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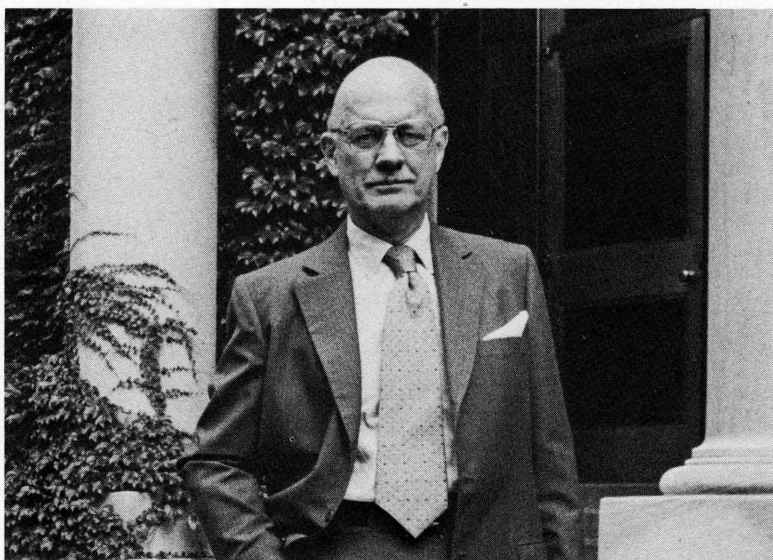
REPORT OF THE PRESIDENT · 1976-77
THE ROCKEFELLER UNIVERSITY



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COVER: *Rockefeller University campus as
seen from Roosevelt Island in East River.*



Frederick Seitz, President

VISITORS TO OUR CAMPUS frequently comment that it seems like a park, a shelter from the less attractive realities of Manhattan. For many observers, this impression extends to the world of science, as a whole. Appearances, of course, are deceiving. Neither the University nor science has ever been divorced from reality. And the interactions between our campus and society have always been numerous and complex. There have been periods in the past when it was possible to imagine a distance between the activities of scientists in laboratories and the activities of citizens beyond the boundaries of the campus. But, in the perspective of my years as president of this institution, it seems to me that the world is much more with us today. In this report, I shall devote most of my comments to certain social and economic developments, the changes they are bringing, and the adjustments they demand of us.

If we respond in the proper spirit—as our small community is seeking to do—I am optimistic enough to believe that the new relationship between science and society now being shaped by the push and pull of conflict and compromise, dialogue and debate, can be at once more realistic as to pos-

sibilities and more tolerant as to motives. Good will on all sides is essential, as well as a healthy regard for the ever-present dangers of obscurantism and impatience with reason.

A Change in Attitudes

SPEAKING FROM an administrative point of view, the greatest transition at The Rockefeller University in the past decade has been the change in attitudes toward material resources, as we have been compelled to retreat from the comparatively euphoric spirit of the 1960s. That turbulent decade—too often remembered only for its negative aspects—was extraordinary in our national history. The only other decade like it in my own experience was the 1920s, a period in which anything imaginable seemed possible. But in retrospect the range of imagination in the 1920s seems much more limited than that of the past decade. Fortunately, the 1970s, despite the new economic constraints upon us, have been far less drastic in their effects so far than the depression-plagued 1930s proved to be.

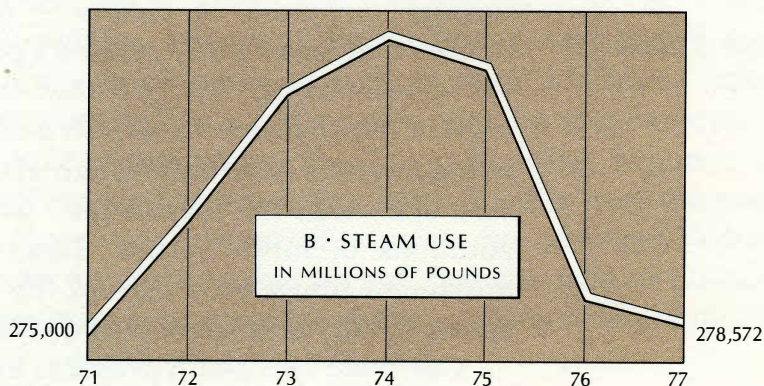
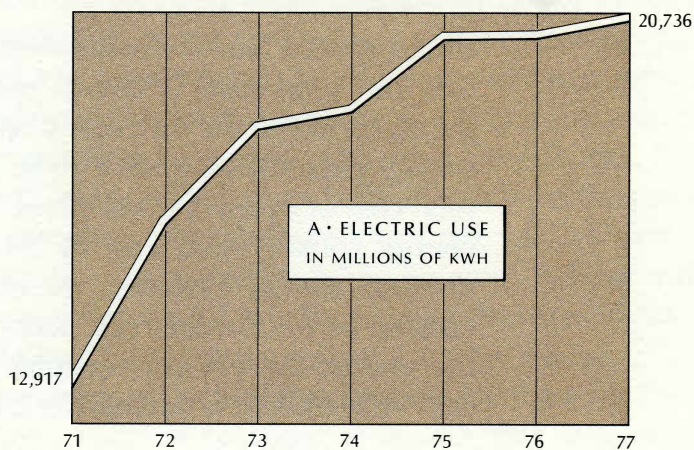
In any event, my arrival on campus as president in 1968 coincided with massive cutbacks in government spending for science, recession in the economy, and the onset of what has proved to be the largest run of inflationary pressure in our national history not immediately associated with a world war. I wish it could be said that the painful aspects of this period are all behind us, but the truth is otherwise. There is little doubt that our concerns about financial matters will carry on into the 1980s, whatever else that decade may bring. In fact, it is this circumstance, not personal preference, that has weighted this report and others in the past with details on the support and maintenance of our endeavor.

