

The
Rockefeller Foundation
Annual Report, 1956

THE ROCKEFELLER
FOUNDATION

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¹ Retired June 30, 1956.

² To September 30, 1956; on special assignment to Turkey.

³ Beginning October 1, 1956.

⁴ Retired June 30, 1956; on special assignment to Puerto Rico.

⁵ Beginning September 1, 1956.

⁶ Retired July 31, 1956.

⁷ Beginning July 1, 1956.

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¹ Temporary staff member, to May 31, 1956.

² To March 31, 1956.

³ Beginning August 1, 1956; deceased November 17, 1956.

⁴ Beginning September 1, 1956.

⁵ Temporary staff member.

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JAMES E. HALPIN, PH.D. *Assistant Agronomist*

¹ On assignment to the Pan American Sanitary Bureau.

³ Beginning August 1, 1956.

² Temporary staff member, to March 31, 1956.

⁴ Beginning July 1, 1956.

⁵ To July 31, 1956.

⁶ Beginning October 1, 1956.

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DAVID H. TIMOTHY,³ PH.D. *Assistant Geneticist*

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¹ Beginning August 1, 1956.
² To June 30, 1956.

³ Beginning August 15, 1956.

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¹ Beginning April 1, 1956.
² Beginning July 1, 1956.

³ Assistant Director to April 4, 1956.
⁴ Beginning November 1, 1956.

To the
Trustees of The Rockefeller Foundation

Gentlemen:

I have the honor to transmit herewith a general review of the work of The Rockefeller Foundation for the year 1956, together with detailed reports of the Treasurer of the Foundation and of the Directors for Medical Education and Public Health, Biological and Medical Research, Agriculture, the Social Sciences, and the Humanities for the period January 1, 1956 to December 31, 1956.

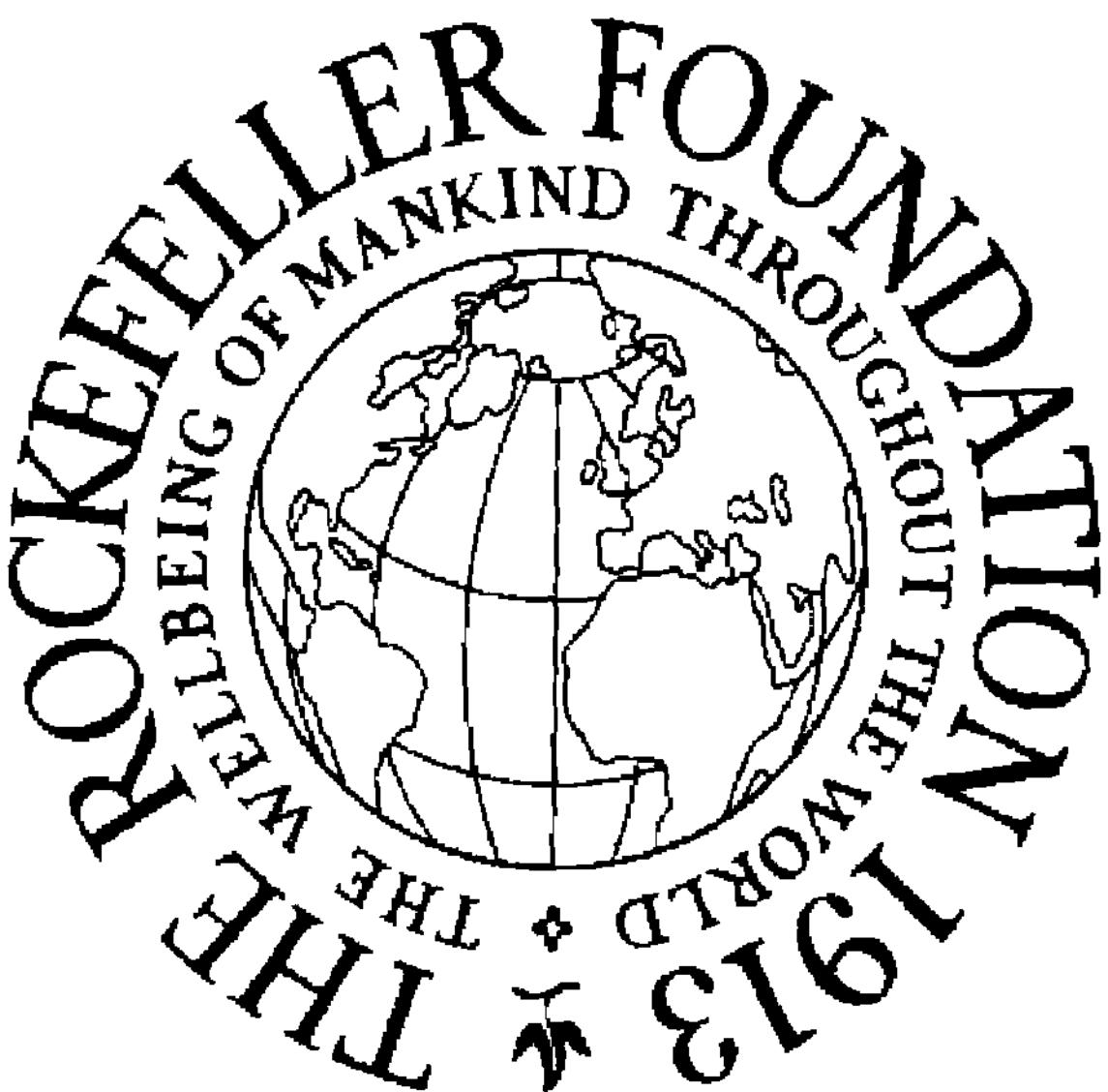
Respectfully yours,
Dean Rusk
President

Illustrations



Photograph Excised Here

The Computation Center at the Massachusetts Institute of Technology has recently acquired a digital computer of the most advanced type, Whirlwind I. Shown here is the magnetic core memory, which has a storage capacity of 8,192 words, each word containing 36 binary digits. A Foundation grant will enable the Center to explore the computer's potential uses in the solution of problems in the social sciences.



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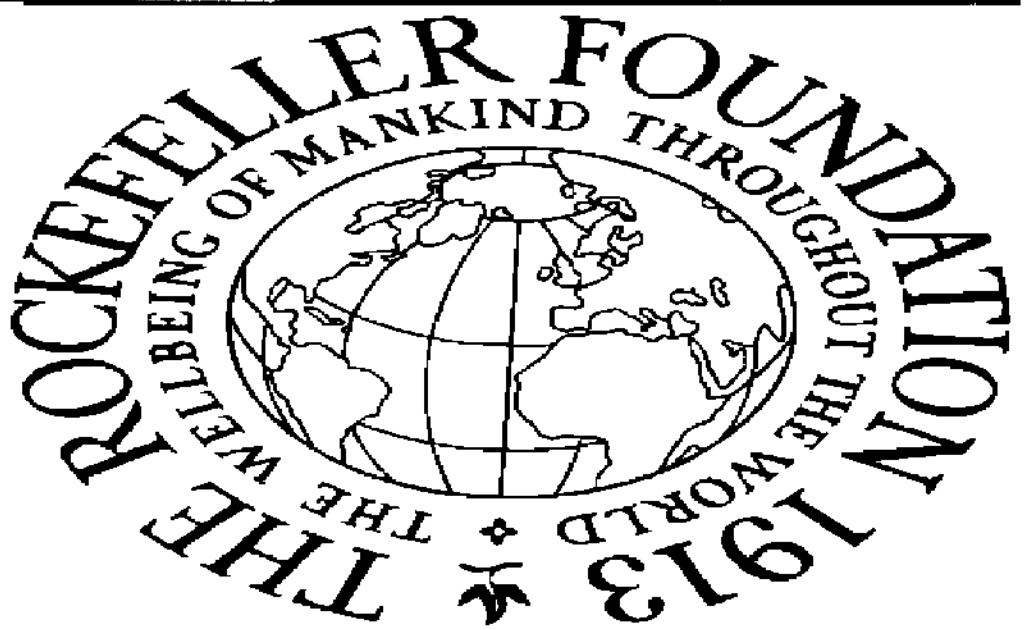
The Institute of Microbiology of the University of Brazil is organized into four technical divisions—virology, immunology, and medical and general microbiology--within each of which are laboratory units concerned with both teaching and research. *Left*, inoculating mice with Coxsackie virus in the Laboratory of Neurotropic Viruses. *Right*, determining microbiologic dosages of vitamins in the Laboratory of Microbial Physiology.



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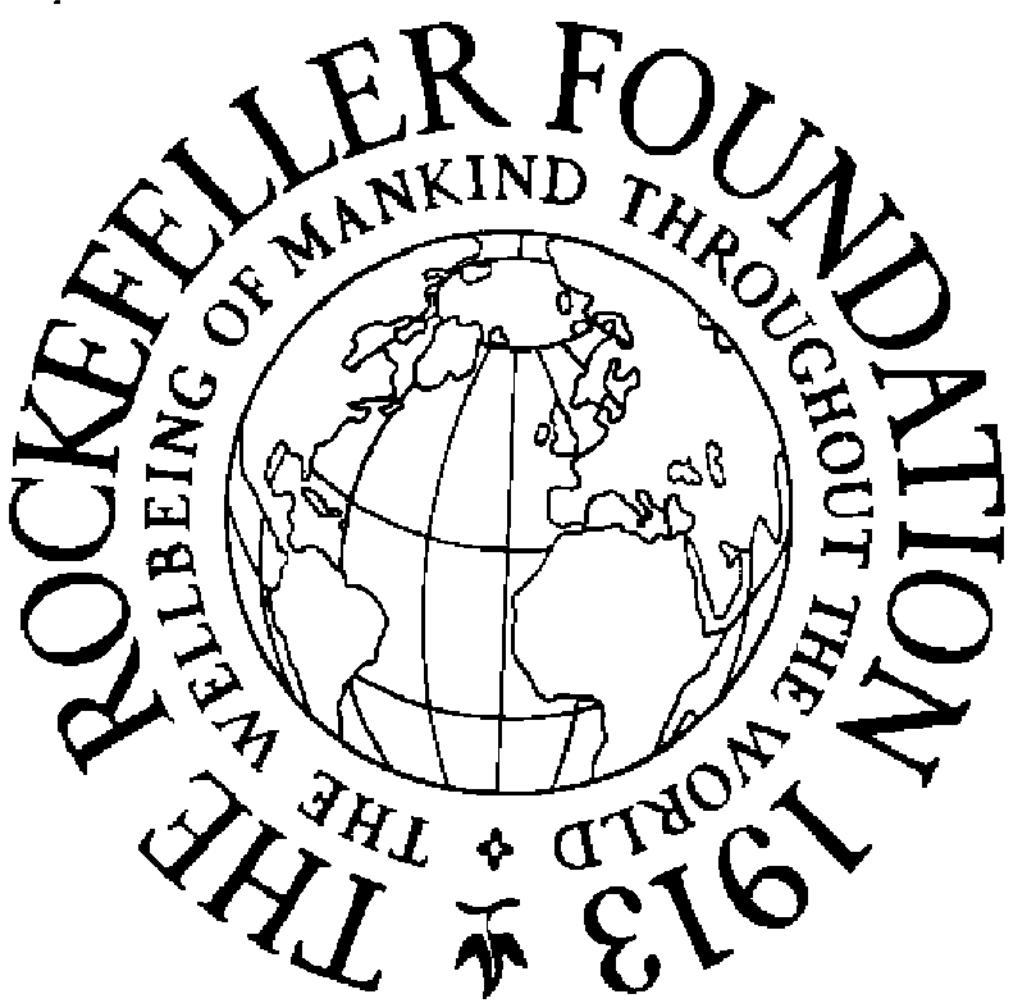


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Part of the orchestra, made up of musicians from 8 states and 36 symphony orchestras, that was gathered for the 1956 Conductors Workshop at the American Symphony Orchestra League.

The principal activity sponsored by the Poetry Center of San Francisco State College is the public reading of their own work by nationally known poets. *Left*, guest poet Robert Lowell reading and commenting on his poems to a Center audience.

Foundation awards in aid of Hungarian refugees both in this country and in Austria included, among others: support for the Hungarian Orchestra in Austria; interim maintenance grants for performing artists, administered through the American National Theatre and Academy; and a contribution to the project at Bard and St. Michael's Colleges, which provided intensive English language training for refugee students.



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Left to right, Michael Hontvary, Sandor Szabo, Aladar Majorossy, ANTA project director Miriam de Kika, and Susanna Czerhat (Mrs. Hontvary).



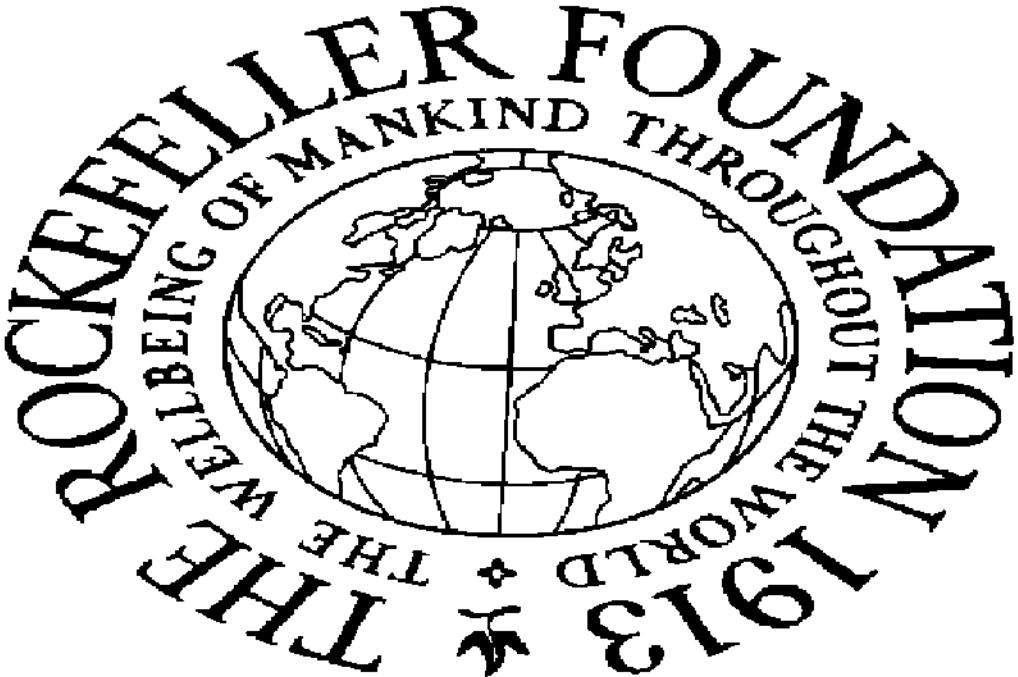
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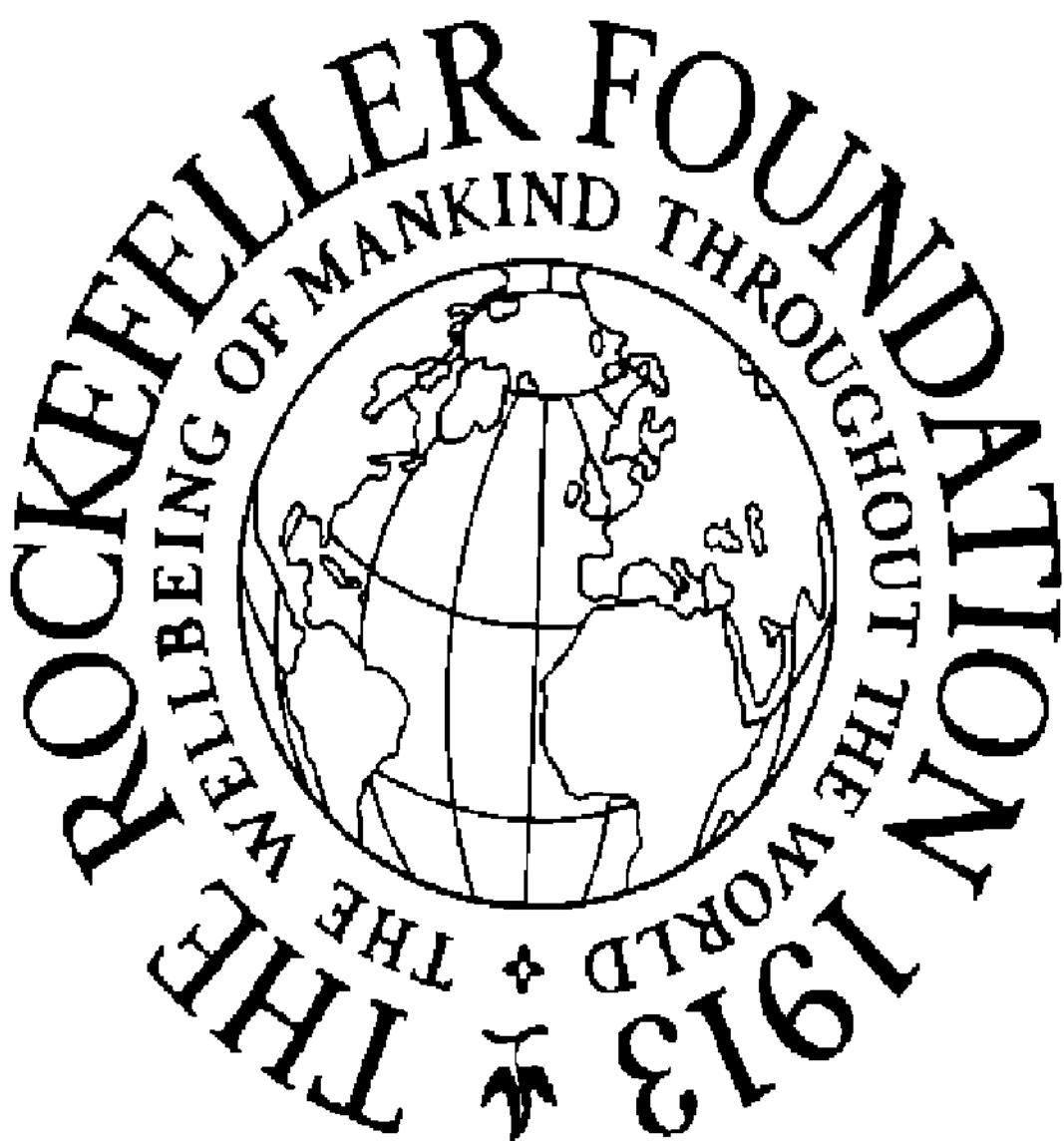
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The Arena Theatre of the Philippine Normal College specializes in the production of Philippine plays, presenting them both at the college and in the provinces. *Above*, a scene from *Seven Years* by Fidel Siaim, staged in the quadrangle of the college.

The theatre also participates in community development programs. *Above right*, farmers listen to a discussion of marketing problems by agricultural and educational officers; *below*, after being taught methods of dramatizing the discussion, they act out an improvised drama at a farm rally.

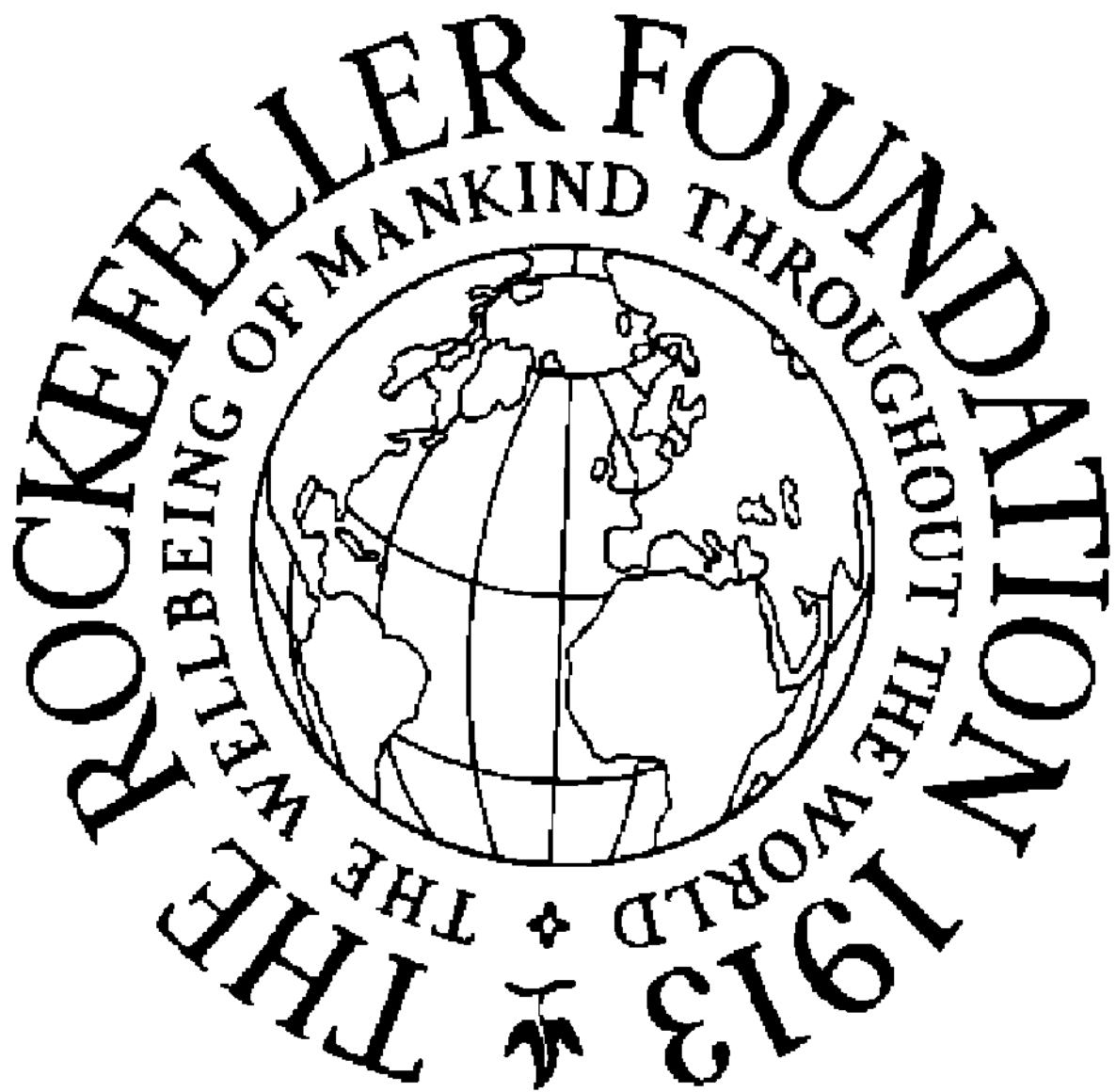


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In the recently combined departments of physiology and cytochemistry at the Carlsberg Laboratory, Copenhagen, researches have been broadened to include studies of the biochemistry of the yeast cell; these should contribute valuable information on the way that enzymes function in the formation of specific proteins and on the broader problems of energy build-up and release in cells and tissues. Here, the operator is using a micromanipulator to isolate yeast spores.



