1969 GRANTS AUTHORIZED	1969 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1969
Educational Testing Service		$ 20,000	$ 20,000	
Emory University	$ 133,750		133,750	
Fair Housing, Inc.		15,000	15,000	
Fisk University	34,800	8,500	25,450	$ 17,850
Florida Institute of Technology		72,060	72,060	
Florida State University	59,545		59,545	
Foundation Center, The		105,000	105,000	
Foundation for the Advancement of Medical Education and Research in New Jersey		15,000	15,000	
Franklin Foundation		50,000	50,000	
Georgia, University of		16,100	8,050	8,050
Georgia Institute of Technology	15,000	6,000	6,000	15,000
Golden Gate College		75,000	75,000	
Grinnell College	267,620	9,420	89,740	187,300
Hamilton College	31,086	7,329	9,465	28,950
Hampton Institute	31,500		15,750	15,750
Harlem Cultural Council, Inc., The		20,000	20,000	
Harper Hospital	280,000		70,000	210,000
Harvard University	173,547	83,450	117,148	139,849
Harvey Mudd College		600,000	250,000	350,000
Haverford College	240,000		80,000	160,000
Hawthorne House, Inc.		12,000	12,000	
Hope College	225,000		75,000	150,000
Howard University		7,520	7,520	
Illinois, University of	65,760	25,100	60,310	30,550
Indiana University	27,725	23,160	41,720	9,165
Institute for Advanced Study		20,085	20,085	
Institute for Architecture and Urban Studies, The		12,500	12,500	
Institute for Educational Development	167,667		75,000	92,667
Institute for Educational Management		300,000	90,000	210,000
Institute of Food Technologists, Inc.		5,000	5,000	
Iowa State College	8,050		8,050	
Jobs for Youth, Inc.		15,000	15,000	
Johns Hopkins University	120,002	126,340	132,068	114,274
Kalamazoo College	240,000		80,000	160,000
Knox College	195,295	8,995	64,515	139,775
Knoxville College	29,400		14,550	14,850
Lehigh University	55,535	19,060	21,245	53,350
Lincoln University	16,975	6,180	6,705	16,450
Louisiana State University	8,050		8,050	
Maryland, University of		33,580	12,305	21,275
Massachusetts, University of		35,050	17,800	17,250
Massachusetts Institute of Technology	1,034,245	1,257,935	1,153,505	1,138,675
Memorial Sloan-Kettering Cancer Center		2,500,000		2,500,000
Michigan, University of	30,550	26,620	27,310	29,860
Michigan State University	6,900		6,900	
Middlebury College	240,000		80,000	160,000
Milestone Foundation, The		10,000	10,000	
Milwaukee School of Engineering		75,000	75,000	
Minnesota, University of	22,500	37,899	27,579	32,820
Morehouse College	236,587	6,450	87,163	155,874
Mount Holyoke College	225,000		75,000	150,000

Grants
(continued)

	AUTHORIZED BUT NOT DUE DEC. 31, 1968	1969 GRANTS AUTHORIZED	1969 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1969
NAACP Legal Defense and Educational Fund, Inc.		$ 20,000	$ 20,000	
NAACP Special Contribution Fund		20,000	20,000	
National Academy of Sciences	$ 500,000	20,000	270,000	$ 250,000
National Bureau of Economic Research, Inc.	750,000		250,000	500,000
National Council of the Churches of Christ in the U. S. A.		88,000	88,000	
National Council on Hunger and Malnutrition in the United States		10,000	10,000	
National Information Bureau, Inc.		1,000	1,000	
National Medical Fellowships, Inc.	210,000	100,000	202,500	107,500
National Urban League		250,000	100,000	150,000
New York Public Library, The		5,000	5,000	
New York University	420,000	48,500	217,250	251,250
New York Urban Coalition, Inc.		10,000	10,000	
Newark College of Engineering		25,000	25,000	
North Carolina, University of	8,050	16,330	17,480	6,900
Northrop Institute of Technology		75,600	75,600	
Northwestern University	8,750	17,500	17,500	8,750
Notre Dame, University of	71,635	36,760	37,245	71,150
Oberlin College	375,742	29,730	130,148	275,324
Occidental College	263,847	10,280	89,953	184,174
Ohio College of Applied Science		69,340	69,340	
Ohio State University, The	22,500	9,000	9,000	22,500
Oregon, University of	8,050		8,050	
Oregon State University		16,962	8,935	8,027
Organization for Social and Technical Innovation		10,000	10,000	
Pennsylvania, University of	207,825	40,000	127,825	120,000
Pennsylvania State University, The	8,050	56,845	56,845	8,050
Phelps-Stokes Fund	84,000		84,000	
Piedmont University Center of North Carolina, Inc.		2,250	2,250	
Pomona College	26,077	7,540	9,318	24,299
Population Reference Bureau		10,000	10,000	
Presbyterian Hospital		4,000	4,000	
Princeton University	96,950	131,576	121,126	107,400
Puerto Rico, University of	8,510		8,510	
Purdue University	22,500	9,000	9,000	22,500
Rand Corporation, The		20,000	20,000	
Reed College	225,000		75,000	150,000
Rensselaer Polytechnic Institute		600,000	200,000	400,000
Research Foundation of State University of New York, The	29,900	38,074	59,349	8,625
Rice University		17,500	8,750	8,750
Rochester, University of	500,000	52,250	278,250	274,000
Rockefeller University, The		17,225	4,225	13,000
Rutgers University		36,100	28,050	8,050
Saint Louis University		64,400	64,400	
Salk Institute, The		15,000	15,000	
Scientists' Institute for Public Information		210,000	120,000	90,000
Sloan-Kettering Institute for Cancer Research	2,000,000	1,200,000	1,200,000	2,000,000
Smith College	150,000		50,000	100,000