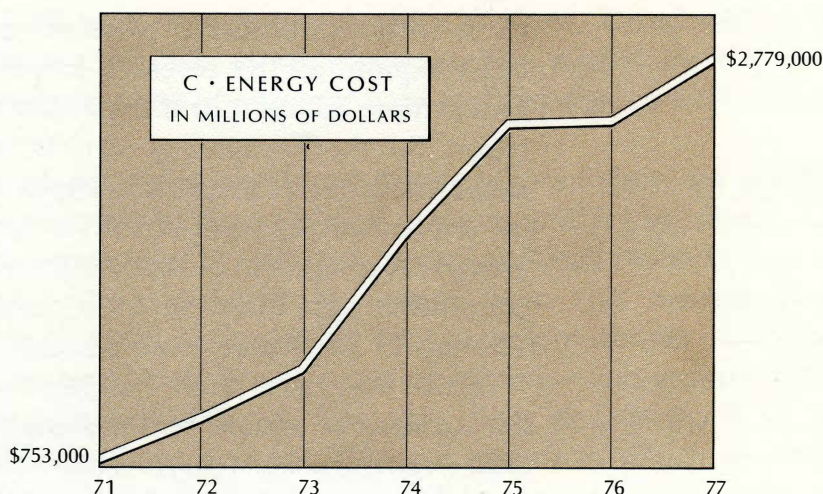
Impact of the Energy Crisis

I NEED WRITE but one word—energy—to point up how issues and events beyond our gates have intruded on our research and educational activities and complicated our financial problems. In the past four years, the energy crisis has become a familiar item in my annual reports, but is worth a few more words here. The problem is certainly not going to disappear.

Even without additional physical growth, our energy needs must expand as the research in progress in our laboratories grows more complex and dependent on advanced instrumentation. But there is some good news and considerable cause for satisfaction in our institution's growing reputation as a leader in sophisticated, cost-effective techniques for conserving energy. A great deal of the credit for this must go to an energy committee appointed in 1973, under the chairmanship of Thomas P. McGinnity, our director of physical facilities.

Since that time, there has been a 40 percent expansion in the number of square feet assigned to laboratory space, but total electrical usage (chart A) has remained relatively constant, and use of steam-produced energy (chart B) has actually de-





clined somewhat. Unfortunately, despite this remarkable effort, our total costs (chart C) have remained high because of the steep rise in the unit cost of energy. In less than four years, energy expenditures have risen from 10 to 59 percent of the total cost of operating our plant. Yet, by constant attention to energy conservation and by new investments in more economical energy systems, we hope to continue to stem the erosion of our budget resources. Parenthetically, just one of the energy-system conversions already put into effect, at a cost of \$145,000, is saving the University \$120,000 a year.

Providing New Facilities

WHEN I BECAME PRESIDENT, New York City had just passed through a period of extensive construction of apartment houses that temporarily created a plentiful supply of relatively low-cost housing. By 1968 that supply was exhausted and most of our staff faced a serious problem in obtaining adequate living quarters at affordable rentals. Our first step—an expensive one—was the acquisition, jointly with neighboring institutions, of Sutton Terrace. This comparatively new 500-unit apartment house took care of the most urgent needs of the senior faculty and some of the junior staff.

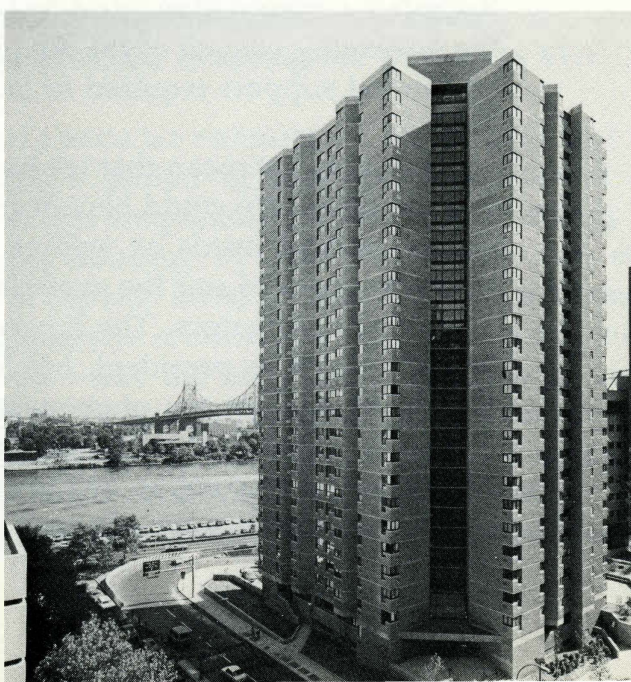
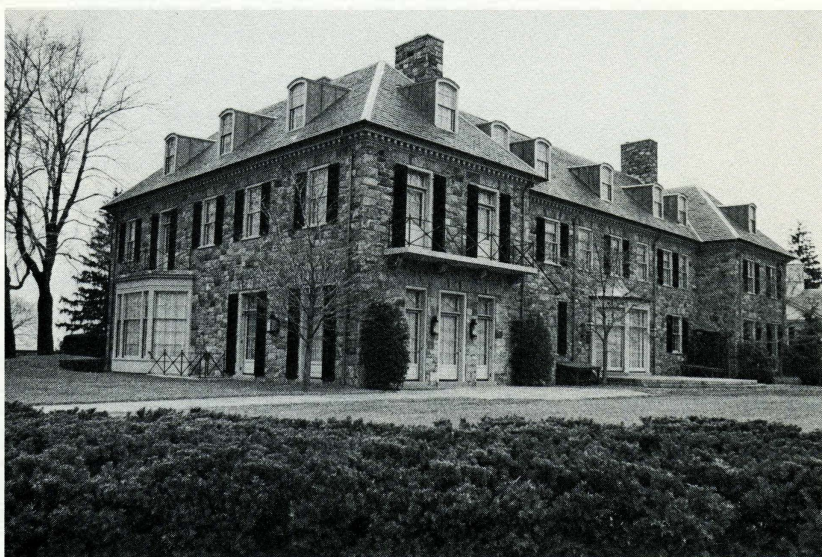
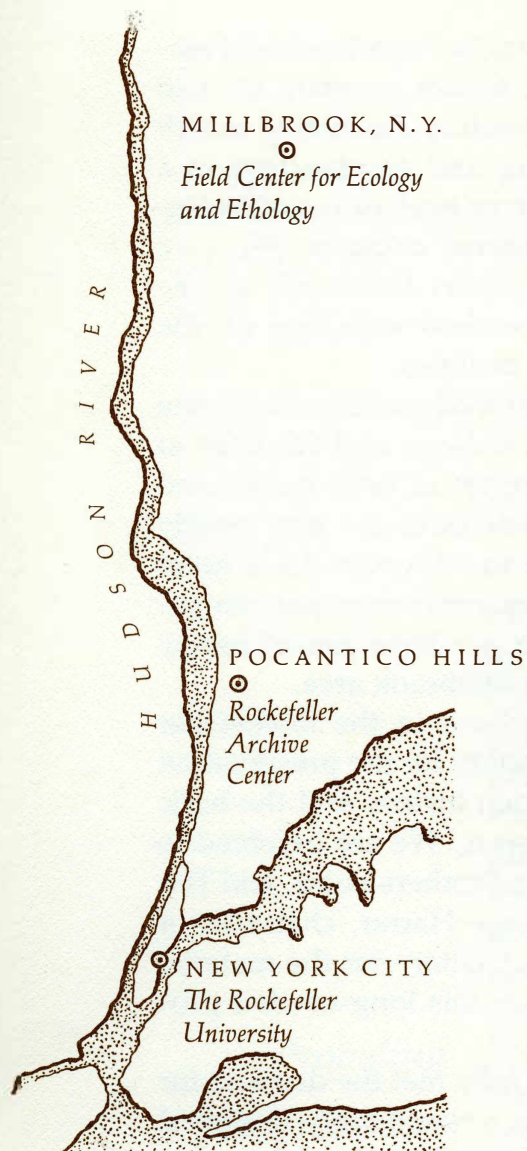
4 Our most successful program involved the construction of