Photograph Excised Here



Photograph Excised Here

In their studies of population genetics, the Department of General Biology at the University of São Paulo is at present concerned with analyzing the nature of the adaptations that occur when the genetic equilibrium of isolated *Drosophila* populations is disturbed by the introduction of flies carrying identifiable mutant genes. In this picture, investigators are testing the method of marking the alien flies (with histological dye mixed with wheat flour).



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The Earhart Plant Research Laboratory of the California Institute of Technology has undertaken a long-term program of research on the chemical mechanisms by which unfavorable climate limits plant growth. In the experiment shown here, a strain of subterranean clover was grown under two sets of temperature conditions: one near optimum ($26^{\circ}\text{C}.$ day, $20^{\circ}\text{C}.$ night) and the other sufficiently high to cause heat damage. The treated plants in both groups were given periodic applications of an amino acid mixture, which partially restored the growth of the heat-damaged plants but had no effect on the plants grown at optimum temperature.

The Allahabad Agricultural Institute in India is dedicated to the improvement of rural living through education and research. Each of its 44 current projects is designed to produce answers to problems facing the Indian farmer. In the picture, a staff member has taken the hen from the trap nest and is recording its leg band number for a study of the effects of medium- and high-protein diets on growth and egg production.



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The cold storage room (shown above) at King George's Medical College, Lucknow, was built from funds provided by the Foundation in 1954. This year the college received an appropriation of over \$300,000 in support of a plan for incorporating an internship-residency program in its medical education curriculum.

Current Foundation grants to Seth Gordhandas Sunderdas Medical College in Bombay will assist this college, one of the leading medical institutions in India, in the establishment of full-time clinical Departments of Medicine and Surgery, and will also aid in the development of Departments of Biochemistry and Pharmacology. The picture shows anatomy students with the preceptor in the dissection room.



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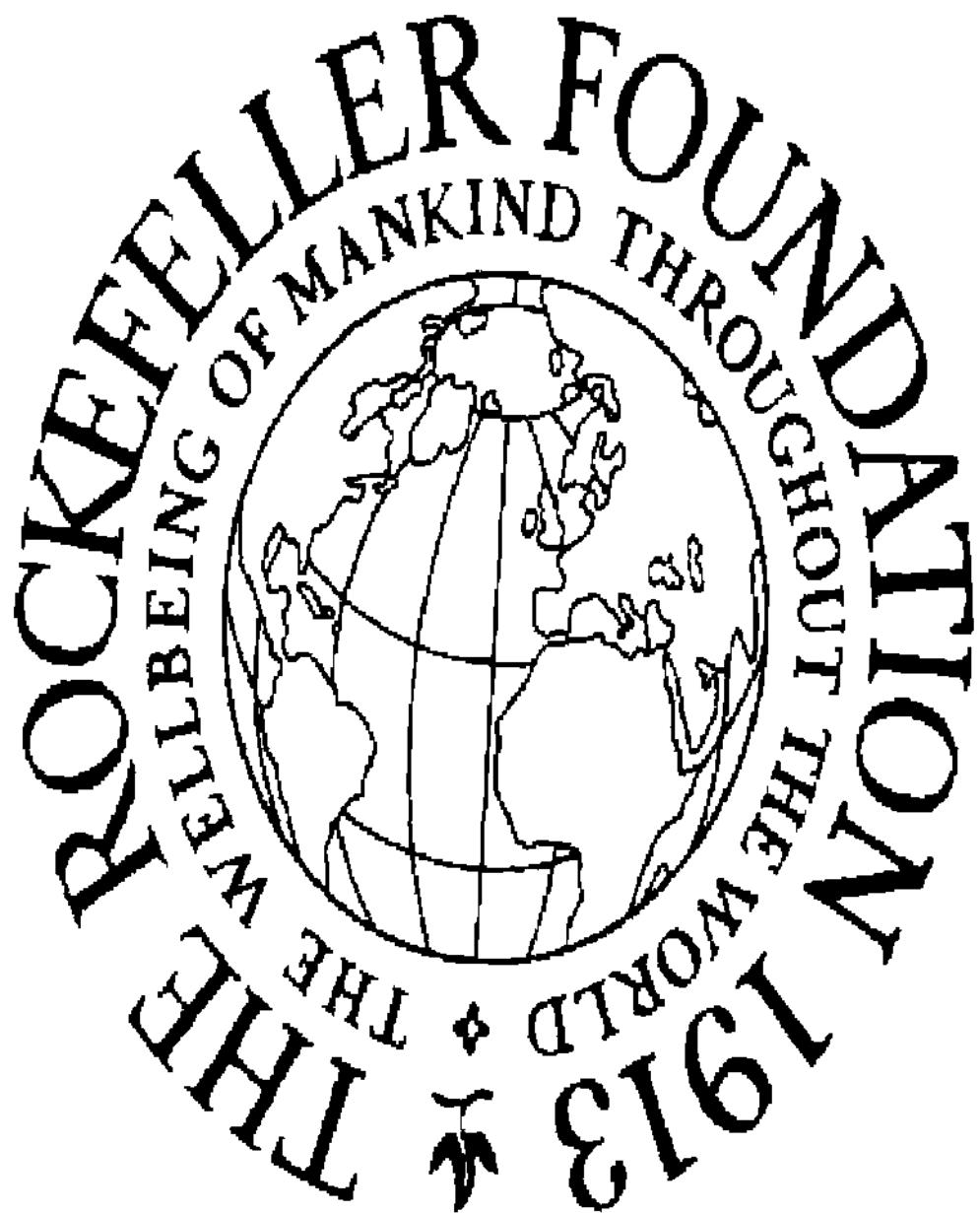


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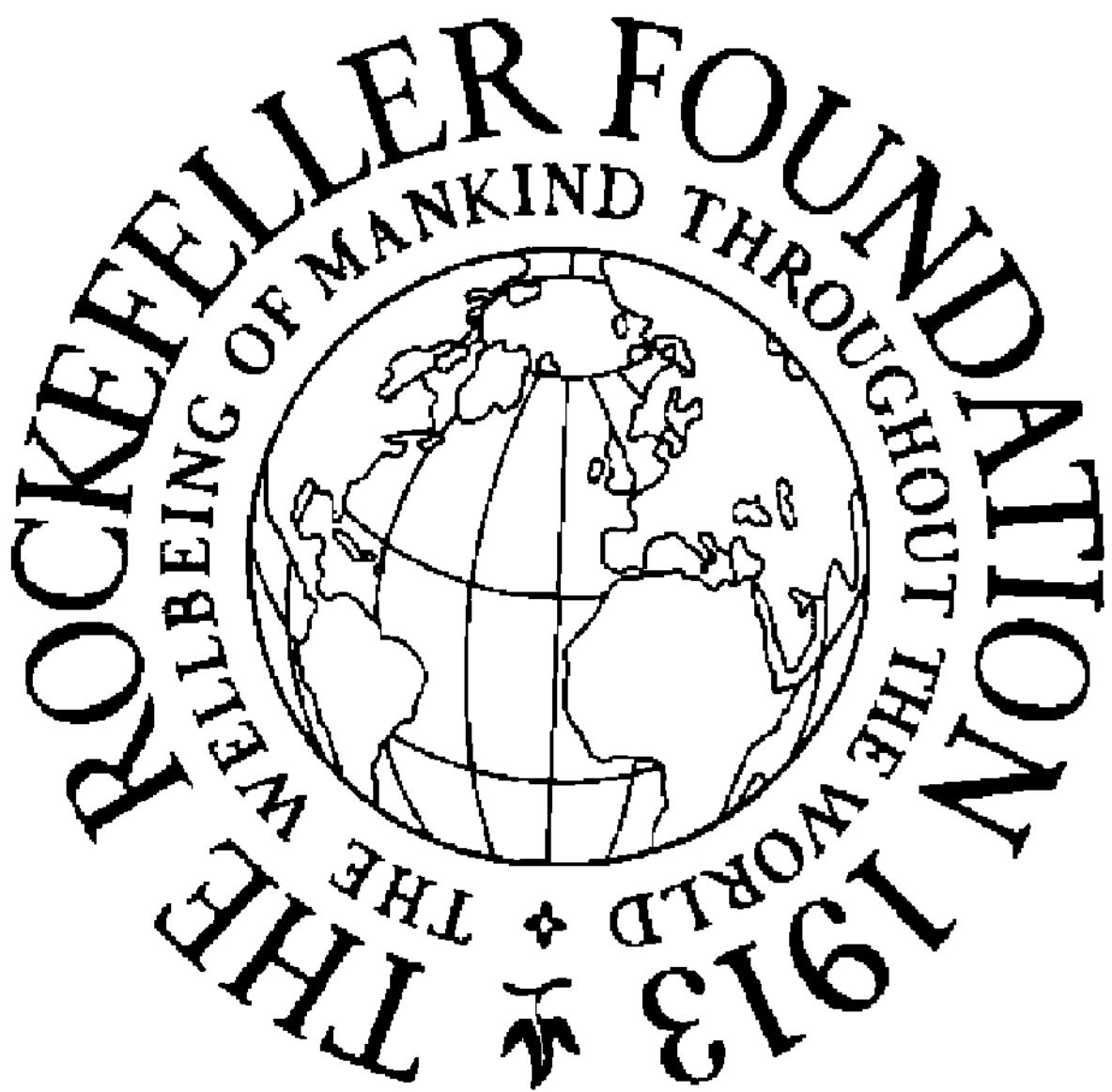


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Christian Medical College, Vellore, India, has achieved outstanding status for its medical teaching and service. Foundation appropriations in 1956 will be used by the college for (1) a program of staff development and the setting up of a fund for research in preclinical and clinical fields, and (2) the constructing and equipping of an outpatient teaching building. *Left to right*, sorting mosquitoes after a field trip; post-graduate thoracic trainees reading X-rays; medical students preparing for a village clinic.



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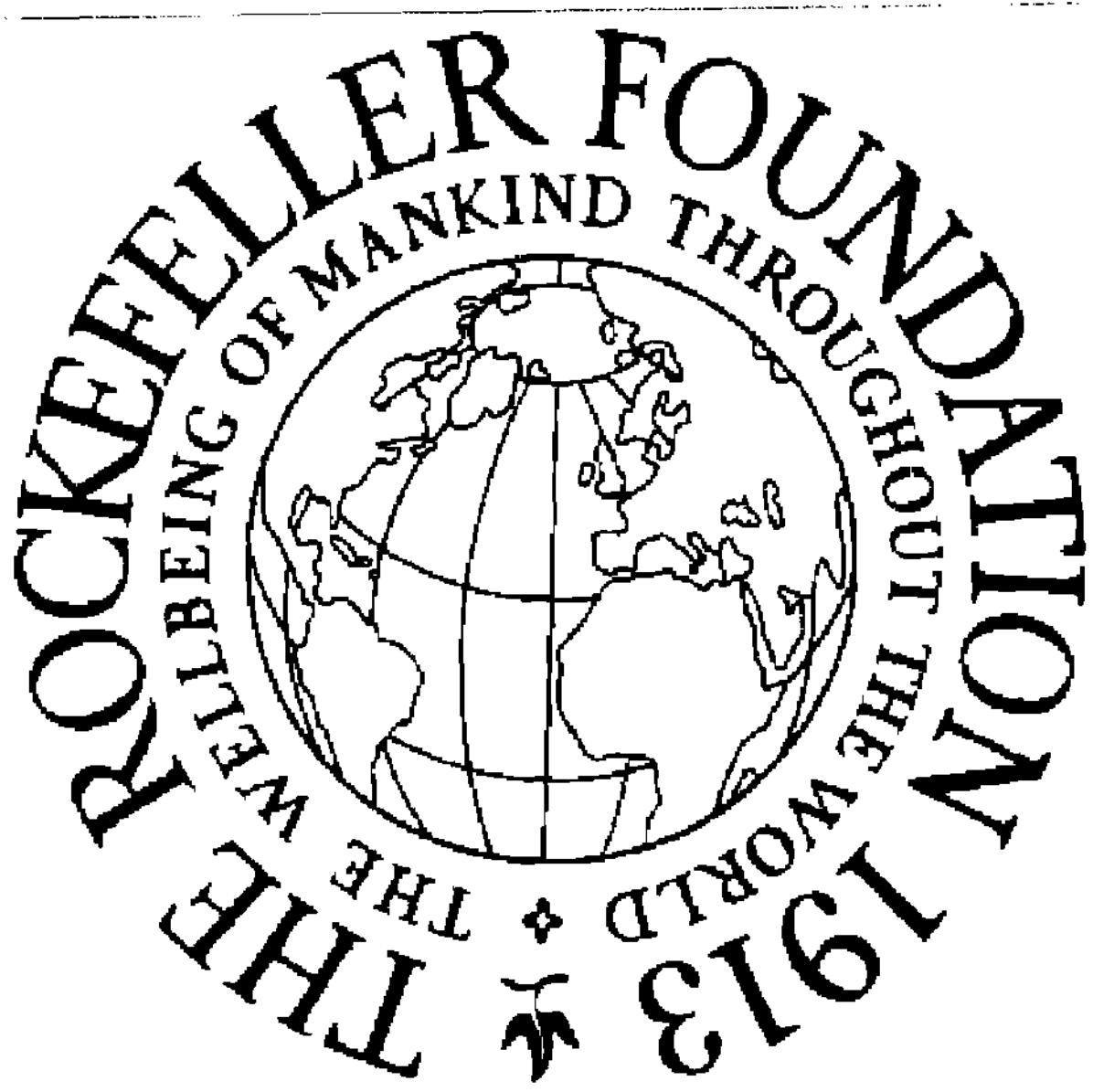
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The Japan Library School at Keio University, Tokyo, was established in 1951 and is a national rather than a university service. With the help of a further grant from the Foundation, available over the next five years, the school will be able to award one scholarship annually to a library instructor or librarian for study in the United States, and to bring an American teacher to Japan for approximately three months at each year. The grant will be used, in addition, for library workshops, fellowships, and the purchase of foreign books.

The University of Antioquia, at Medellin, Colombia, has recently enlarged its curriculum to include a training program in library science. It is anticipated that the two-year course will attract from 40 to 50 students annually. In this picture, students and an instructor examine books presented by the Library of Congress.



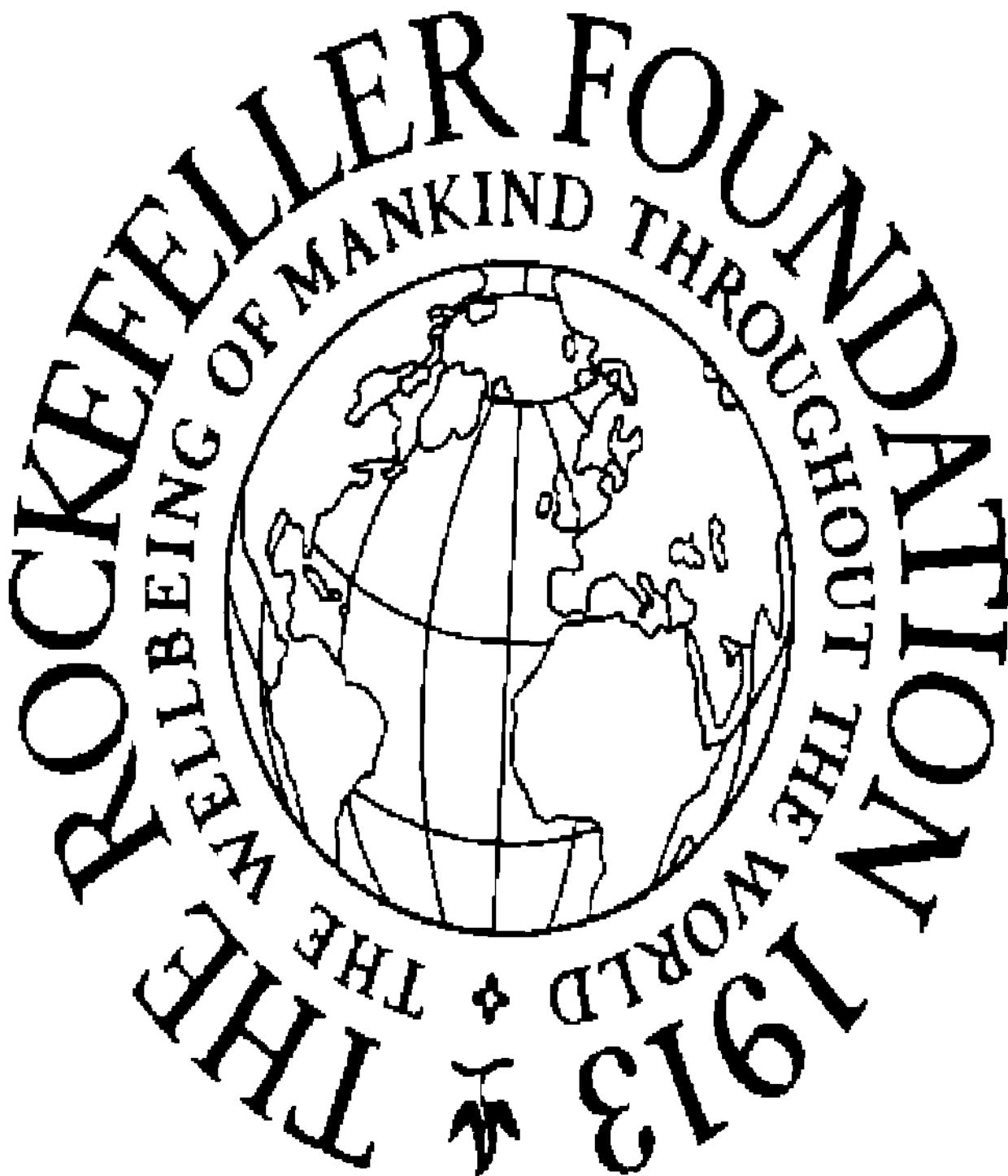
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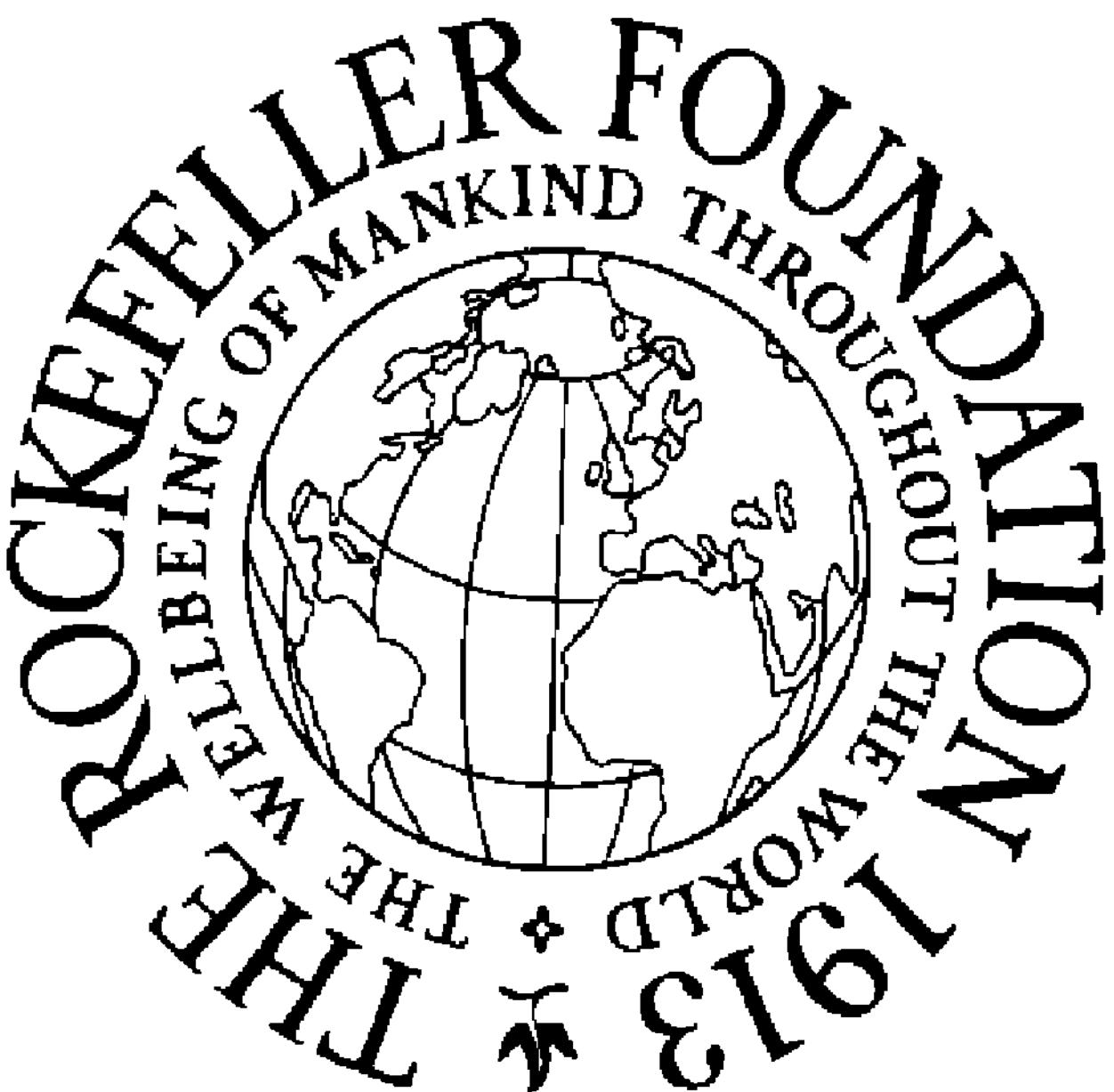
For a number of years the Roscoe B. Jackson Memorial Laboratory has been conducting research on the genetic factors of intelligence and emotional variation in five breeds of dogs. In this picture, Dr. John Fuller is measuring the emotional response of a basenji dog by electroencephalograph, using heart rate, breathing rate, and muscle tension.