Grants
(continued)

	AUTHORIZED BUT NOT DUE DEC. 31, 1968	1969 GRANTS AUTHORIZED	1969 PAYMENTS	AUTHORIZED BUT NOT DUE DEC. 31, 1969
Smithsonian Institution		$ 5,000	$ 5,000	
Southern California, University of	$ 9,375	17,500	18,125	$ 8,750
Southern Research Institute		131,250	75,000	56,250
Spring Garden Institute		75,000	75,000	
Stanford University	240,365	78,950	125,845	193,470
Stony Brook Foundation		5,000	5,000	
Swarthmore College	225,000		75,000	150,000
Talladega College	19,600		9,700	9,900
Tennessee, University of		16,100	14,030	2,070
Texas, University of		18,584	9,706	8,878
Texas Christian University		6,000	6,000	
Tougaloo College	20,200	200,000	209,900	10,300
Tulane University	45,917	18,430	18,773	45,574
Tuskegee Institute	230,742	5,880	201,198	35,424
United Negro College Fund, Inc.		15,000	15,000	
United Neighborhood Houses of New York, Inc.		15,000	15,000	
United States National Student Association		2,700	2,700	
Urban Coalition, The		250,000	250,000	
Utah, University of	8,050	47,267	43,817	11,500
Vanderbilt University	71,115	526,130	276,285	320,960
Virginia, University of	16,100	18,975	16,675	18,400
Voorhees College		5,000	5,000	
Wabash College	46,617	18,230	19,273	45,574
Washington, University of	6,900		6,900	
Washington and Lee University	150,000		50,000	100,000
Welfare Island Planning and Development Corporation		10,000	10,000	
Wentworth Institute		61,390	61,390	
Wesleyan University		106,000	50,000	56,000
Whitman College	20,750	7,400	8,150	20,000
Williams College	385,152	28,140	131,468	281,824
Woodrow Wilson National Fellowship Foundation		175,000	175,000	
Wisconsin, University of	29,905	61,065	49,418	41,552
Yale University	89,810	432,560	266,720	255,650
York College of The City University of New York		11,580	11,580	
Cooperative College Development Program	462,763		313,481	149,282
Basic Research—Program for 1970		1,400,000		1,400,000
Staff Grants—Program for 1970		750,000		750,000
	19,064,459	17,093,290	15,814,832	20,342,917
Reduction for Grant Transfers		73,950	73,950	
TOTAL	$19,064,459	$17,019,340	$15,740,882	$20,342,917

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CREDITS

Photographs in the main text of the Report were provided by the institutions with which the subjects are identified. Portraits of new staff members on Page 59 are from the following sources:

DR. KLIVINGTON—ARTHUR AVEDON, NEW YORK.

MR. GREGG—VAHI STUDIO, EVANSTON.

MR. OGDEN—PACH BROS., NEW YORK.

MR. WHITE—ARTHUR AVEDON, NEW YORK.

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