an entirely new facility providing attractive apartments at reasonable rents for our junior faculty. In this program we had the help of the New York State Dormitory Authority, which has also assisted us in the planning and construction of a modern facility for research that involves exploration of biological problems through studies of animal colonies. We owe much gratitude to Vice President Albert Gold and to the other individuals on campus who worked with him on the development of these essential new facilities.

I should also recall how much I enjoyed participating in the development of the Field Center for Ecology and Ethology at Millbrook, New York. With the support of both public and private grants, this modest facility has extended and greatly enriched our work in areas that are so important for a fuller understanding of the behavioral and environmental dimensions of the life sciences. In addition, we have gained happy associations with new friends in the Millbrook area.

For the first time, too, we now have in the Rockefeller Archive Center at Pocantico Hills a facility for the preservation of the materials of the University's rich history and the basic documents of its scientific achievements. We are indebted to the Rockefeller family, the Rockefeller Brothers Fund, and The Rockefeller Foundation—and to George Harrar, chairman of the governing council of the Archive Center—for the material and moral support required to launch this long-needed program.

This does not mean that we have fully met the demand for new facilities. We could benefit from a new library designed for our special needs as well as from additional laboratory space designed to suit the ever-changing requirements of our scientific investigators. The Tower Building, begun in Detlev Bronk's period as president, has helped to ease the pressure. But the steady stream of requests for additional space that crosses my desk makes it clear that the task of housing our laboratories is as complex as the evolving fields of research in which our scientists are engaged.



TOP: Field Center for Ecology
 and Ethology

CENTER: Rockefeller Archive Center

BOTTOM: Faculty House

ommendations for continued monitoring of the balance between goals and available resources.

The progress of our development program to date—and without it we would be in far more serious difficulty than is presently the case—is a result of close cooperation among the members of the board, the faculty, and many new friends of the University who have come to recognize the special merits of our institution, particularly those which relate closely to medicine. The encouragement and support of the faculty has been highly gratifying, and we deeply appreciate the crucial role our scientists have played in communicating the University's achievements and plans to individual donors and to representatives of foundations and corporations. It must also be stressed that a systematic approach to the task of broadening our base of financial support would not have been possible without the help of a dedicated and experienced staff. We are deeply indebted to Vice President Rodney Nichols, Ray Carmichael, executive director of public affairs and development, and their colleagues for their tireless work on this development program.

The process of opening our doors to a wider circle of private sponsors than was true in the earlier history of our institution has been a stimulating and rewarding experience for me. These visitors to our campus, by their interest and support, have sharpened our awareness of our major strengths as a university of the sciences and have reminded us of our basic dedication to the advancement of the public good. Not least, as the number of our private supporters widens, so too does the assurance of our independence as an institution based on freedom of inquiry.

The Financial Picture

ON FINANCES IN GENERAL, as I have already indicated, we are holding our own. Our efforts to bring the University's budget in balance are showing real progress.

Financial figures for Fiscal 1977 show a deficit of \$1,131,000, or 41 percent less than last year's deficit of \$1,906,500.

8 Moreover, this year's deficit includes \$446,000 in nonrecurring

expenses resulting from reductions in staff and program. If these one-time expenditures are deducted from the total, the 1977 deficit from regular operations is the lowest since 1969, when we incurred our first deficit.

It bears repeating that a great deal of effort by many people on various fronts has gone into this improvement in our budget picture. I wish particularly to thank David J. Lyons, our controller, and Sydney A. Woodd-Cahusac, our treasurer, for their expert guidance and professional contribution in many areas. A few highlights of this year's financial operations will further illustrate what has been achieved.

- In spite of a severe winter, increased energy load, and rising unit costs, our energy expenditures were only 11 percent above those of Fiscal 1976.
- Investment income was significantly higher.
- Our endowment was increased by a number of substantial additions that will have an appreciable impact on future budgets. These include:

Proceeds from the sale of a group of apartment buildings across York Avenue from our campus. Sale of these buildings, acquired in 1964 and 1966, will be very helpful in our efforts to control operational costs and relieve us of an enterprise unrelated to our traditional mission of scientific research and education. I should add that the residents of these buildings have been our good neighbors for many years, long predating the University's ownership, and we look forward to a continuation of this fine relationship.