Since its establishment in 1949, the International Youth Library in Munich has become one of the finest centers for children's literature in the world. With Foundation aid, the library's program is being expanded to include informational and consultative services for children's librarians in Asia, Africa, and Latin America.



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Below, taking a blood specimen during a field trip in North Borneo. *Right*, putting tissue culture fluid into test tubes for monkey kidney tissue culture.

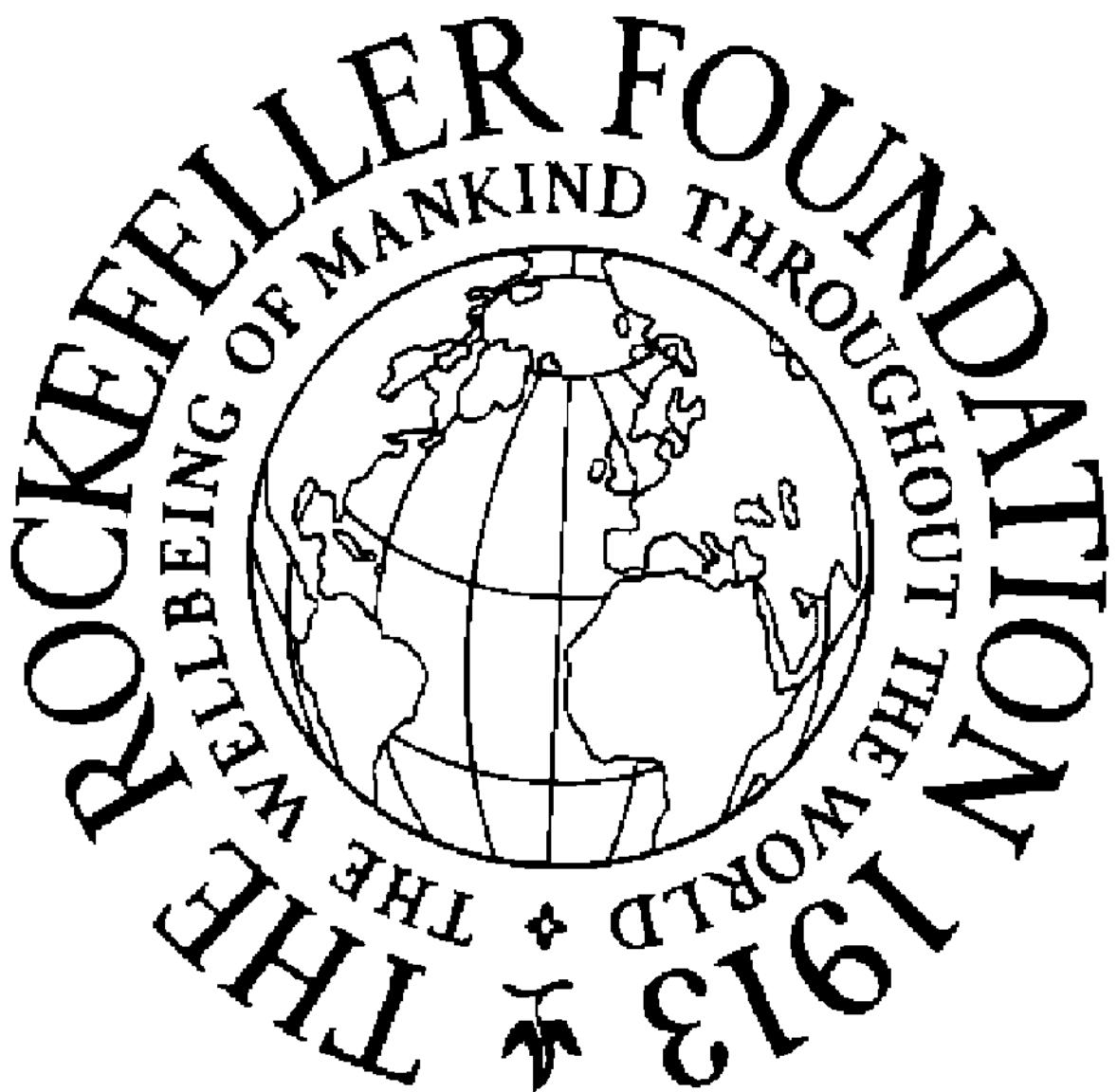


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During the last four years the Department of Bacteriology of the University of Malaya has focused its attention on the epidemiology of Japanese B encephalitis in Malaya. While field examinations in the Singapore region will be continued, the department will next undertake an investigation into the short-term fevers of unknown origin that occur so frequently in the tropics.



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Hemagglutination tests for arthropod-borne viruses, formerly done in test tubes, are now handled with considerably greater convenience and speed with lucite plates having small, cup-like depressions. The sensitivity of the tests, and the temperature range within which they work, seem to be increased by the new apparatus.

One aspect of the study of arthropod-borne viruses is the laboratory testing of the capacity of various arthropods to transmit a given virus. The insect (here, a mosquito) is inoculated with virus and allowed to bite a laboratory animal. The blood of the animal is then tested for the presence of virus.



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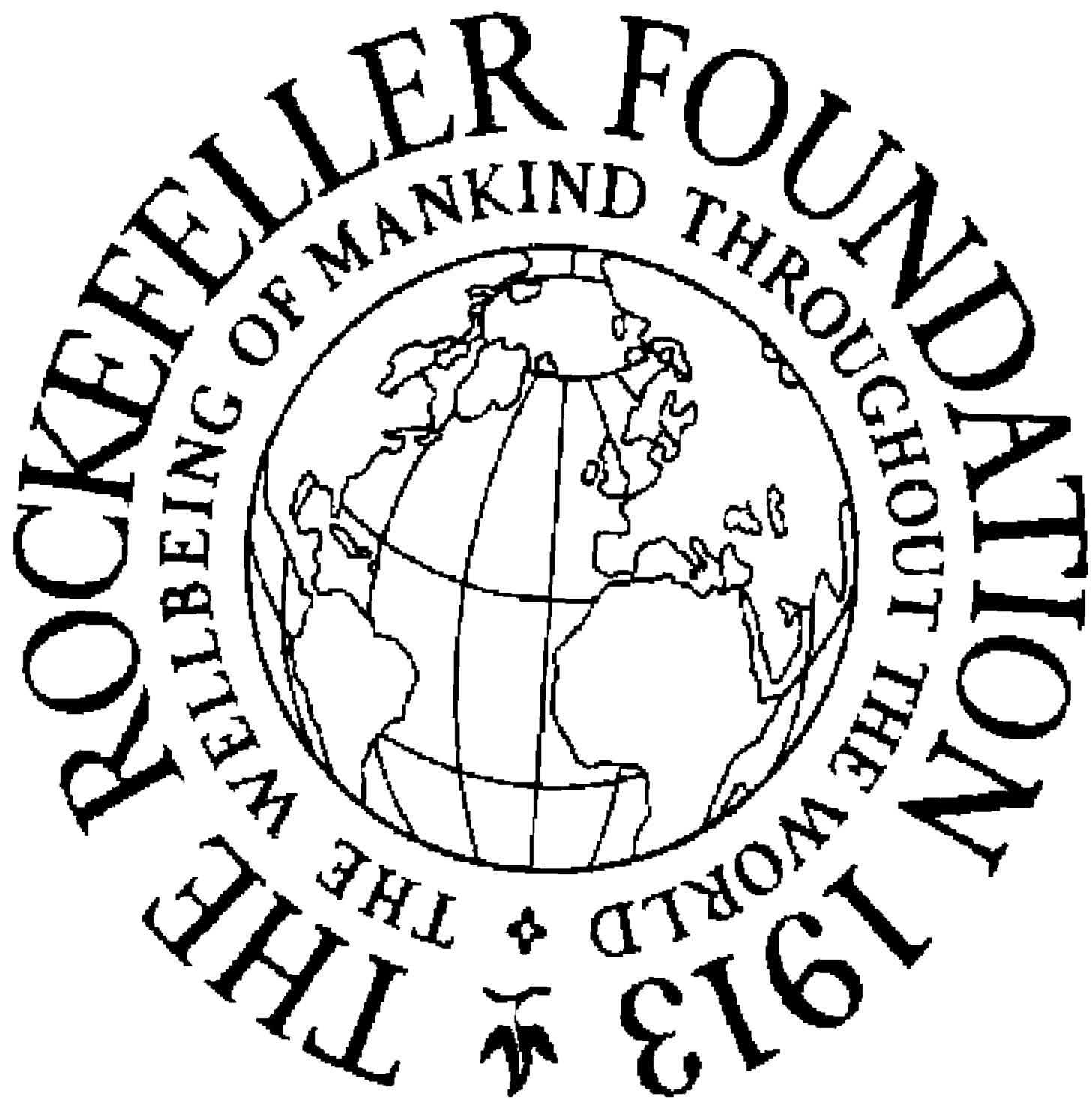
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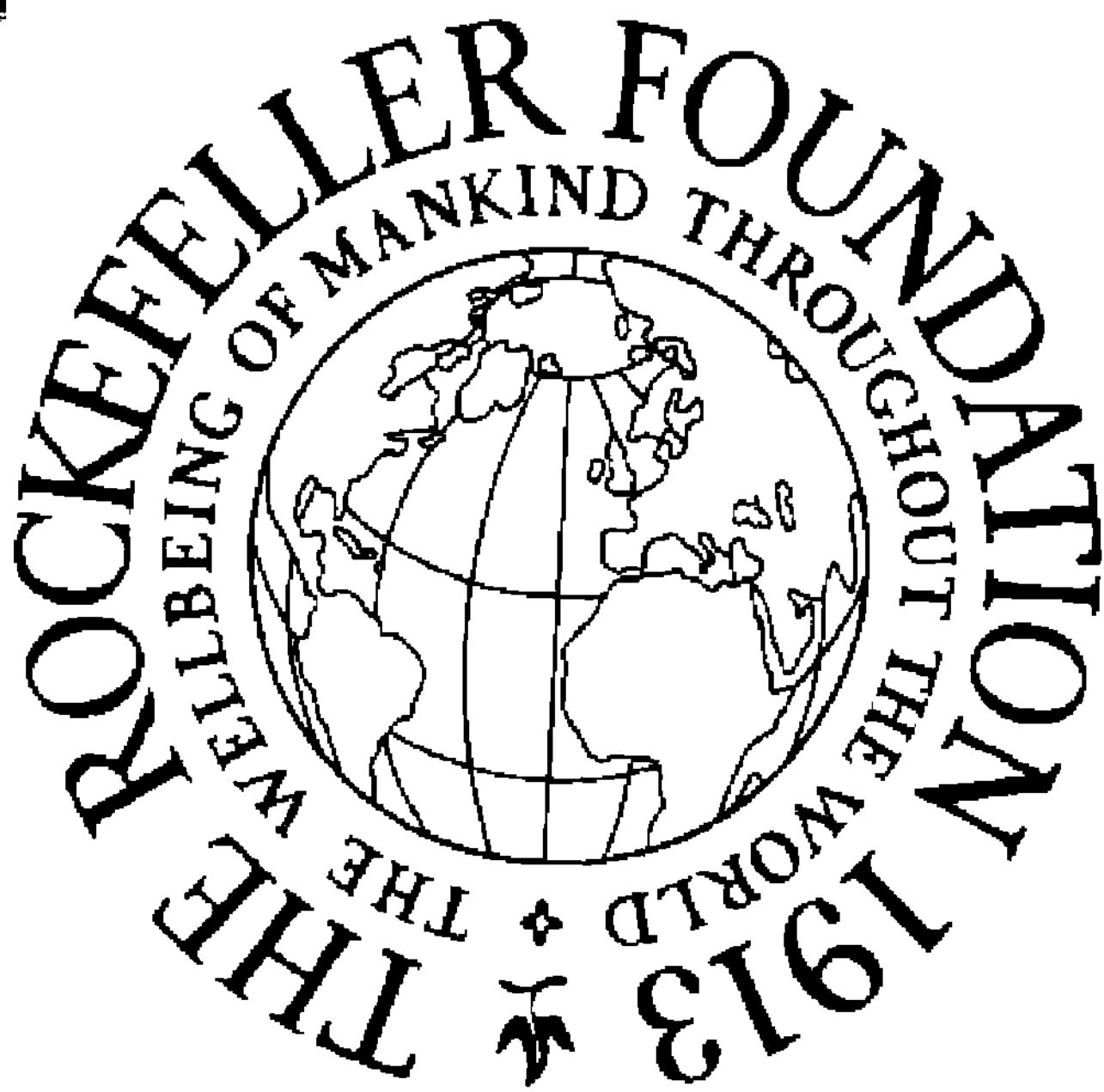
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With the current grant, Foundation support for the research of Professor Sir Alexander Todd on biologically important molecules totals \$190,250. The Cambridge University organic chemistry department, of which he is the director, has recently moved into new research laboratories built as part of a comprehensive plan for re-housing the entire School of Chemistry in up-to-date quarters.

Among the six member countries of the Central American Corn Improvement Project is Nicaragua, which now has three experiment stations in operation—at Managua, Chinandega, and Jinotega. In this picture, taken at Managua, a local corn variety is shown in comparison with plants grown from improved hybrid seed.



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The Mexican Agricultural Program's research center for developing improved corn varieties for the tropics is located at Cotaxtla, Veracruz. The breeding and testing is directed toward finding suitable genetic sources of resistance to lodging, heavy rainfall conditions and attacks by insects, the corn stunt virus, and other diseases, as well as toward increasing yields. The picture shows the experimental seed storage room.

The hacienda "La Rinconada," near Santiago, has been selected by the University of Chile as the site for a new College of Agriculture and an agricultural experiment station. The university's building program is based on a five-year plan providing for the transfer of all teaching and research activities in agriculture to this new rural center.



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The potato improvement work of the Colombian Agricultural Program is centered at Tibaitatá, a location that is representative of a large portion of the country's potato-growing areas. Breeding and testing are based on materials and data from the Colección Central Colombiana, containing about 500 clones, both cultivated and wild, from the Andean region, Central America, the United States, Canada, and Europe.



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During the past five years striking advances have been made in wheat production in Mexico. New varieties with resistance to stem rust, developed through research, allowed wheat to be planted in new areas, and their higher yields also increased production per unit of land. In this picture, taken during a wheat field day at the La Piedad experiment station in Michoacán, farmers are learning about some of the improved varieties developed by the Mexican Program.

THERE ARE MANY BALANCED
AND SATISFYING DIETS.
HERE IS ONE;
SHOWN AS
A 'FULL'
HAND.

Fruits
and
vegetables
 $5\frac{1}{4}$ lb

Meat,
fish, eggs,
and milk
 $4\frac{1}{2}$ lb

Mature
seeds
and nuts
 $\frac{1}{2}$ lb

Starch-
rich tubers
and roots
 $3\frac{1}{2}$ lb

Amounts are
for an adult
for one week

Grain
products
 $4\frac{1}{2}$ lb

FOODS
EATEN MAINLY
FOR THEIR
"MENU"
VALUE

5

BUT EVEN AFTER THE HARVEST
A GENIERI VILLAGER'S DIET
HAS SEVERAL FINGERS
SHORTENED OR
MISSING.

Fruits
and
vegetables
 14 oz

Meat,
fish, eggs,
and milk
 10 oz

Mature
seeds
and nuts
 14 oz

No
starch-rich
tubers &
roots

FEWER
"MENU"
VALUE
FOODS

Amounts are
for an adult
for one week

Grain
products
 $6\frac{1}{2}$ lb

6

Deficiencies in the customary diet of an African village similar to those in many underdeveloped tropical countries are graphically shown in this film strip sequence prepared for teaching purposes. To find local sources of proteins among tropical foodstuffs which villagers can produce or afford to buy, and will be willing to use, is the purpose of research conducted by the Human Nutrition Unit of the Medical Research Council, London.

WHILE IN THE HUNGRY SEASON
FAMINE DRAWS NEAR AND
THE DIET BECOMES
EVEN LESS
BALANCED.

Fruits
and
vegetables
 5 oz

No
meat,
fish,
 $4\frac{1}{2}\text{ oz}$,
or milk

Mature
seeds
and nuts
 $7\frac{1}{2}\text{ oz}$

No
starch-rich
tubers &
roots

NO
"MENU"
VALUE
FOODS

Amounts are
for an adult
for one week

Grain
products
 $5\frac{1}{2}$ lb

7

The
President's Review
1956

Introduction

During 1956 The Rockefeller Foundation appropriated \$30,075,305, the largest total in any single year since the Foundation was established in 1913. With an income of \$22,369,496 for the year, these appropriations reflect a decision by the Trustees to utilize a portion of the Foundation's capital funds in support of an expanded program in Latin America, Asia, the Middle East, and Africa, as will be discussed in the next section. A distribution of disbursements among major fields of interest is as follows:

Medical Education and Public Health ...	\$ 4,290,605
Biological and Medical Research	5,501,100
Agriculture	4,877,400
Social Sciences	3,290,260
Humanities	5,963,605
Unclassified grants	2,184,000
Administration	3,968,335
	<hr/>
	\$30,075,305

Foundation fellowships were held in 1956 by 458 individuals from 47 countries; appropriations included \$2,025,000 for the fellowship program.

The item for administration covers considerably more than the usual "overhead" costs. The Rockefeller Foundation continues to expend the greater portion of its funds through grants to other institutions; it does, however, undertake certain tasks in medicine and agriculture through members of its own staff. Support for these direct operations, for officers and staff on loan to other institutions or to governments, and for other forms of public service is included, for convenience, under administration.

The uncommitted capital funds of The Rockefeller Foundation at market value on December 31, 1956, amounted to \$608,287,630.71. As of the same date, the outstanding commitments of the Foundation totaled \$42,354,705.04.

Appropriations in 1956 bring the total of all appropriations since 1913 to \$565,456,661.65.

An Expanding Program Overseas

Of the present 81 Members of the United Nations no less than 19, with a total population of more than 650,000,000, have emerged as fully independent nations since World War II. All 19 are to be found in Africa, the Middle East, and Asia, areas from which still other independent nations will be knocking on the door of the world community within the next decade. In long perspective, this means that the ideas of national revolution and self-determination, born in the West and spread from there into other regions along with trade and empire, have borne their fruit and that the non-Western world is rapidly becoming responsible for its own affairs under its own leadership.

The implications of these events are far-reaching. The fact of independence itself is not new; the history of the past two centuries is filled with the successful efforts of more than 30 other Members of the United Nations to break away from some form of political dependence. What is of greater significance is that more of the peoples of the world, with all the variety of their historical and cultural traditions, are now represented directly at the tables of world diplomacy to assert their claims, present their points of view, submit their disputes, and participate in the handling of world affairs. The diplomatic center of gravity, which rested for so long with Europe and the Western Hemisphere, is shifting and perhaps disappearing as a meaningful concept.

Increases in the numbers of states alone suggest the need for revised techniques both in bilateral and multilateral diplomacy. New relationships are evolving between the West and the non-West, between white and non-white. The less tangible elements of power and the imponderable sanctions of opinion and prestige, no less important than weapons and material goods, are distributed more widely; the cumulative weight of the so-called lesser powers is steadily growing. There are more sovereign frontiers across which disputes may occur, more factors to be taken into account in adjusting differences, more problems of explaining and understanding.

The outsider naturally thinks first of the international roles of these newly independent nations, but the peoples themselves are largely preoccupied with domestic affairs and their everyday needs—as are the rest of us. Each of these nations is unique and generalizations about their circumstances, aspirations, and prospects are extremely hazardous. Nevertheless there appear to be certain features which are sufficiently common to make a few observations barely possible.

Many of these nations are now attempting to build, some from the ground up, an administrative structure to take the place of one which has been swept away; some are still preoccupied with the rudiments of law and order. They are moving tentatively and experimentally toward the constitutional and political arrangements under which their affairs are to be managed for the longer run. The unity which marked the struggle for independence is proving more difficult to maintain for the laborious and less glamorous tasks of building new nations. Relatively few have a complex of established institutions to carry much of the daily load through habit or automatic action, leaving for the highest levels of leadership the burden of decisions on relatively minor matters.

Their peoples are stirring with new hopes and expectations of economic and social improvement, the promised reward of independence; governments find themselves under great public pressure to make good on this promise and are under a terrible compulsion to do quickly what others have been able to do only slowly over a long period of time. In some, population growth outruns capital investment and increasing production, spreading gloom on the horizon ahead. There is an acute shortage of capital both for economic investment and for the essential public equipment of a going state, but subsistence levels offer little prospect for rapid accumulations of capital from internal resources. Productivity is low, if slowly rising. Illiteracy rates are high; education is in short supply, and at all levels in almost every field of endeavor there is a severe shortage of trained personnel.

If there are menacing problems, there are also encouraging assets. Some of these nations are fortunate in leadership with long vision and a realistic perception of the nature of the task at hand. Many are determined to work out their future under the freedoms of a constitutional system, adapted for their own situation. Some have a promising framework of educational institutions as a base for further expansion. Rising expectations produce new energy, both in the villages and in urban centers. Pride in independence undergirds public morale and calls many to selfless and devoted service. Some have important natural resources waiting for further development, a few even have surpluses over current consumption available for investment. Sensitivity still leaves room for an anxiety to learn on the part of peoples who are easy to teach. Disinterested assistance from abroad is welcomed and modest investments of time and money yield high dividends in human welfare.

The officers and Trustees of The Rockefeller Foundation are deeply impressed with the thought that the prospects for peace and orderly economic growth throughout

the world during the next quarter-century can be decisively affected by what happens in the independent nations of Africa, the Middle East, and Asia. If they succeed in establishing constitutional systems with friendly and easy exchange with the rest of the world, increasingly productive economies to supply their own needs at rising levels and to play an active role in world trade, and educational systems which can train their leadership in adequate numbers and educate their citizenry for the responsibilities of their new societies, then peace and stability will have gained tremendous support. Conversely, their failure to achieve a steady advance toward their present aspirations will create threats to the peace and postpone indefinitely the possibility of stability in the world at large.

The Foundation, in considering what it might do to be of assistance to the independent nations of the non-Western world, thought also of its traditional interest in Latin America, where many of the same problems exist if under somewhat different conditions. The Trustees decided that the needs and opportunities were sufficiently compelling to warrant a sharp increase in Foundation expenditures in Latin America, Asia, the Middle East, and Africa. In order that this might be done without a large reduction of expenditures in the United States and Europe, it was decided to use a portion of the Foundation's capital funds for a period of several years. During 1956, for example, some \$6,000,000 was allocated to the expanded program, over and above the normal allotments for these areas (approximately \$5,700,000) from annual income.

The amounts involved are small, certainly, in relation to total need; but it is believed that such funds can be of great significance if applied at the point where the Foundation believes that it can make the best contribution, namely, in the training of professional leadership. There is no single pattern by which this aid is to be offered. Support is being

provided to key institutions in key countries to assist in more advanced training within the local scene. Scholarships and other forms of study grants are being provided in considerable number, without rigorous adherence to the formal requirements of the traditional Rockefeller Foundation fellowships. Grants in aid provide essential books, miscellaneous items of equipment, and other aids to professional advancement. In some instances, the Foundation's own staff is used to give direct assistance to the organization of advanced training centers. A few grants have been made to institutions in the United States and Europe in direct support of activities which they have undertaken in service to one or more countries abroad. The Foundation's approach must necessarily be selective and cannot be evenly distributed throughout the vast areas involved. Its efforts will move more rapidly in some than in others, partly because local circumstances will permit it, partly because the Foundation itself needs time to become acquainted with countries in which it has not had long experience. The Foundation has not set up a separate organizational unit to handle this expansion of program; each of the Directors has a part in it and grants are reported in the Annual Report under the five major categories for which the Directors are responsible.

The Nuclear Age

In the Annual Report for 1940, Raymond B. Fosdick, then President of The Rockefeller Foundation, described a grant of \$1,150,000 toward the construction of a 184-inch cyclotron at the University of California at Berkeley with these words: "It is an adventure in pure discovery, motivated by the unconquerable exploring urge within the mind of man. . . . It is a mighty symbol, a token of man's hunger for knowledge, an emblem of the undiscourageable search

for truth which is the noblest expression of the human spirit."

In the autumn of 1945, shortly after the first use of fission bombs in warfare, Mr. Fosdick sent to the Trustees a review of the scientific developments preceding the appearance of these awesome weapons, with the following introductory comment:

.... Whether the release of atomic energy in the long run will result in good or evil for the race, no one can now say; but whatever the consequences, the Foundation and its related boards cannot escape their share of the responsibility, indirect as it may be. The atomic bomb is the result of influences which, for the most part unintentionally and unwittingly, we helped to set in motion, because we were interested in pushing out the boundaries of knowledge. It is a tragic irony that when men have been most successful in the pursuit of truth, they have most endangered the possibility of human life on this planet.

The towering question which faces the world now is whether the new energies can be controlled. It is, I know, the hope of all of us that the Foundation may be able to make some contribution, however slight, to this end.

Thus, within five years, the exhilaration of discovery was damped, at the Foundation as everywhere else, by the sobering impact of an enormous new power which man had wrested from nature—for good or for evil, or for both, depending upon how he will use it. Mr. Fosdick's words, "unintentionally and unwittingly," in the comment quoted above, are a reminder that the possibilities of nuclear weapons or of the controlled release of nuclear energy on other than an infinitesimal scale appeared at a late stage of nuclear research. There was a 34-year gap between Albert Einstein's announcement that $E=mc^2$ and his famous letter to President Roosevelt in 1939 about the possibility of atomic weapons. Lord Rutherford discovered the atomic nucleus more than forty years ago; if there were chain reactions from the work of these two men, they were to be found for

decades in the waves of interest and excitement which stimulated the physicist, the chemist, the biologist, and the medical researcher to undertake experiments of increasing subtlety and intellectual power to push back the frontiers of knowledge. Undoubtedly, the primary motive of these earlier devoted investigators was nothing more, and nothing less, than additional satisfactions for man's insatiable curiosity, a motive for which The Rockefeller Foundation has always held the greatest respect. More practical possibilities, of course, opened up. Isotopes came to serve as tags for the study of biological processes, some of great medical significance, which had earlier defied understanding. The supply of radioactive materials for research and therapy could be multiplied by the bombardment of common materials and free man from the limitations of his scant supplies of radium. Perhaps at long last something effective could be done about cancer and other baffling diseases.

The scientific trail from $E=mc^2$ to nuclear weapons and the peaceful uses of nuclear energy has been described elsewhere. More than a decade has passed since mushroom clouds publicly announced the availability of a new source of enormous power. If initial shock and dismay led some to question whether man should intrude upon secrets better left locked away in nature, it should now be apparent to all that the nuclear age is here to stay. Moral philosophy may be able to pose some interesting questions about unlimited freedom of scientific inquiry but the debate is conditioned by the absence of practicable alternatives. Nature continues to entice the curious, and human need requires the further harnessing of its resources and protection from its attacks. The history of scientific exploration is filled with surprise and accident, as tortuous paths lead to unplanned and unpredicted results. There is nothing new about the fact that when man increases his power to act, he achieves greater capacity for both good and evil. The science of healing opens the

door to biological warfare; rapid mass communications transmit friendship or hostility; ships and planes may carry peaceful trade or troops bent upon destruction. But attempts to bar certain sectors of knowledge as off limits would be futile and place a high premium upon clandestine research. Men will not turn to the genocide of the curious or deliberately embrace a new barbarism. The answer to dangerous knowledge continues to be more knowledge, broadly shared by an international community of science and scholarship, and reliance upon the determination of man to grow in wisdom and understanding.

The Rockefeller Foundation had, as Mr. Fosdick implied, taken a lively interest in nuclear research, especially after its activities in support of the natural sciences increased sharply in the early 1930's. Even earlier, its funds had provided fellowship assistance to many whose prepared minds were to play a significant role. Among those, for example, who had held fellowships from the Foundation, or from the International Education Board, or from the National Research Council out of Foundation funds, were such scientists as Robert F. Bacher (1930-32), Hans Bethe (1930-32), Arthur Compton (1919-20), Edward U. Condon (1926-27), Enrico Fermi (1924), Ernest O. Lawrence (1925-27), J. R. Oppenheimer (1927-28), Henry DeW. Smyth (1921-24), Edward Teller (1933-34), and John A. Wheeler (1933-35).

In addition to opportunities for further study by individuals, Foundation funds assisted a number of laboratories with buildings, such items of equipment as electrostatic generators, cyclotrons, and betatrons, and free research funds for nuclear investigations. One notable group of laboratories was at the University of Copenhagen, where the physicist Niels Bohr, the chemist George von Hevesy, and the physiologist August Krogh led a distinguished company of scientists in pooling the resources of their several disciplines

to work at such questions as the biological uses of isotopes. Another was the Radiation Laboratory of the University of California at Berkeley, where Ernest O. Lawrence devised and rapidly developed the cyclotron. The list would include the Collège de France, the University of Minnesota, Rochester, Stockholm, Washington University at St. Louis, the Massachusetts Institute of Technology, Columbia, Chicago, Princeton, the University of São Paulo. Two of the last grants made by the Foundation before the field of nuclear research was swept up into the wartime Manhattan Project provided \$60,000 in 1942 to expedite the winding of the armature of the giant magnet of Lawrence's new 184-inch cyclotron, and a sum of \$100,000 at about the same time to the Metallurgical Laboratory of the University of Chicago for research in problems of industrial hygiene arising from the handling of radioactive materials.

The first decade of the nuclear age has been a period of rapid scientific and technical development. The prediction of the Smyth Report (1945) that nature would not play political favorites in revealing its secrets to competent investigators has come to pass. Nuclear weapons are in the hands of rival governments; fundamental knowledge is now largely unclassified and available to all who can understand it; men are addressing themselves seriously to the "towering question," to borrow Mr. Fosdick's phrase, of how best to multiply the benefits of nuclear power and to minimize or remove its technical and political dangers. The nature of the questions ahead has been considerably clarified, even though the answers are by no means clear. The Rockefeller Foundation, both because of its charter purpose and because of its long interest in nuclear matters, continues to give thought to the contribution which it might make. For the present, there seem to be three main directions in which the resources of the Foundation might usefully be applied, taking into account the very large sums available from government and industry.

The first important area of Foundation concern with the nuclear age might be called the public health of nuclear energy, broadly conceived. Man is now capable of adding significantly and dangerously by his own actions to the inescapable natural radiation already present in his environment. He can do this by nuclear war, by a sustained and large-scale testing of nuclear weapons, by the pollution of food, air, and water through inadequate disposal of wastes. Increasing numbers of individuals can be subjected to additional hazards by radioactive therapy, by industrial accidents, or by the handling of the increasing quantities of radioactive materials without proper protection.

It is known that radiation can inflict damage upon human beings, both genetic and pathological, and that sufficient dosage can cause death. At the very threshold of the nuclear age, therefore, important questions are posed, for all of which reliable answers are not yet available. Some of these questions involve matters of art and judgment for which further research cannot itself provide a definitive answer; for example, what level of genetic risk must be accepted in order to maintain a weapons system designed to deter the launching of a nuclear war by an aggressor nation, possibly involving tens or hundreds of millions of lives? Under what circumstances should a patient be advised to accept a substantial risk of radiation damage in order to obtain the benefits of radioactive therapy? Nevertheless, there are gaps in knowledge which might be filled by further investigation which have a bearing, at least, upon public policy decisions of the utmost importance, ranging from decisions as to the character of military establishments to the measures which will be needed to protect populations and individuals from harm as the peaceful uses of nuclear energy become commonplace.

In December, 1954, the Trustees of The Rockefeller Foundation discussed at some length the effects of radiation upon man, taking into account the fact that more and more

information was becoming declassified and accessible for independent research and public discussion. They decided to invite the National Academy of Sciences to consider whether it, as the most distinguished and representative group of scientists in America, would be willing to make an independent study which would, first, draw together what is now known about the effects of radiation on man and second, help to identify those questions upon which further research is urgently needed. The National Academy would have complete freedom in selecting those to participate in the study, the questions to be considered, and, of course, in determining the contents of such reports as might ensue. Happily, the National Academy accepted the invitation and was promptly assured of the full cooperation of the U.S. Atomic Energy Commission.

In the months which followed, the National Academy of Sciences constituted six committees, each consisting of eminent scientists possessing both specialized knowledge and broad experience, to carry on continuing studies of the biological effects of atomic radiations from the points of view of genetics, pathology, meteorology, oceanography and fisheries, agriculture and food supplies, and the disposal and dispersal of radioactive wastes. Their initial reports, published in June, 1956, were given wide circulation and provided a highly useful and authoritative background for increasing public interest in the issues involved. From the point of view of those interested in research and support for research, the reports are introductory to the further investigation of questions needing urgent clarification.

The Foundation's grants to the National Academy of Sciences for the above purposes amount thus far to \$275,000.

A second aspect of Foundation interest continues, in effect, its traditional role in support of basic scientific research, with main emphasis upon the living processes. Tools

of great power and precision, using radiation techniques, can now be used for the further study of the structure and functioning of both plant and animal life. In the wake of advancing knowledge at the most fundamental level come highly useful applications in such fields as medicine and agriculture. It is to be expected that established Foundation programs in these fields will involve support for research which fully utilizes the newer radioactive tools, and that more attention will be given to plant, animal, and human genetics. A more detailed account of the Foundation's research interests in the life sciences will be found below, and in the Annual Report, under the headings "Biological and Medical Research" and "Agriculture."

A third type of study to which Foundation support is planned, on a selective basis, would delve into the economic, legal, and political problems of the nuclear age, with special attention to the increasingly complex issues of international relations with which nuclear energy is now inextricably bound. There seems little doubt that the most immediate danger from the unprecedented increments of power now at hand lies in the possibility of large-scale nuclear warfare. Similarly, the most revolutionary—and most hopeful—early impact of nuclear energy might well be the forced revision of traditional views about the role of force in international relations and the age-old partnership between policy and military power. Political scientists have often noted the presence of an external threat as a powerful motivation toward unity and toward the solution of differences among those exposed to a common threat; intriguing is the prospect, however fanciful at the moment, that the tiny atom may provide the political equivalent of the "threat from outer space" which idle speculation has sometimes posited as a precondition for peace among the major powers.

The path which leads to the craggy heights of peace, and which the principal nations would have to take together,

is not yet discernible and one suspects that it is to be sought in terrain filled with tension and danger. Force remains with us because peace, although elevated several ranks by nuclear weapons, is not the *summum bonum* in a world in which a consensus about justice is not complete. There would be grave risks in relying upon the hope that the violence of force can be limited among the passions of war, or upon the expectation that a belligerent would yield before using all its means to crush its enemy. It may be necessary and instructive for the principal nations to work intensively upon possible arrangements for limiting or reducing armaments, but for the longer run the prospects for peace will turn upon the political, economic, and social issues which create the temptation to use them. Here the Foundation's commitment to "root causes" comes into play, along with a certain humility engendered by problems so vast, so obscure, and seemingly so unyielding to rational processes. The Foundation's approach is to provide support for those who seem to be capable of biting into the complexities of major long-term international questions against the sobering background of nuclear power. Examples of such grants are to be found below under "International Relations" (p. 47).

Hungarian Refugees

The distressing events in Hungary in October and November of 1956 drew the Foundation's attention once more to a need which unhappily has arisen on more than one occasion since 1913 — the plight of scientists, scholars, and students who find themselves overwhelmed by political events and forced to seek refuge in another country. The Rockefeller Foundation does not contribute to what is commonly called relief — the provision of consumer goods and services for those in distress. To do so would rapidly ex-

haust its resources and leave it unable to assist with the root causes of distress. The refugee scientist and scholar present a different problem. Putting aside purely humanitarian considerations, all of us have a stake in man's intellectual capital and in the minds which are most likely to widen our knowledge and find its application to human well-being. Hungarian refugees included many students, professors, researchers, artists, and others whose potential contributions had to be conserved. The principal question for the Foundation was not whether it should do something, but what it should do in the light of the other resources being brought into action.

In late 1956 and early 1957 well over \$1,200,000 has been appropriated for those aspects of the Hungarian refugee problem which the Foundation accepted as its special opportunity. Almost \$700,000 went to institutions in Austria, where the main brunt was being felt. Funds were provided to 13 Austrian universities and Hochschulen for allocation by them to more than 600 Hungarian students admitted to these centers of higher learning. Another \$80,000 went to seven of these same institutions to provide stipends for more mature research scientists and scholars who wished to resume their work in Austria. A contribution of \$100,000 was made to the Netherlands Association for the Hungarian High School at Bad Iselsberg, Austria, to relocate a group of younger students who had moved *en bloc* to Austria. The Congress of Cultural Freedom received \$70,000 toward the costs of a Hungarian Symphony Orchestra; the World University Service was provided with \$30,080 toward the expense of its service in Austria; and the Caritas Association of the Archbishopric of Vienna received \$5,000 for books needed for its language training program for Hungarian students.

In the United States, the Foundation provided some \$350,000 to organizations which had promptly accepted

responsibility for lending a hand to Hungarian refugee students and intellectuals. The Institute of International Education was given \$101,000 toward activities financed by several foundations, among them the Ford Foundation and the Rockefeller Brothers Fund, which included the excellent orientation programs arranged by Bard College and St. Michael's College. The National Academy of Sciences received \$180,000 to assist it in its task of interviewing and placing Hungarian scientists. A contribution of \$35,000 was made to the President's Committee for Hungarian Refugee Relief for its placement program. Smaller grants were made to the World University Service, the American National Theatre and Academy, the American Council for Emigrés in the Professions, and the National Committee for Resettlement of Foreign Physicians.

In addition to these special allocations, the Foundation awarded a number of fellowships and other study grants, with funds totaling approximately \$80,000, to individual Hungarians.

Although some effort was made to ascertain whether The Rockefeller Foundation might provide assistance inside Hungary, especially for the damaged clinical facilities of the Medical Faculty in Budapest, these efforts have resulted thus far only in a small gift of medical books to the Medical Faculty through the Hungarian Red Cross.

Medical Education and Public Health

The Rockefeller Foundation was born in 1913 with a deep concern over the then-existing state of the medical sciences, over the desperate shortage of adequately trained doctors and nurses, and over the still primitive public health services through which men, even in the so-called advanced

countries, were trying to defend themselves against epidemic and disease. Over this period of 43 years, more of its funds and staff have been devoted to these concerns than to any other purpose. Its representatives explored conditions in every country; many joined with local authorities to do battle against malaria, hookworm, yellow fever, influenza, tuberculosis, yaws. Large numbers of promising young men and women were sought out for advanced training; large sums were invested in the institutions, in the United States and abroad, which might train them. Research funds were provided to medical schools, departments, and individual investigators to help build up the basic knowledge upon which effective and efficient medical care must rest.

At the heart of these traditional concerns of the Foundation lies the idea that good health is a primary ingredient in what the Foundation's charter calls "well-being," touching as it does man's dignity, his intellectual and spiritual growth, his productivity, and his sense of responsibility for family and fellows. This basic notion continues to play a large role in the Foundation's thinking; practical applications have changed somewhat over the years in response to changes in the scientific, economic, and social environment. There has been no decline in interest on the ground that the Foundation has been interested in medicine for a long time and has done "its share." The fact that more answers are now at hand means that "needs" are greater than ever—more can be done for more people. And it would be to ignore the history of science not to suspect that opportunities of great promise are present beyond the terrain which medical science has explored and occupied in years past.

Many factors in the present scene influence the Foundation's thinking, which, one must remark, is now under intensive review. Some of these are the rapid growth of public health services financed by governments and international

organizations; the rising demands of hundreds of millions of peoples in the non-Western world for prompt improvement in medical care; the multiplication of funds for medical research, many of them committed on a short-term basis for what are by nature long-term undertakings; rising costs of the best medical care, medical education, and medical research; the changing ratio between sources of annual income and invested endowment; questions about the effective and supportable forms of medical care within the community and the region; the changing spectrum of health problems as medical science brings some of the great killers of the past under control and turns to the stubborn degenerative and chronic illnesses of man; the educational problems of training competent doctors within a reasonable time, when there is so much already known to be learned and so many questions crying for investigation; the medical and public health implications of the nuclear age, discussed above. Consideration of factors such as these has brought shifts in emphasis in our medical efforts, but this field remains one of great interest and concern to The Rockefeller Foundation.

During 1956 the Foundation paid considerable attention to professional education, especially overseas, in institutions which now seem likely to be training the teachers of still other medical schools to serve populations demanding vastly improved medical care. Limited as are the Foundation's funds, this type of investment suggests a high return in better health over the longer run; it responds to many urgent requests to the Foundation for assistance in lifting the quality of present training, and it has usually stimulated a much stronger financial effort from others on behalf of the institutions concerned. Details will be found in the Annual Report, but the more important examples of these 1956 grants are:

Christian Medical College, Vellore, India	\$367,400
King George's Medical College, Lucknow, India	299,750
Seth Gordhandas Sunderdas Medical College, Bombay, India	273,300
University of the Andes, Bogotá, Colombia . . .	570,000
Recife Medical School, Brazil	215,000
Paulista School of Medicine, São Paulo, Brazil	105,000
University of Brazil, Rio de Janeiro	63,000
Keio University, School of Medicine, Tokyo, Japan	290,000
University of Ankara, Department of Child Health, Ankara, Turkey	100,000

In addition to these, smaller developmental grants were made as modest stimuli to medical education in some 21 countries, including those listed above.