An additional \$2.7 million in endowment realized from our development efforts.

Proceeds from the sale of the David painting, which I shall describe later in this report.

- Sponsored research and training-grant revenues, primarily from the federal government, were at record levels. Reimbursements for indirect costs increased 20 percent over Fiscal 1976, and reimbursements for direct costs were up 10 percent.
- An important new source of income this year was the reim-

SUMMARY OPERATING BUDGET COMPARISONS

	<u>FY 70</u>	<u>FY 71</u>
REVENUES		
Educational & General—		
Investment income	\$ 9,366	\$ 8,867
Gifts for budget support	—	—
Sponsored research & training—		
Direct costs	5,758	6,502
Indirect cost recovery	1,173	1,226
Other educational & general	134	164
	<u>\$16,431</u>	<u>\$16,759</u>
Auxiliary Enterprises—		
Off-campus housing	\$ 1,326	\$ 1,951
Rockefeller University Press	758	974
Campus housing & food service	440	405
TOTAL REVENUES:	<u>\$18,955</u>	<u>\$20,089</u>
EXPENDITURES		
Educational & General—		
Direct education & research—		
University budget funds	\$ 6,729	\$ 6,273
Restricted governmental sources	5,113	5,692
Restricted nongovernmental sources	645	810
Restricted investment income	—	—
Other educational & general	4,876	5,579
	<u>\$17,363</u>	<u>\$18,354</u>
Auxiliary Enterprises—		
Off-campus housing	\$ 1,675	\$ 2,170
Rockefeller University Press	677	803
Campus housing & food service	777	705
Total expenditures	<u>\$20,492</u>	<u>\$22,032</u>
Transfers to unexpended plant funds	346	322
TOTAL EXPENDITURES & TRANSFERS	<u>\$20,838</u>	<u>\$22,354</u>
Excess of expenditures and transfers over revenues:	<u>\$ 1,883</u>	<u>\$ 2,265</u>

FISCAL YEARS 1970 THROUGH 1977 (000's OMITTED)

<u>FY 72</u>	<u>FY 73</u>	<u>Fy 74</u>	<u>FY 75</u>	<u>FY 76</u>	<u>FY 77</u>
\$ 8,614	\$ 8,879	\$ 9,343	\$ 9,244	\$ 8,740	\$ 9,438
—	—	—	660	755	877
8,814	10,923	11,230	12,969	14,444	16,247
1,792	2,470	2,782	3,020	3,241	3,955
280	525	414	488	356	569
<u>\$19,500</u>	<u>\$22,797</u>	<u>\$23,769</u>	<u>\$26,381</u>	<u>\$27,536</u>	<u>\$31,086</u>
\$ 1,958	\$ 2,069	\$ 2,202	\$ 2,380	\$ 3,535	\$ 3,745
1,388	991	1,043	1,199	1,326	1,361
474	545	541	546	548	537
<u>\$23,320</u>	<u>\$26,402</u>	<u>\$27,555</u>	<u>\$30,506</u>	<u>\$32,945</u>	<u>\$36,729</u>
\$ 5,968	\$ 6,665	\$ 6,883	\$ 7,353	\$ 7,396	\$ 7,289
7,553	8,178	8,341	9,166	10,049	11,067
1,261	2,745	2,889	3,803	4,395	5,180
—	—	181	384	331	385
5,858	5,896	6,847	7,849	7,895	8,573
<u>\$20,640</u>	<u>\$23,484</u>	<u>\$25,141</u>	<u>\$28,555</u>	<u>\$30,066</u>	<u>\$32,494</u>
\$ 2,018	\$ 2,516	\$ 2,742	\$ 2,368	\$ 2,954	\$ 3,415
1,164	911	964	1,030	1,116	1,221
672	749	780	723	715	730
<u>\$24,494</u>	<u>\$27,660</u>	<u>\$29,627</u>	<u>\$32,676</u>	<u>\$34,851</u>	<u>\$37,860</u>
144	—	—	—	—	—
<u>\$24,638</u>	<u>\$27,660</u>	<u>\$29,627</u>	<u>\$32,676</u>	<u>\$34,851</u>	<u>\$37,860</u>
\$ 1,318	\$ 1,258	\$ 2,072	\$ 2,170	\$ 1,906	\$ 1,131

bursement for Hospital patient care from Blue Cross/Blue Shield and several private insurance companies. This income will increase when we become participants in federal reimbursement programs. It is being generated without changing either the fundamental research character of our Hospital or its policy of not charging patients for medical costs of research.

- Finally, revenues for operating support deriving from both our Development and Annual Giving Programs again exceeded the totals for the previous year.

Looking ahead, we are now estimating that the operating deficits in the next two years should fall below the million-dollar level. Soon thereafter, the projections show a small surplus, which would be invested in research initiatives we have not been able to afford in recent years.

Importance of

Public Understanding

TURNING TO ANOTHER ASPECT of our efforts to gain increased public recognition and support for our programs, it has been a special pleasure for me to participate in the creation of The Rockefeller University Council, which has brought so many remarkable individuals from both home and abroad into our campus community to become acquainted with the work of our scientists. Under the energetically gifted leadership of Trustee James Linen, a most remarkable, universal man, the council has made it possible for us to emphasize publicly our institutional mission in the broadest terms, and it has given us many able advocates in the world at large. These are substantial benefits at a time when increased public understanding of the scientific enterprise has become a major requisite to the wise determination of society's future course.