In the broad field of health care, as distinct from professional education and medical research, the Foundation's interest in recent years has been in studies and experimentation on the effective organization of medical care, taking into account such questions as the distribution and full utilization of the highly trained specialist as well as of the complicated and expensive equipment which modern medicine now employs. In 1956 a grant of \$155,950 was made to the Commonwealth of Puerto Rico, where an effort is being made to work out the proper coordination among government health programs, private organizations, medical personnel in private practice, hospitals, rural health centers, and the University of Puerto Rico Medical School. A Regional Health and Welfare Coordinating Office has been established to lead this attempted coordination and special attention is being given, on a pilot basis, to the 16 municipalities in the Bayamón District Hospital area.

The population problem cuts across many disciplines and, in the Foundation, involves the joint interests of all of its Directors. A 1956 grant, with a strong medical orienta-

tion, was that of \$163,280 to provide four-year support for studies of population dynamics in selected Indian villages being conducted jointly by Harvard University and the Christian Medical College in Ludhiana, with the close co-operation of the Government of India.

In the radiation field, the Foundation does not expect to embark upon a large program of financing research reactors or heavy equipment for radiation therapy. In 1956, however, an unusual opportunity arose at the Massachusetts Institute of Technology which resulted in a grant of \$250,000 in support of medical and biological research. MIT had under construction a 1,000 kilowatt nuclear reactor; by altering the plans to permit an additional port in the under face of the reactor, it becomes possible to direct a beam of nuclear rays into an operating-therapy room underneath, making possible the irradiation of patients immediately after surgery and the utilization of radioactive materials of extremely short half-lives. The location of the reactor in Boston, with the unusual advantages of technical supervision by MIT physicists and engineers and of joint use by several of the outstanding medical groups in the area, was an important consideration in the award of the grant.

Biological and Medical Research

Everyone, by this time, recognizes that science has entered intimately into our daily lives. Physics, which used to be, at least from the point of view of public recognition, chiefly the silent partner of engineering and technology, has over the last decade been literally bombarding all of us with questions which are as perplexing as they are important. The problems of biological and medical research also touch every one of us daily.

To illustrate, the morning newspaper of the day on

which this is being written carries three typical bits of news. Certain soldiers were presumably subjected to "rays" and are reported to have fathered children which have deviated from the normal experience in two ways—fewer in number, and with an excess proportion of abnormalities. This bit of news is very possibly questionable; but it comes against the more substantial background of public discussion as to the biological danger from nuclear testing. Much of this discussion is confusing, but one thing is very clear: we need to know a great deal more about human genetics and radiation biology.

The paper also warns that there is an epidemic in the Far East caused by a possibly new and unknown strain of influenza virus. Here is a good example of the interrelatedness of the modern world. Science and engineering, plus commercial enterprise and the accelerating pressures of defense, have produced a rapidity and universality of air travel which make it clear that microorganisms in one part of the planet will soon and inevitably appear in other parts.

To deal with such a menace, there is required the full armament of modern science: public health measures and epidemiology; the subtle tests of the serologist; all the skills of the physician; the resources of hospitals; and back of and underneath all this, the modern microbiologist with his chemical and physical colleagues, using electron microscopes, super centrifuges, electrophoresis, chromatography, etc., etc., to probe the secrets of the virus itself.

Even on the financial page of the same paper there is science news. What is 9-alpha-brom-11-keto progesterone, and why does Wall Street care? The most exquisitely precise, patient, and basic researches of organic chemists and biochemists have demonstrated that it is possible to affect the tendency of a cell to run wild and be a cancer cell if one can in some way control the processes by which this cell manufactures, within itself, certain substances known as

nucleic acids. The multiple-syllable substance just named has shown some preliminary and hopeful promise of being able to affect nucleic acid metabolism in this useful way. A rumor gets loose about this, and a pharmaceutical stock moves up \$4.62 a share in one day.

The body of activity which, in The Rockefeller Foundation, comes under the organizational label "Biological and Medical Research" is based upon program concepts that are illustrated by these three items of daily news. A major one of these concepts—one which has influenced our program for many years—is that biology, like physics, is no longer a hidden and esoteric ritual of remote laboratories, but is a scientific activity—also a social and an artistic activity—which is of immediate and daily concern to everyone. Often it patiently lays the careful foundations on which medicine and agriculture can build. Often it enriches our lives by giving us new and deeper understandings of the complicated and beautiful order of living nature. So useful and powerful has it become, so intimately does it now affect us, that it often moves promptly from the laboratory to the daily press.

A second concept that comes to the surface in the news articles is that biology is no longer a special and somewhat isolated division of science. As someone remarked recently, it is getting harder and harder to recognize a biology laboratory by looking in through the door. There was a time when one would see chiefly microscopes, dissecting equipment, specimens being mounted, whole animals being studied. Nowadays one occasionally sees these things still, of course; but he is more apt to see refrigerated centrifuges, spectrophotometers, electron microscopes, all sorts of equipment for chromatography, carefully controlled constant-temperature chambers, petri dishes and test tubes, equipment for measuring radioactive isotopes—even high energy sources: in other words, such devices that one is hard put to it to

guess whether he is looking in at physics, or chemistry, or biology.

Actually the partnership is an even wider one. Modern experimental biology is not only linked in a mutually effective interrelationship with all of the physical, medical, and agricultural sciences; it is also linked into the practical problems of everyday modern life. One cannot, for example, take an intelligent and informed attitude toward certain problems of international relations—as for example the question of nuclear weapons testing—without getting involved in so biological an issue as the importance of the gene mutations which can be brought about by radiations.

DOES BIOLOGY STILL EXIST?

The older practitioners of the biological art were concerned primarily with intact animals—their description, their classification, and the way they acted. Later they found it useful to go inside the skin, so to speak, to study the internal organs and systems: How did they function, how were they interrelated? Only a little more than a century ago came the unifying generalization that all living things are composed of cells. The scientific tools that were available over the earlier portion of that century were reasonably well adapted to the study of objects of the size of cells—say one-thousandth of a centimeter, although there are, of course, much larger single cells, such as the yolk of a hen's egg. But physics and chemistry, chiefly since the turn of the present century, have devised more delicate tools and techniques, capable of dealing with objects many times smaller than a cell. Thus an ordinary simple non-organic molecule, like that of water or salt, is smaller than a cell by a factor of ten thousand; and the nucleus of an atom, inside which the modern physicist "works," is smaller still by a further factor of a million.

All of this has brought it about that many modern biologists, eager to run truth to ground, have pursued their problems on a finer and finer scale of dimensions. They are concerned not with bats or bugs, not with hearts or hypothalamus, not even with cells, but with life on a molecular or even atomic scale. Thus biologists are, at the moment, intensely concerned with the details of the atomic architecture of the substance which they nickname DNA (short for deoxyribonucleic acid), talking on the scale of a hundred-millionth of an inch as to the exact location of this or that amino acid portion.

Does this mean that *biology* no longer exists? Is the whole story to be spelled out in physical-chemical detail on a molecular level?

The synthesis of urea, a century and a quarter ago, made untenable the vitalist position that the chemical events which occur inside a living creature are so special that they can never be caused to take place in a glass dish. And yet no one—almost no one, at least—doubts that the phrase “a living organism” relates to something which is elusively more than the sum of a lot of small, quantitatively describable parts.

It is well to let a great biologist answer the question, and we call on that long-time and highly regarded friend of our organization, Professor A. V. Hill of London. In his essay *Why Biophysics?*, and speaking of an earlier lecture he gave many years ago, he said:

On that former occasion in Philadelphia in 1930 I spoke on the rather cryptic title ‘The Physical Reasonableness of Life’: it allowed me to expound a faith that no limit will be found at which the application of physical methods and ideas—and of course that implies chemical ones too—will be forced to stop in the investigation of living processes. I was at pains to emphasize that this certainly does not imply that biology will finally become simply physics and chemistry—at least as one knows those subjects now: indeed the boot is

rather on the other leg, physics and chemistry have in the end a great deal to learn from biology, in their philosophy and ideas, as well as in their opportunities for research. It is obvious indeed, at least to those biologists who know something about the properties of the nervous system, that physical theories and concepts can have no absolute validity apart from the brains that conceive and use them: if they *can* be conceived by the brain, it seems most unlikely that their pattern is not conditioned, and to some degree determined, by the properties and machinery of that organ. . . . Physics and chemistry will dominate biology only by becoming biology. We can live in hope of the future unification of biological and physical science—but need not fear at all the dreadful prospect that life will be explained away in terms of present-day physics and chemistry.

BIOLOGY, CHEMISTRY, AND PHYSICS

During 1956 there were made four rather substantial grants of a general character: for the library at the international research station at Naples, for biological research at Amherst, for research in the natural sciences at the University of Mexico, and for biology, experimental medicine, and surgery at Copenhagen.

There were three grants aimed at increasing useful knowledge in an area which is of increasingly obvious importance in the less favored parts of the world—ways of meeting the protein requirements of children, especially over the critical years after weaning. It has become clear that this is a major nutritional problem in many populous countries, and some experts have even called this the number one public health problem for vast numbers of persons. The largest of these three grants was made to the National Research Council, and is being administered in close relation to the global program of UNICEF.

A large number of the grants of 1956, moreover, were rather more specifically in fields indicated by the general remarks of the preceding two sections. That is to say, they

aided researches in which biology is intimately teamed up with chemistry, with physics, and even with mathematics. Eight of the year's grants, totaling about \$400,000, were in the general area of biochemistry, most of these projects being in Europe. There were also three projects in biophysics, geographically located in the United States, in Chile, and in Finland. And there were two projects which will try to bring the resources of modern statistical methods to bear on biological and similar problems.

RADIATION AND GENETICS

Already noted above was Foundation support for the studies of the National Academy of Sciences of the biological effects of radiation. An important part of this contribution of the National Academy was in calling attention to gaps—in some cases one is justified in saying dangerous gaps—in our knowledge. One of the most difficult and important of these is in the field of genetics, and especially human genetics.

During 1956 The Rockefeller Foundation made nine grants totaling \$991,000 for research in genetics. Four were made in the United States, the largest, \$350,000, to Indiana University for the work of Professors H. J. Muller, T. M. Sonneborn, and R. E. Cleland. Others went to Amherst College (\$100,000), the Johns Hopkins University (\$100,000), and the University of Wisconsin (\$25,000).

One of these grants went to the University of São Paulo, Brazil, in South America, where genetics research is advancing impressively.

Four were made in Europe—to the University of Copenhagen, Denmark, (\$260,000), to the National Center for Scientific Research, Paris, (\$61,000), to the State Institute for Human Genetics, Uppsala, Sweden, (\$50,000),

and to the London Hospital Medical College, England, (\$24,000).

VIRUS RESEARCH

The Rockefeller Foundation's program for the investigation of virus diseases is at present concentrated upon those viruses which are transmitted by insects, and which then infect birds, the lower mammals, and man. Several of these agents, notably those causing yellow fever, dengue, and the encephalitides which afflict horses as well as man, have been known for some time as serious public health problems.

By the use of modern techniques, viruses are often isolated from mosquitoes, from "sentinel" birds or mammals, or from human beings with mild fevers, before their recognition in terms of their clinical results. It thus remains to search for the diseases which they may cause and to determine the appropriate conditions for their appearance. Some idea of the speed with which the art is progressing may be suggested by the fact that when the present program started in 1949 approximately 15 insect-borne viruses had been identified; by the fall of 1956 the number had been increased to 50. A few of the original isolations have been made by other groups of workers, but all of the new strains have ultimately been referred to the Foundation's laboratory for classification and now are included in its reference collection. The great majority originated in the field laboratories maintained by The Rockefeller Foundation in collaboration with various local authorities in Trinidad, Brazil, India, South Africa, and California.

Informal collaboration is being increasingly developed with laboratories maintained by other organizations: in Cairo, the U.S. Navy; in Nigeria, the West African Research Council; in Uganda, the East Africa High Commis-

sion; and in Singapore, the University of Malaya. In specific terms, collaboration with these institutions is carried on through exchange both of information and of biological specimens, the making of occasional grants for equipment, and the training of research fellows.

A long-term objective of the program is the understanding of the relationships between viruses in terms of genetic and evolutionary theory. Presumably the agents which we study today have all been derived from one or more parent stocks by a process of continuous adaptation to the mammalian and avian hosts and insect vectors available at different times and in various ecological areas. Just how this has come about is a matter of great intrinsic interest, and its study also prepares the way for rapid understanding and control of new diseases as they may arise by mutation and selection in the future.

To this correlated program of field studies of viruses, aid to collaborating groups, and support for basic research in virology, The Rockefeller Foundation devoted, during 1956, approximately a million and a quarter dollars. Among these were grants of \$165,000 to Washington University, St. Louis, Missouri, \$73,800 to the University of Malaya, Singapore, \$60,000 to the Walter and Eliza Hall Institute of Medical Research, Melbourne, Australia, and \$48,000 to the Cornell University Medical College, New York.

Agriculture

In 1956 the Foundation published a special brochure, *The Agricultural Program of The Rockefeller Foundation*, which is available upon request to those who wish to have a comprehensive and up-to-date account of its activities in that field. Launched more than 13 years ago by the dispatch of a single staff member to Mexico, the agricultural program

has grown steadily in scientific significance, in the commitment of Foundation funds and personnel, and in contributions to increased production and higher levels of nutrition. Its emphasis is upon basic food crops rather than upon those products which are essential raw materials for industry. Its eventual target is more food for the underfed, in the countryside, villages, and urban centers of countries where human dignity is not yet adequately supported by a healthful diet, and where the struggle to raise food absorbs so much time and energy that other activities cannot prosper. Its economic assumptions are relatively uncomplicated, some might say unsophisticated; one is the notion that men who toil for their food on the land will be better off, and better able to serve their urban neighbors, if that toil and that land can produce more food through improved varieties and techniques; another is the notion that, if mankind is to find its food in the years ahead, there must be a rapidly widening understanding and use of scientific agriculture. The program is a companion piece to the Foundation's work in public health and medical care and is one of its chief contributions to the so-called population problem. It is another venture in private technical assistance and continues the search for more effective methods of rendering aid, a constant preoccupation of private philanthropy.

The agricultural program uses a variety of techniques, all having as one of their purposes the multiplication of returns from modest investments. These techniques include: research by the Foundation's own staff of agricultural specialists; the advanced training of agricultural scientists; the demonstration of the vital partnership between education, research, and extension in achieving increased production; international collaboration in research and development; the wide dissemination of findings and experience through technical papers and other publications; and selective grants

to universities and other institutions in support of basic research on questions of potential importance to agriculture.

DIRECT OPERATIONS

Upon the urgent invitation of the Government of Mexico, a cooperative research base and training center was established some 12 years ago adjoining the National College of Agriculture at Chapingo, near Mexico City. At present 17 Foundation staff and approximately 70 Mexican associates make up the Office of Special Studies of the Ministry of Agriculture, a joint venture with wide responsibilities for research and training. The crops under investigation include wheat, corn, beans, potatoes, garden vegetables, sorghums, soybeans, and forage legumes and grasses. Studies of poultry improvement have recently been added to the work. Indispensable to the effective use of resulting improved varieties is supporting work in such fields as the control of pests and plant diseases, the efficient use of fertilizers, and improved agronomic practices in the choice and mode of planting and cultivation of the crops. It has also been essential to maintain close and active relationships with the National Extension Service and agencies like the National Corn Commission responsible for the multiplication and distribution of seed to the farmers.

Additional research centers have been established by the Ministry and the Foundation in the States of Morelos, Guanajuato, Vera Cruz, and Sonora; cooperative research relates the program to state experiment stations in the States of Mexico, Hidalgo, Oaxaca, and Tamaulipas, to the colleges of agriculture at Chapingo, Monterrey, and Saltillo, and to federal experiment stations in the States of Jalisco, Sinaloa, Sonora, Chiapas, and Coahuila. Experimental plantings have been established on a large number of private farms.

In 1950, against the background of the experience in Mexico, a smaller but similar program was initiated in Colombia, where 11 Foundation staff and some 40 Colombian colleagues now comprise the Office of Special Investigations of the Ministry of Agriculture. First attention was given to work on corn and beans at the Federal Agricultural Experiment Station at Medellín and on wheat at the La Picota station near Bogotá. Potatoes, barley, forage crops, and green manure crops were taken up later and activities extended to Palmira, Bonza, and Montería; work in the high savannah was shifted from La Picota to an excellent and extensive new agricultural experiment station, Tibaitatá, only a few minutes' drive from Bogotá.

Just two years old is an additional cooperative arrangement concluded between the Foundation and the Ministry of Agriculture of Chile, where Foundation staff has begun to arrive and where first steps are being taken to launch studies of wheat and forage crops.

During 1956 a joint decision was made by the Government of India and The Rockefeller Foundation for a co-operative program based at the Indian Agricultural Research Institute, near Delhi, the first interests of which will be improvement in the corn, wheat, and other cereal grain crops which so largely feed the Indian populace, together with broader questions of advanced agricultural training and research. Two senior Foundation staff arrived in India early in 1957.

These four operating programs have some elements in common, but even more important are the variations which reflect adaptation to the circumstances in each country. The friendly, informal, and cooperative relationships between ministries of agriculture and a private foundation make it relatively easy jointly to devise plans which bring to bear upon the needs of a particular country the specialized resources which the Foundation can offer.

In the brochure, *The Agricultural Program of The Rockefeller Foundation*, certain principles of operation were noted by J. George Harrar, Director for Agriculture, who was the first agricultural staff member of The Rockefeller Foundation. Since his views rest upon an unusually rich experience in this type of activity, these principles are repeated here as of possible general interest:

1. Cooperation is the key principle, and it starts with an invitation from the host country to The Rockefeller Foundation to collaborate in a program of food improvement and with the agreement of the Foundation's Trustees to undertake the joint effort.
2. Operating programs are then organized as integral parts of the Ministry of Agriculture of the host country and are affiliated with its appropriate agricultural agencies.
3. Staff scientists for these foreign assistance programs are selected by The Rockefeller Foundation on the basis of high personal and scientific quality; they and their families must be persons who welcome an opportunity to serve the aims of international agriculture on a career basis.
4. Programs are designed to fit the economic and cultural framework in which they are set. They are intended to accelerate natural processes of evolution rather than to create agricultural revolutions.
5. Emphasis is steadfastly on research, leading to the improvement of the quantity and quality of basic food crops in the country involved.
6. Results of research are made available as rapidly as possible to agencies which are responsible for seed multiplication and distribution and for extension activities. Attempt is made to publish results promptly in technical bulletins, popular circulars, and through the medium of professional journals.
7. The entire operation is carried out in close association with local scientists, who participate in every phase of the program—initially as junior associates and ultimately as research leaders. The educational phase includes in-service training, a scholarship and fellowship program, and the training of young agricultural scientists from other nations who will subsequently return to positions of greater responsibility in agricultural education and research in their own countries.

8. International collaboration is promoted whenever compatible with the basic aims of the local programs.

9. Terminal dates are not established at the beginning of collaboration; rather it is understood that the joint effort will continue to the point at which Foundation assistance is no longer necessary to its continuing success.

TRAINING

In the longer run, the success or failure of cooperative undertakings like those described above will depend upon roots which penetrate into the local situation and the readiness of local leadership not merely to maintain but to build upon and improve what might be accomplished initially as a joint venture. In the shorter run, of course, such programs would be impossible without close collaboration between local and Foundation scientists on problems which call for the highest possible competence from both sides. Advanced training, moreover, provides the opportunity to assist in spreading knowledge and the techniques for its effective use into a great many countries where more highly organized programs are not established. It would be difficult to exaggerate, therefore, the importance which the Foundation attaches to the development of personnel, including its own.

The operating programs, as has been indicated, play a major role in training. For example, more than 400 young Mexicans and some 85 other young scientists from Latin America and the United States have received training through service in the Mexican program; to these must be added the flow of visitors from countries in other parts of the world who spend varying times in observation of the work in progress. The Foundation also makes funds available for fellowships, scholarships, and other types of study and travel grants. During 1956, 204 individuals from 30

different countries availed themselves of these opportunities for further work in agriculture.

INTERNATIONAL SCIENTIFIC EXCHANGE

The Rockefeller Foundation is only one of many agencies and institutions working across international frontiers to improve the basic supply of food, and the funds which it allocates are a small portion of a large total effort. It is glad to play a part in a number of arrangements for international scientific exchange among such agencies and institutions and has found in practice that great mutual benefit results. One of these is the Central American Corn Improvement Program, to which the Foundation contributes a staff member and genetic materials developed in its other programs. The Inter-American Institute of Agricultural Sciences at Turrialba, Costa Rica, and the U.S. International Cooperation Administration (ICA) also share in a regional development whose principal partners are the Ministries of Agriculture of Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama. At present this program centers attention upon providing well-adapted, high-yielding varieties of corn for tropical conditions and upon the training of young agricultural scientists.

The systematic preservation of genetic stocks of the basic food crop plants becomes increasingly important as native strains give way in general use to improved open-pollinated varieties, synthetics, and hybrids. If not periodically replanted and carefully stored, genetic material may be irretrievably lost and thus not available as crucial ingredients in future breeding. Germ plasm banks were established at the beginning of the Foundation's program in Latin America, banks which now include germ plasm for corn, wheat, beans, forage crops, grasses, sorghums, and vegetables. The Foundation cooperates with the Maize Com-

mittee of the National Research Council and its seed centers in Mexico, Colombia, and Brazil, and with the Department of Agriculture's germ plasm centers at Beltsville, Maryland, and Ames, Iowa. Similarly, the Foundation participates in the uniform testing program for wheat at centers which the U.S. Department of Agriculture helped to set up in Brazil, Argentina, Chile, Ecuador, and Peru by sharing its materials and findings from Mexico and Colombia.

The Foundation also cooperates in international research on the late blight disease of potatoes and, because of certain unique testing conditions in central Mexico, has been able to contribute to what may be a basic solution to this century-old threat to an important element in man's food supply.

A third type of useful scientific exchange results from well-prepared meetings of specialists where ideas and experiences can be shared and channels established for easy exchange after delegates return home. Recent examples of such meetings in which the Foundation played a part were the Latin American Plant Breeders, Plant Pathologists, Entomologists, and Soil Scientists conference in Colombia in 1955, with 150 delegates, and a conference in 1956 of 50 leading plant pathologists from Latin America, the United States, and Canada, who came together in Mexico to assess man's never-ending battle against cereal rusts.

GRANTS

With its own agricultural staff heavily preoccupied with the types of research and training already described, the Foundation broadens and deepens its agricultural program through selected grants to other institutions. In one group are grants for basic research, where competent investigators are trying to throw additional light upon important questions and where the large sums now available from other

sources for agricultural research do not, for one reason or another, suffice. Examples in 1956 were the five-year \$111,900 grant to the Earhart Plant Research Laboratory (California Institute of Technology) for studies of the chemical mechanisms through which unfavorable climatic conditions limit or prevent plant growth and the extent to which treatment with certain metabolites may be able to modify plant responses; a five-year \$105,000 grant to the Boyce Thompson Institute for Plant Research for an investigation of modifications in the biological effects of fungicides brought about by minor changes in the composition or atomic arrangement of the organic compounds being used; \$60,000 to the University of Minnesota to assist for a three-year period the exploration of the part played by heterocaryosis and nuclear dissociation in the production of virulent races of wheat stem rust and of other related questions; \$36,000 to Kansas State College for studies of the basic biochemical and physiological changes occurring in stored grain; and \$24,000 to Iowa State College for a three-year study of the distribution and ecology of soil nematodes. Six lesser grants would belong to this group.

If scientific agriculture is to be allowed to make its potential contribution to economic and social improvement throughout the world, large numbers of specialists, educators, and administrators must be trained as speedily as possible. This will require an expanded and sustained effort to improve agricultural education both in numbers of institutions and, more important, in quality. The size of the need and the variety of local circumstances point to local, national, and regional institutions. The trek of young scientists to a few leading centers in the West will undoubtedly continue, and will be eminently worthwhile, but the main job must be done by universities, agricultural colleges, and research institutes scattered around the globe. A second group of Foundation grants, therefore, has served to strengthen some of

the more promising of these institutions. In each instance, the Foundation's contribution is a small fraction of the total budget but the grant fills a specific practical need and serves to stimulate and encourage a stronger local effort. During 1956 the larger of these grants went to the following:

University of Chile, College of Agriculture	\$300,000
University of the Philippines, College of Agriculture	250,000
Rural University of the State of Minas Gerais, Brazil, School of Agriculture	200,000
National School of Agriculture, La Molina, Lima, Peru	87,000
Balwant Rajput College, Agra University, India	80,000
University of Rio Grande Do Sul, Brazil	75,000
Catholic University of Chile	68,000
Kasetsart University, Thailand	50,000
University of Costa Rica	50,000

A third type of grant is concerned with the broader aspects of agriculture, such as the better utilization and conservation of primary natural resources, agricultural administration, and the economic, sociological, and political questions which bear upon man's capacity to wrest a better living from his environment. Two grants made in 1956 are illustrative. The one was a three-year grant of \$153,600 to Harvard's Graduate School of Public Administration to assist a seminar which offers advanced training in new methods of water conservation and management. The seminar enlists not only the diverse resources of the university but the cooperation of governmental water resources agencies and of private business. The other was a grant of \$85,000 to the Commonwealth of Puerto Rico for a survey of insular agricultural agencies looking toward their more effective coordination. Grants in this category are normally considered jointly by the Director for Agriculture and the Director for Social Sciences.

Man in Free Societies

Societies can be characterized, in a rough way, by their ultimate values and by the institutional means through which they seek to realize these values. In free societies, at least, neither the value ends nor the institutional means are likely to be completely harmonious at any given time, and both change discernibly. People who have the liberty to do so will differ, often volubly, about ends and means; compromises, a precondition for group and national life, will result in gaps between profession and performance. Moreover, in the daily round, the distinction between ends and means is usually a shadowy one, for each partakes of the other. The political methods of democracy are ends in themselves, devised to afford comfort and latitude, as well as restraint, for a wide range of individual moral choices, differences of opinion, and diversity of tastes.

The public life of a free society is marked by continuing discourse about what we are after and how we ought to try to achieve it. Sometimes the debate is articulate and even turbulent, sometimes it is muted by the routine of daily chores. What is "good" government? a "wise" or "realistic" foreign policy? an "adequate" defense effort? a "proper" division of power? a "sound" monetary policy? a "fair" wage? an "equitable" distribution of income? an "adequate" social security system? or a "healthy" community? The discussion is sometimes abstract but more often practical, involving the conflicting desires of individuals or groups to improve their relative positions, the choices necessary in allocating resources which are not large enough to go around, the division of income between that which can be spent with comparative freedom of choice and that which is spent collectively through taxation.

That the structure and dynamics of our society should have become a separate branch of scholarly study is not in

the least surprising. Social scientists, as anthropologists, economists, political scientists, lawyers, and sociologists, concern themselves with the analysis of social, political, and economic institutions in their ever-shifting forms and relationships. Nearby are the philosophers, asking questions about moral, legal, political, and social issues—weighing, suggesting, speculating, inventing. A static society, theoretically, would have little need for such efforts, except perhaps to prepare for the young and for foreign readers tidy descriptions of its unalterable goals and rigid institutions. In totalitarian societies the social scientist has likewise a circumscribed role. But free citizens in free societies can and do believe that they can shape and reshape their social values and remould their social institutions. If in dealing with such important matters knowledge be preferred to ignorance, informed discussion to loose chatter, rational analysis to horseback opinion, and a reasoned forecast of probable consequences to a blind leap in the dark, then painstaking, rigorous work in philosophy and the social sciences is a contribution to the working of a free society which a free society cannot afford to be without.

Different societies profess different conceptions of the good life and have evolved a wide variety of institutional means to promote it. In a world of nation-states each will usually espouse its own system of values against other systems and oppose such policies and overt behavior on the part of other nations as appear to threaten its own values and the freedom of its people to pursue them. Antagonisms therefore develop which are not moderated by law but are resolved either by diplomacy or violence. Similarly, values and institutions shared across national frontiers exert a gravitational pull, drawing nations together in tightly or loosely knit groupings. Consequently, comparative and international studies in economics, political science, sociology, social philosophy, religion, and ethics are more needed than

ever, if only to enable us to appreciate events abroad for their significance for our own way of life and to give us some foreknowledge of the probable international repercussions of emerging developments here at home. Beyond that minimum lies the possibility—and in the nuclear age, the necessity—of wiser action and more refined skill in resolving conflicts without resort to violence.

Foundation grants in 1956 for work in the social sciences, broadly interpreted, may be summarized conveniently under four headings: the basic social sciences, legal and political philosophy, economic development, and international relations.

THE BASIC SOCIAL SCIENCES

In 1929, after the consolidation of the Laura Spelman Rockefeller Memorial with The Rockefeller Foundation, the Foundation began to seek ways and means for strengthening the basic social sciences as scientific disciplines. It has not fretted unduly about whether the term "science" is properly used for the study of man and his social relationships, nor about whether the methods of the natural sciences, directly or by analogy, are wholly relevant or helpful to such studies. The layman probably reads into "science" more than does the scientist and forgets the groping, the false starts, and the frequent revisions of ideas which have kept the "hard sciences" mobile and fluid. Without any doubt there has been a steady accumulation of systematic knowledge about social affairs; it is appropriate to call this knowledge science, especially if by so doing goals and standards are set for what remains to be done. Facts, if ascertainable, are likely to be more useful than guesses; the testing of hypotheses is a wholesome corrective for the stubborn mythology which plagues social problems; the search for the slender threads of theory which show the way through the

labyrinths of social behavior is more rewarding than to give up in despair.

During the year under review, \$98,400 was appropriated to the Computation Center of the Massachusetts Institute of Technology to permit further exploration of the uses of an advanced high-speed digital computer in the solution of theoretical and applied problems in the social sciences. The University of Chicago received \$45,400 in support of studies of the theory of consumption, under the direction of Mrs. Dorothy Brady. The Scripps Foundation for Research in Population Problems of Miami University was granted \$40,000 for a new study, using new techniques of analysis, of the main factors influencing population growth in the United States, one result of which might be more accurate forecasting of future population. Yale University received \$34,000 and the Institute of Economic Research of Munich \$24,500 for work in economic forecasting. A number of smaller grants, together with funds currently at work from earlier appropriations, also reflect this long-range program interest.

LEGAL AND POLITICAL PHILOSOPHY

About four years ago, The Rockefeller Foundation undertook a modest program of encouragement to legal and political philosophy, fully realizing that funds alone can do little to stimulate speculative thinking. In the first decades of this century, political scientists and lawyers were necessarily caught up in reform movements and in the immediate task of blueprinting new and expanding systems of public administration, social services, and the administration of justice. They brought to this task a high order of intelligence, energy, and resourcefulness. Prompted by circumstances, they helped to work out imaginative responses to the complicated problems of a rapidly expanding industrial

society. However, their efforts left them little time for the elaboration of more general theories of democracy, law, or administration. The scholars are frank to call this their unfinished business. In consequence, the decade following World War II has witnessed a resurgence of interest in the broader issues of law and politics which in earlier times were the province of philosophers and statesmen. Younger scholars, particularly, have begun to respond, however haltingly, to the challenge of this need; in large measure, their activities have had first call on the interests of the Foundation.

Three lines of approach can be identified. First, some scholars of law and politics, in pursuit of more general principles, are returning to the study of the classics of the Western and non-Western world. They seek to understand more clearly this body of enduring ideas and accumulated wisdom, especially as it bears on perennial problems of law and politics such as justice, freedom, power, and virtue. The philosophers of natural law have occupied the attention of a small but vital group of younger theorists anxious about the possible undermining of natural rights in mass societies and skeptical about some current theories justifying fundamental rights. A few examples may illustrate this interest. The Foundation has made grants for research on Thomistic legal and political thought, on the classical background of modern political theory, and on the idea of justice and virtue in Greek political thought. Other scholars have turned to the more recent classics of John Stuart Mill, John Locke, Edmund Burke, and David Hume; still others are investigating the underlying political and legal philosophy of jurists and statesmen like Justices Holmes and Brandeis, and Abraham Lincoln. Already these studies give evidence of illuminating significant truths, embedded in the great writings of the past, which hold relevance for the present era. Taken together they constitute a re-examination of the significant values, ideas, and concepts that are the legacy

of political speculation on fundamental problems since Plato and Aristotle.

Another promising trend results from attempts to grapple with the pressing issues of contemporary societies. It is obvious, for example, that the problems of constitutionalism, political representation, federalism, freedom and order, and civil liberties have taken on new urgency throughout the world. The rapid rise of new states and the growth and transformation of older ones demand that ancient concepts be reinterpreted in a new context or that more penetrating concepts be fashioned. This concern lies behind a number of studies encouraged by the Foundation: the doctrines of the Supreme Court concerning civil liberties, the origins of modern legal institutions and representative government in the West, changes in the concept of property, the relationships between the legal systems and the official political ideologies of modern totalitarian states, the assumptions and goals of criminal law, the British concept of the judicial function, and legal problems of the welfare state.

A third approach is the quest for new and relevant political concepts that will reduce the study of political behavior to tractable proportions. Without a few ordering concepts to demarcate the field of politics or law from other social spheres, the scholar can scarcely orient himself in a maze of empirical phenomena. Promising newer concepts that have been elaborated and applied are power, interest groups, decision-making, and forms of leadership and organization. Some scholars predict that concepts of this kind hold the key to the discovery of what is recurrent and typical in the jungle of events. They are attempts to focus on the political process as a whole or in part, on the way governments make decisions, and on how they get and keep authority and power. In this the emphasis is on critical analysis and interpretation rather than on the amassing of facts.

The Foundation has sought to respond to this revived interest in theoretical work by encouraging younger scholars on these three fronts. It has provided substantial assistance to three major programs at California (\$200,000), Columbia (\$75,000), and Harvard (\$50,000). In addition, it has awarded individual grants to 57 younger scholars who have been identified by a group of distinguished consultants to the Foundation. Finally a few distinguished senior scholars who have already made definitive contributions have been encouraged to bring important and original work to completion. During 1956 grants totaling \$96,447 were made to aid both younger and senior scholars.

ECONOMIC DEVELOPMENT

In the opening portion of this Review the expanding activities of The Rockefeller Foundation in Latin America, Asia, the Middle East, and Africa were discussed. All the programs of the Foundation are involved; direct contributions are thereby made to the economic and social development of countries whose needs and aspirations presently outstrip their capabilities. The Director for Social Sciences has a special responsibility for recommending assistance to the examination of the complicated problems of development. The experience of the postwar period suggests that these problems are not always understood either in the countries attempting rapid development or in those which are trying to assist the process. The "revolution of rising expectations" is injecting new values and aims into economically less-developed countries where long-familiar institutions are often ill-suited to the new aims. Evidence accumulates that for them merely to borrow institutional forms—parliaments, free elections, free contracts in free markets, central planning, and so on—from the economically more developed countries, stripped from the context of the value

systems and ancillary institutions in which they evolved, does not assure orderly and rapid development. The task almost surely becomes the creative one of adjusting established institutions on the local scene, combined with discriminating borrowing from the experience of others. Further, the prospect is that development is unlikely to move very far by means of lunges at narrow sectors of the national life; enduring progress requires advance on a broad front, including education, health, productivity, law, political processes, and public understanding.

The following grants illustrate the special attention which the Foundation is giving to problems of development:

Vanderbilt University, for its Institute of Research and Training in the Social Sciences..	\$150,000
Tulane University of Louisiana, for Latin American Legal and Social Studies.....	114,000
Stanford University, for its Food Research Institute	96,000
International Bank for Reconstruction and Development, for its Economic Development Institute	50,000
Center of Latin American Monetary Studies, Mexico City	36,300
Dutch Economic Institute, for the training of economists in economic development	29,400

These grants, it should be noted, are in addition to the several millions of funds made available directly to countries undertaking a major development effort.

INTERNATIONAL RELATIONS

Today's quest for well-being is shaped by massive technological and social changes which make all men neighbors—but neighbors afflicted with rivalry and possessing capacities for mutual destruction. In consequence, the prob-

lems of international relations take on a new urgency and the resolution of the most threatening ones becomes a stark necessity. Men seeking the good life turn their eyes to the goals of freedom, justice, and social and economic progress. Some of these ends can be reached within separate national communities, but others call for cooperation and accord among societies which can no longer live unto themselves alone. Their interaction constitutes the fabric of international relations. The manifold activities of the more limited organs of Western civilization such as NATO, and beyond them the United Nations and its Specialized Agencies, are founded on a growing consciousness that national values, if they are to be preserved, must be shared, not isolated or hoarded. This lesson was embodied in the principles and purposes of the Charter, but perhaps its meaning is most eloquently attested in the daily workings and emerging consensus of representatives and states striving together to strengthen the international society.

Knowledge and understanding and, ultimately, the improvement of countless forms of international cooperation would be a sufficient justification for the responsible study of international relations, even without the specter of thermonuclear war. Though the Foundation has no illusions that scholarship alone can transform the international scene, it believes that the dark corners of ignorance and misunderstanding of international behavior call for light and illumination. Do we know enough, for example, about the capacity of multilateral diplomacy to settle disputes? What are the techniques by which consent can be achieved while safeguarding national identity? How are negotiations advanced or retarded by the necessities of debate in an open forum? How best can we combine the fruitful methods of traditional and parliamentary diplomacy? One of the functions of rational analysis and discussion is to bring problems and institutions down from the pedestal of lofty intention to the

level at which political and economic action take place. At this point the serious student or observer may have a lasting contribution to make.

From its origin, the Foundation has labored to encourage the development of individual talent as indispensable to any other effort. It is not surprising therefore that it attaches great importance to individuals of capacity and character in the realm of international studies. Some observers, appraising our human resources, lament the fact that talent seems always to be in short supply. Perhaps as our problems multiply in number and in baffling complexity, we shall have to live with this condition in all spheres of human activity, but there may also be more imaginative ways of responding to the challenge.

The search for intellectual resources and the concern for the individual is expressed in three program activities in international relations. First, there is need for assistance of a more continuing nature to a few extraordinarily able younger scholars engaged in research of a fundamental character. About a dozen grants have been made to young professors in universities throughout the country whose research interests run the gamut of theoretical and contemporary problems. Their studies suggest that it will not do to hold to a narrow and parochial definition of international relations. For example, a young Dartmouth scholar is analyzing the techniques of accommodation in modern diplomacy. Another inquiry is addressed to problems of representation and voting in the United Nations. Concepts in the theory of international politics is another focus and the principles underlying the foreign policies of several recent Secretaries of State are objects of investigation in two other inquiries. Problems of Franco-American relations and a comparative study of British and American foreign policy provide a means of exploring the decision-making processes at work in the making of foreign policy in three of the

principal Western states. Interest and ideology in Soviet foreign policy is the core of another such investigation. The need for thoughtful analysis of non-Western societies is of course equally great; such analysis is exemplified in a few of the studies to which the Foundation has given support. Marxism and the Asian intellectuals is the subject of study designed to trace how the Marxist outlook penetrated Asian thought and to estimate its influence on Asian policies today. A study of political parties and programs in East Africa by a young professor at the University of California in Los Angeles is one of the first attempts to examine the workings of the political process in a significant sector of that increasingly important continent. Foreign policy-making in a rising new Asian state with recently established institutions of government is the target of a study of the foreign policy of Ceylon. The Foundation welcomes the diversity of interest and approach represented in the research of this group of unusually able younger scholars and hopes it may play a modest role in assisting them as their promising studies unfold. The importance of their research is exceeded only by the weight given to their professional growth and development.

Second, it often happens that a more mature scholar has research on which he would like to embark or which could be completed if support were available. Sometimes it may be a distinguished international lawyer, at other times a renowned theologian, and again an experienced diplomat with rare qualities as an historian who have significant contributions to make. Occasionally social scientists who already have added much to the corpus of knowledge come in the twilight of their careers to the point of a final, definitive work. In international studies, where wisdom born of experience is a master virtue, the Foundation would hope it might use its good offices to lend encouragement at least to a few individual efforts of this kind.

Third, institutes, while not essential to individual research, may in some cases provide mutual stimulation and mature guidance, and contribute much to intellectual growth. Often the training functions of a sound and successful research institute are underestimated. Senior scholars toiling with junior colleagues in research may accomplish much. In the best of circumstances, an institute may become a community of scholars in the old sense. Then mutual criticism can become a priceless ingredient in a quest for more adequate means of description and analysis of those baffling problems that confront actors on the international scene. It may be that the nature of these problems requires that the rigorous discipline of the qualified scholar be associated with the wise grasp of the trained practitioner in foreign affairs.

The problems of international politics present the scholar with a strikingly difficult challenge, arising from the substance of the issues with which he deals. On the one hand, he is easily tempted to view his task as the solution of current problems. If he takes this responsibility too literally his discipline may degenerate into hasty excursions into immediate problems which are rarely manageable with the time and information available to him. At one phase in the history of international studies in this country, in the 1920's and 1930's, the heavy emphasis given current events drained the discipline of its concern for research, analysis, and reflection—the routes to progress in social science. On the other hand, the scholar may as easily fall prey to the beguiling illusion that theory can be divorced from practice. This illusion seems evident in some of the research in the 1930's in which models of the ideal world community were erected and every action measured by its distance from the idealized picture.

Fortunately, today there are a host of practical and theoretical problems which bring the student of contem-

porary problems and the theorist more closely together, much as the medical practitioner and the biochemist have discovered they stand on common ground. The task of creating, maintaining, and preserving the alliance of the free world is ever before the policy-maker. At the same time, theorists seek to understand the factors that have led certain historic groupings to combine and subsequently dissolve their ties. It is noteworthy that in an era of total war we have witnessed in Korea, Indo-China, and Egypt conflicts of arms that underscore the possibility of limited war. Scholars may not yet have exhausted the contribution they can make to elaborating the nature, causes, and functions of limited war in Western society. Foreign policy in a democracy presents its peculiar problems of bipartisanship, secrecy vs. disclosure of information, and the frequently competitive roles of the executive and legislative branches of government. It is doubtful if anything short of basic research involving analysis and generalization can add much to an understanding of such problems. Comparative studies of the conduct of foreign policy, of the role of parliamentary parties in foreign policy, and of the role of the executive in say, India and Pakistan, illustrate this trend. Or to cite another example, practitioners are the first to call for a body of organized relevant theories of foreign policy. Today this goal claims a larger share of scholarly activity than ever before and while it would be premature to applaud accomplishments, there are signs that significant advances may be forthcoming. The following indicate the scope of this research: principles of American foreign policy; American interests in the Far East; political necessity and moral principle in foreign policy; power and commitments in foreign policy; armaments and strategy; power politics and peace strategy; morality and strategy; and the origins of political realism in the sixteenth century.

Finally, in the study of modern diplomacy, theory and

practice again need to go hand in hand. Scholars note the existence of a dozen or more classic treatises by Nicholson, Cambon, Jusserand, and others on traditional diplomacy but a surprising dearth of scientific works on the methods and techniques of modern diplomacy. The divorce of theory and practice is partly responsible for this lack. The elements of multilateral diplomacy, comprising as they do a blending of the old and the new, are an appropriate object of scientific study. Historians, political scientists, and diplomats might together examine the techniques and principles involved in the conduct of foreign policy through international parliamentary institutions. In so doing they might add a new dimension to international studies in a time of expanding need.