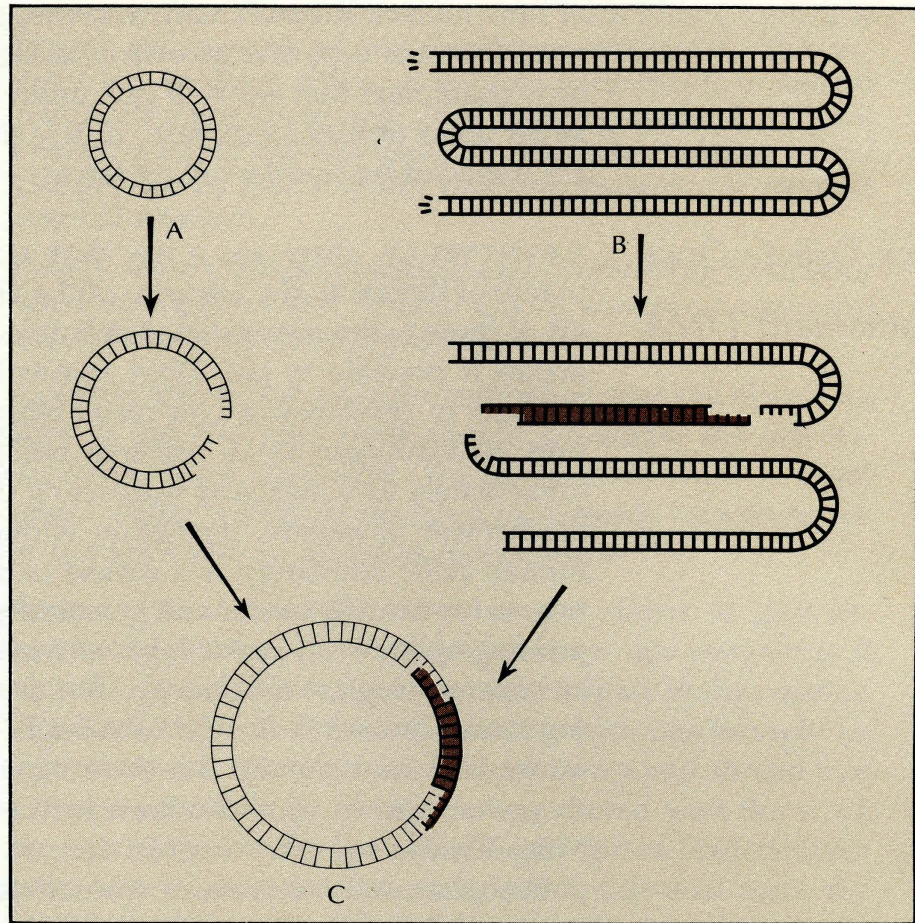
As we move ahead into the last quarter of this century, it seems to me that the solid promises of science as a servant to mankind have never been brighter. This is true in all fields across a widening horizon. But it is particularly true in the fields associated with the life sciences, to which our institution is so strongly dedicated. The rapid evolution of the general biochemical approach, made possible through the acquisition

of new tools of measurement and through new concepts derived from the explosive growth of molecular and cellular biology, guarantees that we shall gain understanding of larger and larger areas of human disease, unless these further advances are impeded by countervailing forces.

The Debate Over Recombinant DNA

ADMITTEDLY, there are a few dark clouds on the horizon, potential threats to the advance of the life sciences. The darkest of these is the impassioned debate over the technique that makes it possible to join DNA molecules from different organisms in combinations (or recombinants) not found in nature. Recombinant DNA research holds enormous promise: immediately as a means of unraveling the vastly complicated mechanism of genetic regulation within plant, animal, and human cells; ultimately as a means of designing better techniques for treating cancer and genetically caused diseases, improving agricultural technology, and increasing the efficiency of pharmacological technology. But the risk that some new organisms created in the test tube might escape from the laboratory and contaminate the environment has awakened all those fears given symbolic form in the Faustian legend and Mary Shelley's *Frankenstein*. In fact, as Stephen Toulmin, a philosopher and historian of science, has pointed out: "The current debate about recombinant DNA has had the effect of crystallizing out a whole range of questions about science and the public interest which have been (so to say) in supersaturation for some 15 or 20 years—some of them, ever since Hiroshima."

Many discussions of these issues, some of them initiated by scientists themselves, have created a public stir. The debates are, in fact, highly reminiscent of those that for two decades have centered on such fields as nuclear energy and space research. Such debates have involved some sense but also much nonsense. One of our important responsibilities as scientists and citizens will be to help to clarify these issues in the period ahead, recognizing that part of the scientists' obli-



The making of a DNA recombinant: *A* represents DNA (in ring form called a plasmid) from an organism, such as a bacterium or virus, that can be replicated (reproduced). *B* is a DNA chain from another organism, such as a laboratory mouse. An enzyme that can chemically divide DNA at a specific sequence is used to "cut" *A* and *B*. This produces overlapping ends in *A* and *B*. The specific sequence cut from *B* (in color) is then fitted into *A* to form a new molecule (*C*). This recombinant can now be inserted into a host organism, where it will replicate and produce large amounts of the desired *B* sequence.

gation will be to take constructive actions to help determine what are reasonable constraints upon research and development that involve potential hazards. The question of such constraints is really an old one, but we must recognize that new issues will continually arise as new areas of knowledge are opened up. And we shall have to deal with these controversial matters while still engaged in the lengthy process of working

out social strategies for insuring that all interests are fairly represented in the final decision, without at the same time stifling the scientific spirit.

Need to Avoid Polarization

CHARACTERISTICALLY, several members of our faculty are playing key roles in current efforts to develop guidelines for recombinant DNA research. Norton Zinder and James Darnell, as well as David Baltimore, a University alumnus now at MIT, have spent many long hours as members of scientific groups, before congressional and state legislative committees, and in public meetings. Their counsel, as experienced researchers and concerned individuals, has gained wide attention and respect. René Dubos—out of his background as a pioneer in research on microorganisms, a historian of biological science, and a leader in environmental studies—has written eloquently in such national publications as *The New York Times* on the urgency of maintaining a balance between freedom of experimentation and reasonable constraints in an area of research with such promise as recombinant DNA and related genetic studies. None of these scientists needs to be reminded that his laboratory opens on the world.