Intercultural Understanding

The word "understanding," according to Webster and his successors, can be taken to mean "amicability and harmony of sentiments," or "knowledge, discernment, comprehension," or the "intellectual power to form reasoned judgments." Having had an announced program in international and intercultural understanding for more than 20 years, The Rockefeller Foundation has received a great number and variety of proposals for projects concerning "better understanding," most of which have had substantial merit. In searching for the point at which its own funds could be most usefully applied, the Foundation elected to concentrate upon the second of the meanings quoted above, believing that knowledge is both the *sine qua non* of reasoned judgments about human affairs and the wellspring of genuine sympathy.

In concentrating on work leading to further knowledge, like that being done in the graduate centers of leading uni-

versities in this country and abroad, the Foundation does not underestimate the vital role which amicability must play as an antidote to selfishness, parochialism, and xenophobia, if men are to live at peace. Nor does its choice reflect any lack of appreciation and respect for the public service performed by large numbers of individuals and groups who are working devotedly in the cause of friendlier attitudes across national and cultural frontiers. These workers disseminate knowledge as their time, resources, and information allow, and help to create an atmosphere in which leaders can reach more rational decisions and think more soundly about the longer-range problems in the presence of many short-run aggravations and pressures.

Events and conditions in other parts of the world are entering ever more intimately into the daily lives of us all, regardless of our nation or culture. These growing relationships, whether cooperative or rival, call for more accurate and sensitive understanding of other cultures, more capacity to decode the shorthand symbols by which peoples often think of each other, more appreciation of the similarities so often cloaked by the obvious differences. One of the problems is that the genuine understanding of another culture requires full-time study of the type to which one must usually devote a whole career. Most of us cannot make a career of it, for there are many other things to be done. But if a society is to be healthy in the years ahead, it will need a considerable number of knowledgeable experts on cultures other than its own. Some of these experts will choose this field because the study and teaching of another culture can be as intellectually and spiritually satisfying as the study of, say, the stars, to be pursued for its own sake. Others will be needed in government, in international organizations, in our schools and colleges, and in the manifold phases of economic life. Their understanding, in turn, will aid in in-

forming and advising the rest of us, who will need their help in meeting the responsibilities of citizenship.

Currently Rockefeller Foundation grants in the general area of intercultural understanding fall into one or more of four categories. The first comprises studies of other cultures being conducted at selected institutions in the United States. The largest of the grants in this group in 1956 was one of \$205,000 for use over a six-year period by the Harvard University Center for Middle Eastern Studies under the leadership of Professor Sir Hamilton Gibb. Another, of \$140,000, will support interreligious studies by the Federated Theological Faculty of the University of Chicago over a three-year period. The Association for Asian Studies received \$67,500 toward the support of its program in Asian studies. The School of Law of Tulane University of Louisiana was granted \$114,000 over a period of five years for Latin American legal and social studies. In the Annual Report the sections on humanities and social sciences show a number of smaller grants of the same type, as is also true of the categories which follow.

A second group of grants supports American studies in institutions abroad. Foundation funds are directly aiding American studies in the United Kingdom, Germany, Turkey, and Japan, where relatively well-developed programs are in operation, and are indirectly helping in a number of other countries. During 1956 an additional \$30,000 was provided the University of Ankara to continue for two more years the appointment of visiting American professors. Although the amounts actually appropriated in this category may show considerable variation from year to year, the Foundation expects to continue the encouragement to American studies in other countries.

A third category is cross-cultural studies in which the United States is not involved. Examples are the grant of \$54,700 to the Oriental Library in Tokyo, Japan, for a

seminar on modern China and another of \$49,000 to the University of Durham, England, for studies in Middle Eastern geography. Substantial grants made in earlier years are currently supporting other projects in this classification.

A final category comprises studies of important cultural and political areas by scholars of the same cultural background. These are included here because, in many instances, the study of a culture by scholars from the outside may be handicapped by the lack of adequate materials. For a variety of reasons, some societies have not been articulate about themselves, even to themselves; such studies are an obviously needed contribution to wider understanding. The American University of Beirut, Lebanon, received \$216,000 for continued support of its Arab Studies Program; Deccan College, Poona, India, was allocated \$126,775 in further support of its postgraduate studies of Indian languages; the Institute for Contemporary History in Munich, Germany, was given \$26,000 toward a history of the National Socialist regime, on which little systematic work has been done in Germany itself.

The Arts

Since 1953 The Rockefeller Foundation has been exploring the possibilities of a limited, but hopefully useful, role in support of the creative arts. In thus venturing beyond the bounds of its earlier corporate experience, its opening moves have necessarily been somewhat tentative and experimental. Thus far the Foundation's grants for the arts have been concentrated largely in the United States, and not merely because the American scene is more familiar and closer to hand. There are many reasons for believing that the role of the arts in American society is changing, that the changes are potentially for the better, and that new

patterns of support for the arts may need to be pioneered in the United States.

Throughout much of human history the support of the fine arts has come from a small fraction of the population endowed by birth, wealth, or ecclesiastical position with the means to provide patronage. In a modern democracy, and particularly in the United States, shifts in income distribution and the fluidity of the class structure have considerably decreased the economic importance of the wealthy while increasing that of middle and lower income groups. Initially these events proved detrimental to the arts. The small groups traditionally interested in the arts have in many instances lost both the power and the means to give them inspiration and support. The larger groups which have gained in economic strength and which might be expected to take the place of the patrons of the past have not always had active artistic interests nor convenient methods for pooling individual small contributions.

The American democracy is one of rising standards of living, great total productivity, and, in almost all parts of the community, an ample surplus above the requirements of minimum subsistence. Economically, the people of the United States can provide greater support for the arts than they ever enjoyed before, given a desire to do so and appropriate methods. The extension of education, particularly at the high school and college level, has enlarged the potential audience for the arts by enabling increasing numbers of students to participate in improved school programs in art, music, drama, and dance.

There are other signs of artistic growth in the United States. Symphony orchestras now number more than 1,000; though most of them are nonprofessional, they nevertheless represent a wealth of community interest and individual talent. The number of drama groups is probably in the order of 100,000, and that of amateur painters well over a

million. Dance schools have multiplied throughout the country, and more and more opera workshops have been formed in colleges and universities. Sales of high fidelity recordings have grown enormously, undoubtedly representing an interest stimulated by many years of music broadcasting and greater attention to music in the schools.

Although there are many reasons to believe that the future of the arts in a modern democratic society is a bright one, the patterns of artistic activity—and particularly social and financial support of art—must keep pace with the larger economic and social changes if that future is to be realized. The serious economic difficulties which still confront the arts and artists arise largely from the facts that our aspirations steadily exceed our expanding capabilities and that we are evolving from outmoded and inadequate forms of organization and support to new and, it is hoped, better ones.

In considering its own role in the arts The Rockefeller Foundation must weigh many factors: it has many interests, and it must maintain the flexibility which has made possible its support of the arts despite preoccupation with other fields. Furthermore, the Foundation can allocate only a limited amount of money to the arts—an amount which would not be enough even to meet the annual deficits of America's major symphony orchestras. It would be unwise for the Foundation merely to underwrite deficits or to subsidize a level of activity which could not be maintained when it became necessary for the Foundation to turn elsewhere. To do so would be to provide the kind of palliative support which the Foundation has traditionally avoided—as opposed to remedial and generative support.

The Rockefeller Foundation prefers to assist the arts in establishing the new patterns of support which are now emerging. The Foundation might, for example, help the arts to establish or reestablish a functional role, as in religious drama, or it might aid an artistic group in expanding

its base of appeal and hence its support. The Foundation's intention is not to provide long-term or continuous support, but to offer the short-term or initial aid which will lead to a new or higher level of achievement that can be maintained by other sources of support.

Foundation activities in the arts have been based on the premise that their healthy development requires a sound balance between the preservation of artistic tradition and the development of new creative work. No artistic tradition can simply be preserved: when it ceases to grow it is already dead. The arts decline in quality and appeal unless inspired by the great art of the past, but they must also continue to burgeon. Whether innovation or the maintenance of tradition most needs help at a given time can be decided only by careful evaluation of the existing balance between these and other elements of sound artistic growth. The Foundation has attempted to assist the arts both to preserve tradition and to evolve toward new forms. Its first major grant in the arts in recent years was for the commissioning of new music by the Louisville Philharmonic Society (\$500,000); it also supported the contemporary revival of Shakespearean drama through support of the American Shakespeare Festival Theatre and Academy (\$300,000) and the Stratford Shakespearean Festival of Canada Foundation (\$42,000).

No dogmatic stand can be taken, either, concerning the relative merits of assistance to already established organizations in contrast to new ones. The two Stratford projects were new ventures for which there were few precedents. The Foundation has also made a number of grants to stabilize and strengthen existing artistic undertakings. One grant of \$200,000 aided the New York City Center of Music and Drama to commission new ballet and opera productions. Another of \$125,000 to the Boston Symphony Orchestra contributed toward the Tanglewood Revolving

Scholarship Fund. A third grant of \$33,400 to Connecticut College helped support the summer School and Festival of the Dance.

A number of grants have been directed toward the development of new or expanded markets for the arts. Foundation assistance (\$75,000) to Young Audiences, Inc., has enabled this organization to expand its program of high quality chamber music for the schools. School systems and voluntary organizations are gradually assuming the costs. The net results will be increased opportunities for our children—the audiences of the future—to hear good “live” music, and additional employment for our musicians. A grant of \$21,000 to the Little Symphony Society of Berkeley, California, assisted its efforts to strengthen its base of local support and to enlarge its audiences in neighboring communities. Grants to support school lending programs in San Francisco, Chicago, and Pittsburgh, and through the International Graphic Arts Society, were intended to develop a larger use and market for the plastic arts in the hope that this would also help to increase the financial resources of artists.

In general, The Rockefeller Foundation's program in the arts has taken into account traditional views on two points: first, that the American economy is such that governmental subsidy is not needed to support the arts; and, second, that because governmental subsidy might mean political control, to urge governmental aid as an over-all solution for the support of the arts would be, at the least, premature. The Foundation, however, has no fixed position on an issue which the public must resolve. If the circumstances were favorable, the Foundation might act in partnership with government, as it did in supporting the dramatic program of the Virginia Museum of Fine Arts. The Museum's theatre was financed partly by private donations and partly by state appropriations. A Rockefeller Foundation

grant of \$150,000 toward production costs during the theatre's first three years made possible the engagement of a small professional staff and the launching of a dramatic program. The Foundation anticipates that the professional staff, like the other museum staff members, will be maintained on the state budget if the dramatic program proves a success. The Virginia Museum program appeared to the Foundation to be a desirable experiment with a new pattern of state support and a new relationship between the arts of the past and living drama.

A 1956 grant of modest size has unusual potential significance. The Metropolitan Opera Association received \$50,000 for the use of the Exploratory Committee for a Musical Arts Center in New York City. This committee was subsequently reorganized and became the Lincoln Square Performing Arts Center, whose purpose is to explore the feasibility of a new center in which would be grouped the Metropolitan Opera, the Philharmonic-Symphony Society of New York, ballet, drama, and advanced training in the performing arts.

Creative writing is an important area of the arts but one which presents peculiar difficulties for Foundation action. In the long run, writers must rely on a wide public audience for their support; it is on the further development of the size and discrimination of this audience, and its willingness to buy books, that the future of professional writing in the United States depends. Our schools, libraries, and universities must play the crucial role in enlarging the audience for good writing.

Even in assisting some of the many would-be writers, a Foundation faces certain limitations. Fellowships, viewed against the total situation, are only a palliative, but they do assist in establishing promising writers who, confronted by the gap between rising publication costs and modest sales, might not be able to gain full self-support. The Foundation

has undertaken a limited fellowship program under the auspices of four leading American literary reviews, *The Kenyon Review*, *The Sewanee Review*, the *Partisan Review*, and *The Hudson Review*. This program, financed by grants totaling \$295,200, is decentralized to minimize the danger of supporting a single or a narrow literary point of view. The selection of the fellows rests with the editors of the literary reviews, who normally are in close contact with young writers.

The Foundation has no fixed definitions of the activities which can properly be considered elements of its program in the arts. Architecture, for example, might be thought to fall more properly within the fields of the social sciences or of technology than of the arts. If architecture is one of the arts—as it certainly is in part—it is the most prosperous and the least in need of outside financial support. This comment also applies to city planning, but here the relative neglect of aesthetic factors provides an appropriate area for Foundation action. The Foundation's only contributions to architecture under its arts program have been grants of \$85,000 to the Massachusetts Institute of Technology for work on the aesthetic aspects of city planning and of \$66,000 to the University of Pennsylvania for studies of the history of town and country development, and of current trends in landscape design.

Because of the many challenging opportunities in the United States for artistic development and experimentation with techniques, the Foundation has undertaken only a few projects in the arts abroad during the past few years. Its long-standing interest in literature, however, led to the award on an international basis of a limited number of fellowships for creative writing. These fellowships enabled a small number of writers from such countries as Japan, Iraq, Turkey, Indonesia, Ceylon, India, Pakistan, and the Philippine Islands to broaden their understanding of cultural develop-

ments and to meet writers in other countries. Out of the fellowships for writers have grown two projects in drama, one for the encouragement of the Arena Theatre of the Philippine Normal College in Manila, the other for the Indonesian National Theatre Academy Foundation in Djakarta. In addition, local fellowship programs in Canada and Mexico have been assisted.

It should be emphasized that the Foundation still regards its program in the arts as experimental. The Foundation wishes to discover how the arts can best grow in quality and achieve prosperity in a democratic society. Although the Foundation has tried a number of approaches, it in no way assumes that these can or should be repeated, or that other quite different ones should not be undertaken.

Projects and People

The comment has been made from time to time that foundations are interested in projects rather than individuals, and more interested in large projects than in small ones. As to size, The Rockefeller Foundation looks carefully at both the large proposals and the small ones; it makes grants of all sizes. One of the criteria by which it judges is that the resources are in keeping with what is needed to accomplish the purpose intended: some proposals appear to be excessively expensive and can be discussed only when revised in terms of lower costs; others are planned far too stringently but merit revision for larger amounts.

Close examination would show that the alleged distinction between projects and individuals is illusory. Certain types of studies can be handled only by a group of investigators working together, but most Rockefeller Foundation grants, whether to institutions or for designated individuals, contribute to the work of individual scientists and scholars.

Frequently funds given to an institution are precisely for the purpose of reallocation for the support of individuals selected by it. Without further elaboration, it might be of interest that our 1956 grants included support for approximately 975 individual scientists and scholars.

Other Matters of Foundation Interest

The President's Review is not intended to include in each issue a full discussion of every aspect of the Foundation's program. Usually a careful reading of the Annual Report will show grants which are not discussed in the Review. For example, the present Review does not comment specifically upon the Foundation's important interest in the population problem, which engages the attention of all its Directors and has the sympathetic interest of the Trustees. Similarly, this Review has not discussed the joint interests of the doctor, the biologist, and the sociologist in human behavior—a field in which the Foundation continues to make grants on a highly selective basis. A further section might have been added on the importance which the Foundation attaches to key universities, strategically placed to exercise a wide influence over an important region. This note is merely a reminder that those who are professionally interested in the activities of The Rockefeller Foundation might wish to consult the Annual Report and more than one issue of the President's Review.

"Out of Program" Projects

In the foregoing sections of this Review the major fields within which the Foundation makes grants have been described. The account would not be complete, however,

without a word about the occasional project which, though "out of program," is granted financial support, and about the types of applications for aid which are almost automatically declined.

The Trustees and officers of The Rockefeller Foundation believe that flexibility is a vital asset to a philanthropic fund and that program should not be so rigid as to exclude proposals of unusual significance in any field of science and scholarship. On occasion, therefore, the Trustees have made "out of program" grants to unique and highly promising projects which had little likelihood of support from other sources and which might result in basic and important contributions to knowledge. To say in advance what projects might receive such support is obviously impossible. The project must not only be unique—all proposals have unique features—it must also be too good or too important to be refused.

But to accomplish permanent results with limited resources, the Foundation must ordinarily concentrate its support on projects which fall within fields selected by the Trustees for special interest. A great many proposals, worthy in themselves, must therefore be declined. The Foundation does not engage in palliative philanthropy. Specifically, The Rockefeller Foundation:

- does not give or lend money for personal aid to individuals;
- does not invest in securities on a philanthropic rather than a business basis;
- does not appraise or subsidize cures or inventions;
- does not finance altruistic movements involving private profit;
- does not support propaganda;
- does not support campaigns to elect political candidates or to influence legislation;
- does not contribute to the establishment, building, or operation of local hospitals, churches, schools, libraries, or welfare agencies.

No special form is required in making requests for Foundation aid. Applications should be addressed to the Secretary, or to the director for the program in which the proposal would seem to fall. They should contain a brief description of the project, show the special qualifications of the person or persons who would undertake to carry it out, and the responsibility of the institution or agency sponsoring it. Ordinarily such applications come from the institution concerned rather than from individuals.

Organizational Information

MEETINGS

During 1956 regular meetings of the full Board of Trustees were held on April 4 and on December 4 and 5. Six regular meetings of the Executive Committee of the Trustees were held to take actions within the general policies approved by the Board, and a seventh special meeting was held on December 28, 1956.

BOARD OF TRUSTEES

The Board of Trustees of The Rockefeller Foundation elected one new member at their meeting on April 4, 1956. Dr. Lee A. DuBridge, President of the California Institute of Technology, was elected to succeed Mr. Geoffrey S. Smith who resigned from the Board on October 21, 1955. Dr. Robert G. Sproul, President of the University of California, also a member of the Board of Trustees, retired on June 30, 1956.

On April 3, 1957, the Board of Trustees elected Mr. Benjamin M. McKelway and Dr. Richard Bradfield¹ to

¹ Beginning July 1, 1957.

membership. Mr. McKelway, a director of the Associated Press and a trustee of George Washington University, is editor of the *Evening Star*, Washington, D.C. Dr. Bradfield, professor and until recently head of the Department of Agronomy at Cornell University, served previously with the Foundation as a member of the Board of Consultants for Agriculture and as Regional Director for Agriculture in the Far East.

OFFICERS AND STAFF

Dr. Alan Gregg, Vice-President of the Foundation, retired on June 30, 1956. Dr. Gregg was singled out in 1956 for unusual recognition by the American Public Health Association which chose him for a Special Albert Lasker Award "in recognition of the unique role he has played in the field of public health and of medical education and research in this country and throughout the world."

Three officers for Medical Education and Public Health retired during the summer of 1956: Dr. Rolla B. Hill, Assistant Director, on July 31; Dr. John B. Grant and Dr. Wade W. Oliver, both Associate Directors, on June 30. Dr. Grant is continuing a special assignment as a member of the Foundation field staff on loan to the University of Puerto Rico.

Several new appointments were made for the various programs. These were: Dr. Marshall C. Balfour, formerly Assistant Director, as Associate Director for Medical Education and Public Health; Dr. Osler L. Peterson, formerly field staff member in North Carolina, as Assistant Director for Medical Education and Public Health; Miss Virginia Arnold, Assistant Director for Medical Education and Public Health; Dr. Richmond K. Anderson, formerly field staff member for Medical Education and Public Health in India, as Assistant Director for Biological and Medical

Research; Dr. Albert H. Moseman, Associate Director for Agriculture; Dr. Montague Yudelman, Assistant Director for Social Sciences; Dr. Erskine W. McKinley, Consultant for Social Sciences; Mr. Chadbourne Gilpatric, formerly Assistant Director, as Associate Director for Humanities; and Dr. John P. Harrison, Assistant Director for Humanities.

Mr. Rowe S. Steel was appointed Assistant Comptroller effective October 1, 1956. He succeeds Mr. George E. Van Dyke, who is now a staff member on loan to Robert College, Istanbul, Turkey.

The following changes and appointments of field staff were made during 1956: Dr. LeRoy R. Allen, field staff member for Medical Education and Public Health, effective January 1, 1957; Dr. Ping-yao Cheng, staff member for Biological and Medical Research with duties at the Foundation Virus Laboratories in New York; Dr. Leo A. Thomas, temporary staff member for Biological and Medical Research, to September 30, 1957; Dr. Harold Trapido, Biological and Medical Research staff, assigned to the Virus Research Centre in Poona, India; Mr. Fred W. Knipe, staff member for Medical Education and Public Health, reassigned to the Malaria Institute of India; Dr. J. Austin Kerr, staff member for Biological and Medical Research, assigned to the Pan American Sanitary Bureau; and Dr. Ulysses J. Grant, field staff member for the Colombian Agricultural Program, assigned to India beginning January 1, 1957.

Several new staff members joined the program in Agriculture in 1956. They were: Dr. Donald K. Freebairn, as Assistant Agricultural Economist in Mexico; Mr. Roland E. Harwood, as Experiment Station Operations Assistant in Colombia; Dr. William H. Hatheway, as staff member in training assigned to the Agricultural Field Staff as Assistant Biometrician; and Dr. David H. Timothy, as Assistant Geneticist in Colombia.

Dr. Joseph Melnick, who had been stationed for three months at the Poona Virus Research Centre as a temporary staff member, returned to his post at Yale University at the end of March, 1956. Dr. Oliver R. McCoy resigned from the Medical Education and Public Health staff on March 31, 1956. Dr. H. David Thurston resigned from the field staff of the agricultural program in June, 1956.

With deep regret we report the death on June 17, 1956, of Mr. Vanderbilt Webb, Counsel to the Foundation. Mr. Webb had been first appointed Associate Counsel to the Foundation in 1942 and in 1948 became Counsel to the Foundation and to the General Education Board.