The problem in all debates over such issues as recombinant DNA or nuclear energy is to avoid the kind of polarization by which participants are labeled as either “ecofreaks” or “technofreaks.” As one observer recently suggested, we had all better be both ecofreaks *and* technofreaks and not yield to the temptation to satisfy “the otherwise sensible senator who openly called for ‘one-armed scientists’—scientists who would not constantly keep saying ‘on the other hand.’ ” What is clear to the philosophically minded student of history is that the very enlightenment and affluence made possible through science and its influence upon technology have caused us to question more sharply than ever many attitudes about which there would have been no doubts in an earlier period.

Yet I have confidence that, after a period of turbulence and doubt, the rational in man will prevail and that our society will endorse the advancement of science with the understanding

that the benefits far exceed the hazards, as long as the latter are handled intelligently. The only alternative would involve a vast regression of society through its failure to renew the wellsprings of knowledge and techniques required to maintain an acceptable standard of life. That will not occur if the basic democratic mechanisms we now enjoy in most of the Atlantic community are preserved. For I doubt whether the great majority of people, regardless of the degree to which they may at times be confused by exposure to conflicting views and, indeed, misinformation, would in the end decide against the renewals and progress that only science can make possible. But until these issues are resolved, we face the hazard of stumbling into a dark age in a very real sense—social, economic, and intellectual—that would probably have been unimaginable to our nineteenth-century forebears in light of the promising future they visualized.

Consumption Versus Production

ONE OF THE BASIC PROBLEMS associated with the pursuit of science lies in sustaining the level of effort required to carry through increasingly sophisticated and, hence, generally more expensive research. One of our trustees remarked recently that our industrial society in the last decade has focused increasing attention upon consumption, as opposed to production. But the continuance of progress—that is, the ability to sustain the activities needed to maintain our way of life—requires that balanced attention be given to both. I do not wish to exaggerate the issue, because science, particularly in the United States, is enjoying its share of the affluence of our times. Nonetheless, the social and economic factors that create inflation must be of as great concern to the scientific community as is anti-intellectual hostility—especially to private institutions such as ours, which depend so much upon endowment and the contributions they receive from private sources.

To repeat, one must have faith that our species will, through the wisdom gained from disappointments and successes, learn to balance the amount of attention given to production and consumption so that science will, in the process,

continue to receive the support it needs. In the meantime, and for the foreseeable future, it will be necessary for our institution to be highly selective in the way in which we use the available resources as we take all steps within reason to maintain and expand those resources.

A Question of Priorities

IN THIS CONNECTION, we have learned during the past decade that our record of achievement is one of our greatest assets. Much of our prestige as an institution rests on three-quarters of a century of brilliantly original work in science. Most of the private support we receive—and much of the federal support—recognizes our traditional successes quite explicitly. Our major responsibility is to remain true to this mission, particularly by taking up the new challenges that are constantly arising in the biomedical sciences.

One of the steps the trustees and I found it necessary to take was the closing of the University's formal program in philosophy, which provided specific professional links to the humanities. The addition of such programs during the 1960s was very dear to Detlev Bronk's aspirations for our institution. He understood the great importance of having scholars everywhere, as well as the public, appreciate that science is an integral part of our cultural heritage. However, experience has demonstrated beyond a reasonable doubt that, to be effective on any campus, a venture in the humanities must be on a relatively broad scale so that the program constitutes a self-sustaining and mutually reinforcing community. The 1970s have not been sufficiently generous to grant us that privilege. But it should be stressed that many members of our faculty are deeply concerned about the philosophical questions and issues associated with the scientific endeavor.

When I look around these lovely acres at the buildings, old and new, that house so much scientific activity, I cannot help but reaffirm that this remains a special place, well-equipped by past achievement and present strength and vigor to have a continuing impact on the future. I shall not review here the full range of the work in progress at the University, but I think

it is fair to say that our scientists are significantly involved in most of the major areas of frontier research in the biomedical sciences and related fields of behavior. Although research interests are constantly shifting to keep pace with opportunities opened up by new discoveries, the goal is still the exploration of the foundations of life itself with a view to its betterment. The questions become increasingly complex and the techniques more sophisticated. But our objective is constant.

The Greatest Strength

WHICH BRINGS ME to the greatest strength of our University—the people who are posing the questions and searching tirelessly for the answers. I think this is our primary reason for confidence in the future. Some of the most cherished moments in my years here are those in which I was privileged to hear faculty members describe their work to our visitors. The respect and enthusiasm they were able to kindle in lay audiences, despite the difficulty of the subject matter, can be attributed to their ability to communicate not only the facts but the spirit of their research.

This year two members of our faculty, Professor Purnell W. Choppin and Adjunct Professor Richard M. Krause, were elected to the National Academy of Sciences. Dr. Choppin is coleader with Dr. Igor Tamm of the University's virology laboratory. Dr. Krause, formerly head of the laboratory of immunology and immunochemistry, is currently serving as director of the National Institute of Allergy and Infectious Diseases. More than half of our full professors are Academy members.

In the past decade, I have been saddened by the passing of a number of the major contributors to the scientific tradition of this institution. This year death took four individuals whose careers spanned the transition from Institute to University—Sam Granick, Theodore Shedlovsky, Ernest Smillie, and Norman Stoll.

Professor Granick was associated with this institution for 38 years, during which he was a leader in biochemical research on chloroplast structure, on heme and chlorophyll biosyn-

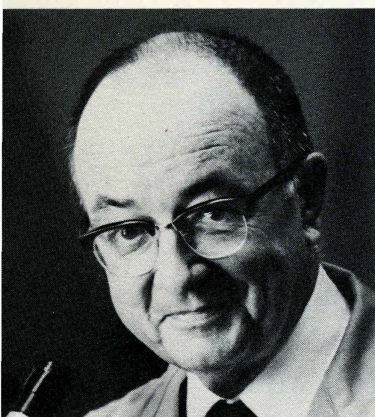
thesis, and on iron metabolism. This warm-hearted scholar's impress on his colleagues was perhaps best summed up by Professor Attallah Kappas, a close friend and colleague, in these words: "Sam Granick was a man of modest demeanor and good humor; he was also a man whose scientific papers displayed the powers and elegance of a disciplined and intensely creative mind. He was a gifted natural scientist—one of those quietly notable individuals who have contributed so much to the intellectual culture and the public stature of this University."

Professor Shedlovsky spent almost half a century here and was one of that distinguished group of innovators who made The Rockefeller Institute for Medical Research a major force in the application of physical techniques to the study of life processes. As Institute evolved into University, his strong sense of community contributed greatly to maintaining the spirit that has made this institution great. Beyond that, he enriched this campus by founding our concert series and children's school.

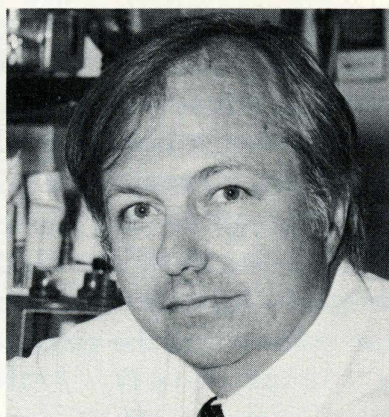
Professor Stoll, who came to the University in 1927, won an international reputation for work in advancing the understanding and control of parasitic diseases, particularly hookworm infection. His work took him to such scattered areas as China, the Caribbean and Panama, Guam, and West Africa, and his now-classic volume, *This Wormy World*, established, for the first time, the incidence of worm infestation in man.

Like Dr. Stoll, Dr. Smillie's association with this institution, which spanned the years between 1916 and 1958, began at the former Animal and Plant Pathology Laboratories in Princeton, New Jersey, where he rose to the post of superintendent. He made significant contributions to the study of Bang's disease in cattle. In 1950, Dr. Smillie was appointed assistant to the business manager of the Institute.

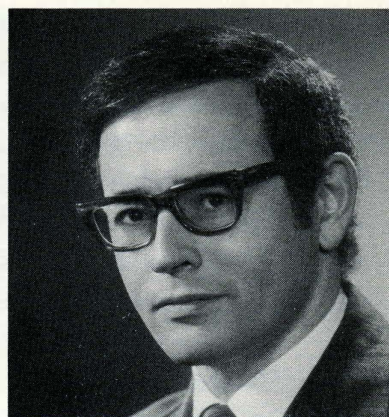
The tradition these men helped to build is being carried on by the scientists who now head our laboratories and a new generation of younger colleagues whose names are already appearing in the scientific journals and in the programs of scientific meetings.



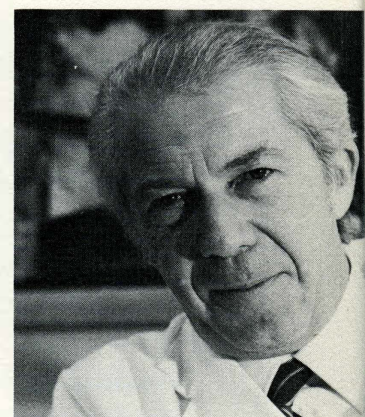
FRANK BRINK, JR.



JAMES E. DARNELL, JR.



GERALD M. EDELMAN



CHRISTIAN DE DUVE

Increasing Our Investment in People

ONE OF THE GREATEST SATISFACTIONS I have derived from our development efforts has been the opportunities we have opened up to increase our investment in people. In the case of promising younger scientists, as I have reported in the past, the generosity of private donors has enabled us to establish a significant number of fellowships at both the doctoral and the postdoctoral levels. I hope that this will continue to be a major emphasis of this institution.

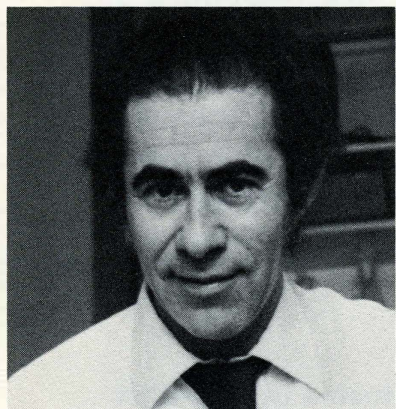
On the senior level, we have been able to recognize some of our outstanding scientists by the establishment of the first named professorships in the University's history, beginning, appropriately, with the endowment of the Detlev W. Bronk professorship in 1972. This post was held, until his retirement, by Nobel laureate H. Keffer Hartline. It is now held by Frank Brink, Jr., a colleague of Dr. Bronk's in the biophysics laboratory and in developing the University's graduate student program.

Within the next two years, three other endowed chairs were established. Two professorial chairs, funded by a grant from The Vincent Astor Foundation, are held by James Darnell and Nobel laureate Gerald M. Edelman. Another Nobel Prize winner, Christian de Duve, is Andrew W. Mellon Professor.

In this academic year, I was able to announce the establishment of three additional named professorships. In Oc-



HENRY G. KUNKEL



NORTON D. ZINDER



MACLYN MCCARTY

tober, 1976, Henry G. Kunkel became the first to occupy the post of Abby Rockefeller Mauzé Professor. Dr. Kunkel, who has spent his entire career on this campus, is widely recognized as one of the world's leaders in immunology because of his fundamental discoveries related to immune reactions in such diseases as myeloma, systemic lupus erythematosus, rheumatoid arthritis, and leukemia; the identification of genetic determinants of antibody structure; and the delineation of various types of human immunoglobulins. The new post was made possible by an unrestricted bequest from the late Mrs. Mauzé, who was the oldest child and only daughter of John D. Rockefeller, Jr., and Abby Aldrich Rockefeller.

This April, I announced the establishment by the Board of Trustees of two John D. Rockefeller Jr. professorships. They will be supported by new endowment derived from the sale to the Metropolitan Museum of Art of the painting by Jacques-Louis David of the famous chemist Antoine-Laurent Lavoisier and his wife. The painting had been on display in our library for the 50 years since it was given to the University by Mr. Rockefeller during his term as trustee. At the Metropolitan, this international cultural asset is on public view in surroundings where it can be properly and securely exhibited to a much wider public. In keeping with the donor's concern to strengthen the tradition of excellence he regarded so highly, the funds will not only support professorial posts, but also four graduate fellowships for individuals taking their first step in a scientific career.

The first John D. Rockefeller Jr. Professors are Norton Zinder and Vice President Maclyn McCarty. I have already referred to Dr. Zinder's stature as an authority on recombinant DNA research. His research on the properties of bacteria and viruses that infect bacteria, begun when he was still a graduate student, has provided important insights into the mechanisms of heredity. Dr. McCarty's name is associated with one of the major discoveries of the twentieth century—the work by Avery, MacLeod, and himself that was the first demonstration that DNA is the substance of genetic transfer. In his 36 years at

the University, 14 of them as physician-in-chief of our Hospital, he has won many honors for his research, which has included studies of the immunochemistry of streptococci and the relation of streptococcal infection to rheumatic fever and heart disease. Recently he received the first Waterford Biomedical Science Award of the Scripps Clinic & Research Foundation.

I might add that it has been a rare privilege to work with such of our colleagues as Dr. Kunkel, Edward H. Ahrens, Vincent P. Dole, and Jules Hirsch, who are devoted to clinical research under the leadership of Dr. McCarty and of Dr. Kappas, now physician-in-chief of our research Hospital. Our institution's history provides vivid proof that scientifically oriented clinical research has had a revolutionary influence upon both basic biology and the practice of medicine. By encouraging the active evolution of even more intense scientific activity in our Hospital and by linking such work with other University laboratories, we shall continue to strengthen the essential research partnership between the biologist and the physician.

*Working with
Neighboring
Institutions*

THIS LEADS ME to comment that we are situated in the midst of one of the most remarkable clusters of medical institutions in the world—institutions that were, in fact, influenced to locate in our neighborhood by the presence of the University. There are and will be many ways in which we can cooperate with these neighbors to mutual advantage without loss of essential independence or blurring of distinctive missions. Such associations enrich the scientific atmosphere associated with our everyday work. And, equally important, carefully considered joint projects, based on the special strengths and needs of the institutions involved, make it possible to get the maximum benefit from increasingly precious resources for the society we all serve. I sincerely hope that the start we have made during the past decade in establishing bonds with our neighbors will grow increasingly productive.

*Two Journeys
and a
Homecoming*

AS I PREPARE to put a period to this report on the present state of this small community of science on the eastern edge of a small island, my memory replays for me scenes from two trips I made in this year just ended. Both were to countries that, despite their great distance from us and certain cultural differences, have had associations with this institution, early and late, that symbolize the international significance of what is happening in our laboratories.

In November, 1976, Mrs. Seitz and I—at the invitation of the Hideyo Noguchi Memorial Association—traveled to Japan. The occasion was the celebration of the hundredth anniversary of the birth of a scientist who raised himself from poverty and a crippling accident in childhood to international recognition as a bacteriologist at a fledgling research institute halfway around the world from the obscure village where he was born. As I addressed the celebrants in Tokyo, I felt it was a great honor and a special pleasure to represent an institution which, from its earliest years and its first director, Simon Flexner, has opened its gates to talented individuals from all lands.

Shortly before sitting down to write this report, I found myself flying to the Orient again—this time to the People's Republic of China as part of a University delegation of 20 persons. This busy and successful trip was, in a sense, our half of a private, nongovernmental exchange initiated by visits of several delegations of Chinese scientists and physicians to our campus during the past five years. In a historical perspective, this was a renewal of ties—over many years of war, revolution, and social transformation—that go back to the founding of the Peking Union Medical College by The Rockefeller Foundation in 1916, and the role played in its development by scientists whose names are prominent in the history of The Rockefeller Institute for Medical Research. Over the years, many members of the scientific board and staff of the Institute, including Simon Flexner, William H. Welch, Alfred E. Cohn, and Donald Van Slyke, journeyed to China to serve as advisers and visiting faculty at a very critical time when there were not enough medical professionals in that vast country to train the

students enrolled at the new college. It is noteworthy that the scientists in our party were there because of the specific requests of Chinese delegations who had visited various laboratories on our campus. Such common research interests may lead to the free communication without which no area of science can flourish.

We returned to a campus academically and horticulturally at the ready for the spring rite of conferring degrees—the University's nineteenth convocation. With renewed appreciation of the significant international role this University continues to play, I looked forward to standing once more in the midst of my colleagues in Caspary Auditorium and welcoming my eighth group of candidates for the doctoral degree—the Class of 1977.

Nineteenth Convocation for Conferring Degrees 8 June 1977



GIFTS AND GRANTS • FISCAL YEARS 1971-77

On behalf of our faculty, graduate fellows, and trustees, I would like to express our warmest thanks to the following donors who have contributed to the University during the seven fiscal years since the first comprehensive effort in our history was launched to broaden our base of private support.

The first list includes the donors whose assistance is helping to fulfill the goals of the University's overall Development Program, which seeks \$120 million by the end of the decade. The Program's goals continue to emphasize additional endowment and long-term operating support for basic research in selected life sci-

ences, for the clinical programs of our Hospital, for professorships, and for predoctoral and postdoctoral fellowships. Several major donors also have aided the construction of the new Animal Laboratory Research Facility, a high-priority objective for which the remaining funds are still being sought.

The second list recognizes the contributors who have provided funds for general operating expenses, as well as for ongoing research and special University-wide projects.

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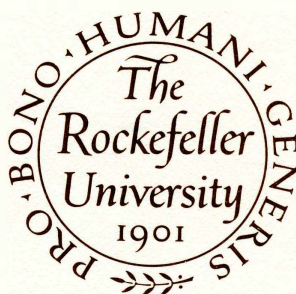
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