On November 17, 1956, a plane crash in Colombia resulted in the death of Dr. Ashley W. Oughterson, field staff member for Medical Education and Public Health. Dr. Oughterson, who retired as Clinical Professor of Surgery at Yale University Medical School to join the Foundation staff, had only recently been assigned to Cali, Colombia, to assist the University of Valle Faculty of Medicine in the development of its program in medical education. His death is a tragic loss to the Foundation and to medical education.

THE
ROCKEFELLER FOUNDATION

Annual Report for 1956

MEDICAL EDUCATION AND PUBLIC HEALTH

AN internal review and reclassification of the programs of The Rockefeller Foundation in the science fields over the past few years has resulted in a reorientation of its objectives in the fields of medical education and public health. Greater emphasis has been placed on elements of the programs related to education and to the field of nuclear energy than to public health, owing both to the urgent need for professional education and to the great increase in resources for public health needs.

Positive steps were taken to supplement the program concerned with the development of self-sustaining medical education centers in areas outside the United States and Europe which could provide opportunities for the maximum utilization of the many talents available in these areas for training their own personnel. In line with this policy new direction has been given to the fellowship program to provide increasing support in this area for training fellows in their own country or region at levels commensurate with those available in many fields in the United States and England. It is the Foundation's belief that such centers and training programs will materially strengthen opportunities for research and teaching related to problems significant to these areas with a consequent improvement in the quality of medical care and public health.

As appreciable advances have been made by Latin American countries in developing improved faculties of medicine and science, it has become increasingly clear that some effort was required to delve more deeply into the educational structure at the secondary school level to assure progress equal to the demands made by the changing structure of university programs. To assist Latin American schools in meeting this self-expressed need, The Rockefeller Foundation has reviewed carefully the opportunities for tying new curriculum and administrative advances to existing institutions to permit them to produce future science teachers for the secondary school programs and to provide students well advanced in these fields for the science faculty. This program is in its initial stages but there are considerable grounds for anticipating increasing opportunities for developments along these broad lines.

Within the United States, program has been oriented to assistance in the development of new advances in medical education and public health without attempting to substitute for the large funds available from community sources and government in meeting challenges beyond the resources of most private foundations. Revision of curriculum and policy in medical education in the United States can only be justified to meet changing needs in demand for medical care or in demand for realistic training of students overburdened at times with the length of study and the expense related to their education in medicine. Increasing demands for teaching time due to almost daily advances in scientific knowledge have led to thoughtful proposals for altering basic approaches to medical education. The Rockefeller Foundation is attempting to assist in early studies of this problem, which is still too young to attract other than risk capital.

It is the conviction of The Rockefeller Foundation that steady advance in the medical sciences in the fullest sense of the word is essential in meeting the challenge of an

awakening social order throughout the world. Strong faculties in any field can only develop through strong and ably trained people who serve as leaders in the application of medical knowledge. It is to this goal that the Foundation's efforts are directed.

Professional Education

CHRISTIAN MEDICAL COLLEGE, VELLORE, KING
GEORGE'S MEDICAL COLLEGE, LUCKNOW, SETH
GORDHANDAS SUNDERDAS MEDICAL COLLEGE,
BOMBAY, AND CHRISTIAN MEDICAL COLLEGE,
LUDHIANA

During 1956 The Rockefeller Foundation made grants totaling nearly \$1,000,000 to aid the general development of three medical colleges in India, and to support teaching and research in preventive medicine at a fourth Indian medical college. The four colleges—the Christian Medical Colleges in Vellore and in Ludhiana, King George's Medical College in Lucknow, and the Seth Gordhandas Sunderdas Medical College in Bombay—represent private, provincial, and municipal institutions, and geographically are located near major centers of population in southern, northern, and western India.

Though the grants will be used by the colleges for a diversity of projects, they will contribute in different ways at the various institutions to the achievement of three major objectives in the improvement of medical education in India. The three objectives are the strengthening of faculty salaries; the improvement of clinical teaching by increased participation of students in the diagnosis and care of patients; and the encouragement of research on the basic medical problems of India together with the recognition of

research as an inseparable component of the activities of the medical faculties.

Established in 1918 as a missionary medical school for women, the Christian Medical College in Vellore, south India, became a private college associated with the University of Madras in 1942 and five years later accepted men students also. Both its undergraduate and graduate training programs are recognized by the university, and it offers the Master of Surgery degree and doctorate degrees in medicine, pathology, and obstetrics.

The college is supported largely by 39 churches and mission bodies in India, the United States, and Commonwealth countries, but the selection of students and the objectives of teaching are now all-India in character. Of its alumni, both doctors and nurses, 34 per cent are in government service, 40 per cent in mission service, and 20 per cent in private practice.

Two grants totaling 1,685,600 rupees (about \$367,400) will help the medical college to increase faculty salaries, to provide a fluid research fund, and to construct and equip an outpatient teaching building. The funds for construction are available during the next two years, and the balance during a five-year period.

The state-supported King George's Medical College in Lucknow, north India, is the largest medical teaching institution in India and one of the oldest, having been founded in 1911. Since 1921 it has been a part of the University of Lucknow and is one of two university-administered medical schools in India. The province of Uttar Pradesh, of which Lucknow is the capital, is the most populous state in the country and is the chief support of the college and university.

The college, which already has excellent preclinical departments and a notable clinical staff, now plans to extend its internship and residency system with the help of two grants totaling 1,375,000 rupees (about \$299,750) from

the Foundation. The first grant provides 625,000 rupees toward the costs of constructing and equipping a building to house interns and residents, 425,000 rupees to be available as needed and 200,000 when matched by a like amount from the Uttar Pradesh government. The second grant of 750,000 rupees will help defray the cost of housing interns and residents for a five-year period, the government providing the pay and stipends.

A third 1956 grant, of \$10,000, to the King George's Medical College will enable the library to acquire foreign books and journals to strengthen its collection over the next five years.

In Bombay the municipally supported Seth Gordhandas Sunderdas Medical College (one of two such in India) will be assisted in the establishment of full-time departments of medicine and surgery, in the further development of the departments of biochemistry and pharmacology to enable them to use radioisotope and similar techniques, and in the construction of additional laboratory and office space for the college's teaching and research program. Grants of 350,000 rupees for two years and of \$197,000 for five years (a total of about \$273,300) were awarded during 1956 for these purposes.

The college is located in the large mill area in the northern part of Bombay, the medical center for western India. It was established in 1926 and is supported by the Bombay municipality and by income from endowment. It is part of a medical center which includes the 550-bed King Edward Memorial Hospital, a maternity hospital, a children's hospital, a cancer hospital, and several research institutes.

To demonstrate the possibilities for improved service inherent in full-time faculty appointments, the college will begin by setting up full-time services in the departments of medicine and surgery. Biochemistry will be developed to full

departmental status and facilities for work with radioisotopes will be provided as a joint venture between the department of pharmacology and the new full-time departments of surgery and medicine. The new programs at the medical college will be fully integrated with the research institutes located in Bombay, particularly with those already equipped for studies with nuclear energy.

The fourth medical college aided during 1956, the Christian Medical College in Ludhiana, north India, is a privately controlled medical college supported by foreign mission agencies and by the Punjab government. It was the first Indian medical college to establish a modern department of preventive medicine, and has pioneered in adapting newer ideas in the teaching of preventive medicine to specific local conditions in India. Its preventive medicine program, which includes field investigations and demonstrations, is regarded as a model by teachers in other medical schools of India.

A Foundation grant of 136,800 rupees (about \$30,000) will help support the Christian Medical College's Department of Preventive Medicine during the next three years.

UNIVERSITY OF THE ANDES

SCHOOL OF PREMEDICAL STUDIES

To further the development of the university as a whole and to aid the growth of medical education in Colombia, The Rockefeller Foundation has made a seven-year grant of \$570,000 to the University of the Andes, Bogotá, toward the costs of establishing a new School of Premedical Studies. The project will be undertaken in cooperation with the University of Valle, Cali, Colombia.

Initially, 70 of the 90 students accepted annually by the Medical School at the University of Valle will go to the University of the Andes for their premedical courses.

Beginning with the third year of the program, the University of the Andes will accept the entire group of 90.

The two institutions, administratively distinct as well as geographically separated, are collaborating in the project to ensure that medical students enrolled at one receive preparation of standard high quality and sufficient breadth at the other. This is a new idea in medical education in Colombia and in South America generally.

The curriculum has been designed in detail by the heads of faculties at both universities and will stress not only the sciences basic to medicine but the humanities and social sciences as well, in accordance with the modern theory that a thorough grounding in these areas helps young professionals conceive their responsibilities in broad social terms. In addition, a special attempt will be made to bridge the gap, harassing to educators in Colombia as in many other countries, between secondary school science teaching and advanced work at the university level.

The University of the Andes does not expect to form courses solely for the new group of students but rather to enlarge the total teaching program to make room for them in classes attended by students in other fields. Laboratories are being remodeled and expanded, and fourteen professors and two laboratory assistants are being added to the staff, including three professors in biology, two in physics, one in humanities, two in the English language, two in mathematics, three in chemistry and physical chemistry, and one in psychology. The larger faculty will not only permit the university to strengthen its program for all its students by scheduling more courses in the sciences and humanities, but also will enable teachers to do more research by lightening their work load.

The University of the Andes was established in 1949 with a total enrollment of 78 students. The number has since increased to 625, distributed through the Schools of

Engineering, Architecture, and Economics, the Liberal Arts College, and extension classes. Of the university's 87 faculty members, about half are from Colombia, and half from other Latin American nations, almost every country in Europe and several in Asia, and the United States.

UNIVERSITY OF RECIFE, PAULISTA SCHOOL OF
MEDICINE, AND UNIVERSITY OF RIO GRANDE DO SUL

DEVELOPMENT OF THE MEDICAL SCHOOLS

As part of its long-term program to assist medical education in South America, the Foundation in 1956 made grants totaling \$356,000 for the further development of three Brazilian medical schools.

The Recife Medical School, which was incorporated into the newly organized University of Recife in 1946, is located in the Pernambuco state capital, a city of about 535,000 people and the cultural and educational center of northeastern Brazil for more than 400 years. An appropriation of 5,223,800 cruzeiros and \$126,000 (about \$215,000) was made to the University of Recife in 1956 to add to undergraduate and graduate training facilities, particularly in the following sections of the Medical School: the Departments of Anatomy, Physiology, Histology and Embryology, Pathology, Biochemistry, and Experimental Surgery, and the Institute of Cardiology.

The Recife school's preclinical teaching has been done in the past in two small buildings large enough to allow as an optimum the admission of 60 students a year, while basic clinical teaching has been conducted principally in the Dom Pedro II hospital, constructed in 1847, and associated hospitals. Though the university has modernized many of the hospital wards now in use, with the result that clinical teaching facilities are good, the basic science departments have been hampered by their cramped quarters. These re-

strictions are being removed by the completion of a new basic science building in "University City," about five miles from the center of Recife, where housing for the entire university will eventually be built. Near the new science building a 750-bed teaching hospital is also under construction, to be followed in the near future by a building for a nursing school.

Typical of recent internal developments at the Recife Medical School are the reorganization of the Departments of Anatomy and Biochemistry for graduate teaching (the first plans to begin accepting graduate students in 1956, the second in 1957); the establishment of the Institute of Cardiology, formerly one of the clinical medical services, on an independent basis within the faculty; and the arrangements made in 1956 for the full-time employment of all personnel in the Departments of Anatomy and Physiology, a first step toward similar arrangements for all preclinical departments. These and other changes are being supported in part through assistance from the Foundation.

As the expanded quarters at University City are completed, the teaching and research staffs in the preclinical departments become full-time, and the Foundation grant, supplementing regular funds, is fully utilized, the Recife school will be able to assume a larger role in Brazilian medical education and in particular is expected to develop as a center for graduate teacher training serving all of northeast Brazil. Six other medical schools are in operation and three more are currently projected for this area.

The second Foundation grant was a two-year appropriation of \$105,000 to the Paulista School of Medicine in São Paulo, the capital of São Paulo State. The Paulista School was a private medical school from its organization in 1933 until January of 1956, when it was received into the system of higher education of the Brazilian government. Although it was created with the stated aims of training physicians

for its home state and of contributing to improved hospital medical care in the city of São Paulo, it has attracted students from 11 other states and from 17 foreign countries (about 16 per cent of its total enrollment).

The school was expanded first in 1939 with the organization of an associated nursing school, again in 1940 when its 409-bed teaching hospital (built with federal aid) was opened, and most recently with the completion of a building for the cooperative use of the Departments of Biochemistry and Pharmacology. Another new building, for disciplines related to pathology, is now in the planning stage.

Foundation assistance to the Paulista School has been given in support of teaching and research in the basic science departments and in the Department of Clinical Medicine. Like the Recife Medical School, the Paulista School is planning a gradual transference of staff in the basic sciences from a part- to a full-time basis, beginning this year with professional assistants and technicians in the Departments of Biochemistry, Pharmacology, and Microbiology, all of which are headed by full-time professors. The same three departments are about to begin graduate teaching and are expected to help in the vital job of training teachers for Brazil's expanding medical school system.

Insofar as it relates to the development of graduate teaching at the Paulista School, the Foundation grant is connected with a previous appropriation to the Brazilian government agency CAPES (Campaign for the Improvement of Higher Education Personnel). In part with funds made available by the Foundation, CAPES is awarding fellowships for graduate study to teachers in Brazilian schools or to others preparing to teach. Both the Paulista and the Recife Medical Schools are to be training centers in connection with the CAPES program.

The Department of Clinical Medicine at the Paulista School is responsible for the introductory course in medicine

in the third year, for all the medical teaching thereafter, for the coordination of clinical medicine with other clinical fields, and for the training of interns and residents in medicine. It is one of the best clinical departments in Brazil and one of the leaders in stressing laboratory diagnosis by students in their study of cases assigned to them.

The last of the three grants, a two-year appropriation of \$36,000, will contribute to the costs of teaching and research in anatomy and physiology at the University of Rio Grande do Sul Medical School, Pôrto Alegre. This important medical school, until 1955 the only one in the State of Rio Grande do Sul, draws its students from within the state and from the adjoining states of Paraná and Santa Catarina. It is strategically located in the state capital, a city of nearly 400,000 people, where about 18 per cent of the state's population live.

In recent years a full-time professorship in physiology was created at the Pôrto Alegre school for the first time, equipment for basic research was purchased, and new housing for the department now designated "The Institute of Experimental Physiology" was provided. The staff of employees and voluntary workers cooperating in physiology research and teaching at the school had increased to 42 by 1955.

The Department of Anatomy includes two full-time assistant professors, in addition to several surgeons who devote part of their time to teaching and research, and a large number of part-time assistants. Foundation aid to this department will be used primarily for the purchase of new equipment or supplies and parts difficult to obtain in Brazil.

KEIO UNIVERSITY

SCHOOL OF MEDICINE

Since its founding in 1917 the Keio University School of Medicine, Tokyo, a leading privately supported and op-

erated medical institution, has graduated more than 3,600 students, over 1,800 of whom have been awarded the degree of Doctor of Medical Science.

In its efforts to evolve a more modern curriculum, this influential medical school has been working, since the end of World War II, to restore its physical facilities. Substantial sums have been raised in Japan through contributions from individuals and industry, and three hospital wings, a nursing dormitory, and a building for the Departments of Anatomy and Physiology have already been built. A large portion of funds derived from clinical fees was also used for the reconstruction.

A final building to house the Departments of Pathology, Bacteriology, and Forensic Medicine is needed to complete the restoration of the school's facilities. The importance of providing such adequate physical facilities at Keio has increased with the development there of greater interplay between the various disciplines. To aid the Keio University School of Medicine in the construction of the new building, The Rockefeller Foundation has appropriated 100,000,000 yen (about \$290,000) to be available during the next two years when matched by half that amount from the university.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

RADIATION

The design of a new 1,000 kilowatt nuclear reactor now under construction at the Massachusetts Institute of Technology has been altered to include an extra port on one of its faces to provide streams of energy solely for medical and biological research. A downward-directed beam of nuclear rays will enter a completely equipped operating-therapy room located underground directly beneath the reactor itself, making possible irradiation of patients immediately after

surgery. With the addition of this special medical and biological facility the reactor will be the first and only atomic tool of its kind in the United States.

Three types of medical treatment and research will be made possible by the new reactor: neutrons or gamma rays from the reactor may be used directly to irradiate tumors in patients brought to the medical therapy room; basic studies of the effects of neutrons or gamma rays on living tissues will be possible; and the reactor will be used to make available to scientists in the area neutron-produced, short-lived isotopes. Up to now studies have been confined, for the most part, to the use of relatively long-lived isotopes. An important use of the medical facilities will be the exploration of new methods for the treatment of cancer.

The leaders of all the Boston medical institutions—Harvard Medical School, Boston University, Tufts University, and the teaching and research hospitals—have stated that the availability of the facility would be of great value to current and future research in the field of the application of nuclear energy to biological and medical problems.

For the addition of this special biological and medical facility, The Rockefeller Foundation has appropriated \$250,000 to the Massachusetts Institute of Technology.

UNIVERSITY OF ANKARA

DEPARTMENT OF CHILD HEALTH

Prompted by a desire to provide greater research and teaching facilities in pediatrics, and to help in reducing the rate of infant mortality in Turkey, the University of Ankara recently launched a major program in pediatrics under the guidance of Dr. Ihsan Dogramaci, director of the Department of Child Health of the Faculty of Medicine.

In a new pediatrics clinic being built at the University Hospital with the aid of government funds, the university

plans to develop a complete teaching program which will include both undergraduate and postgraduate medical instruction; training for health officers in child health and hygiene; and training for nurses, social workers, dietitians, and related personnel. The clinic will also offer instruction in maternal and child health for the public, as well as clinical and outpatient services.

Because approximately ten per cent of the medical students at the University of Ankara come from other Middle Eastern countries—Iraq, Iran, Syria, and Lebanon—the new pediatrics program may well have an influence that extends beyond the Turkish border.

To help defray the expenses of equipment for the new clinic, and of visiting teachers and specialists in the Department of Child Health, The Rockefeller Foundation has appropriated \$100,000 for use by the University of Ankara over a four-year period.

ALBANY MEDICAL COLLEGE

POSTGRADUATE MEDICAL EDUCATION

Postgraduate or "refresher" training for practicing physicians has long been one of the most difficult problems in the field of medical education. Such arrangements as "circuit riding," under which staff members of medical schools tour their regions giving lectures and demonstrations, are inefficient in terms of staff time lost to the institutions and in terms of the number of doctors reached. On the other hand, attendance at special courses given by medical schools takes practicing physicians away from their responsibilities for several days and entails difficulties both in arranging for coverage of their patients and in sustaining loss of income.

To provide postgraduate training opportunities in the Albany area, the Albany Medical College, New York, has developed a regional service plan which includes the ex-

change of resident staff, periodic visits to regional hospitals by teaching staff, and a series of intramural postgraduate exercises for practicing physicians. Aided by a small Rockefeller Foundation grant in aid, the college last year experimented with the use of two-way radio communication in an effort to increase the coverage of the regional service program.

Receivers and transmitters were installed in 18 hospitals where an average of 200 practicing physicians, in addition to the residents and interns of the hospitals, gathered each week for 20-minute lectures followed by question and answer periods. The programs, broadcast each week to groups of six hospitals, not only permitted the practicing physicians to remain available for service in their communities, but saved an estimated 8,000 hours of travel weekly. Of the physicians, 42 per cent were general practitioners, 19 per cent surgeons, 11 per cent internists, and 29 per cent represented other specialties. It is estimated that if programs similar to the Albany College program could be developed in all medical schools, the combined effort would reach each week from 33,000 to 36,000 physicians who care for from 39 to 40 million patients.

To assist the Albany Medical College in the expansion of the program, and in the development of realistic methods which could be considered for nation-wide use, the Foundation has appropriated \$90,000 for use during the next three years.

UNIVERSITY OF BRAZIL

INSTITUTE OF MICROBIOLOGY

Established in 1954, the Institute of Microbiology of the University of Brazil, Rio de Janeiro, has come to play a major role in Brazilian research and in the training of

teachers, technicians, and research workers in microbiology for medical schools throughout the country.

The research activities of the institute's four major technical divisions—virology, immunology, medical microbiology, and general microbiology—are particularly directed toward investigations of the Coxsackie virus and enterobacteria. The instruction unit has become the principal center for training Brazilian medical school teachers in connection with the Foundation-supported fellowship program of the national Campaign for the Improvement of Higher Education Personnel (CAPES) of the Government of Brazil.

Sixteen teachers and 23 technicians have already been prepared by the institute for 13 departments of microbiology in other Brazilian science faculties, and the researches of the staff are well represented through numerous scientific papers.

In support of the institute's continued general development and of its teaching and research programs, the Foundation has appropriated \$63,000 to the University of Brazil for use during the next three years.

UNIVERSITY OF ANTIOQUIA

SCHOOL OF LIBRARY SCIENCE

Since Colombians interested in becoming librarians must now go to other countries for training, libraries in Colombia usually find it necessary to fill the available professional posts by selecting untrained candidates and assuming financial responsibility for their schooling abroad. This is unsatisfactory not only because it is expensive in any given instance, but also because most librarians in Colombia, as elsewhere, are women who tend to leave employment on marriage, so that replacements must frequently be sought.

A new school of library science which the University of

Antioquia is developing in Medellín is expected to help solve the problem by training 40 to 50 Colombians annually for library careers in the educational field. The university's own large library and the public library established experimentally for the Medellín area by UNESCO are available at the new school for field work by students, who will be able to earn the diploma of library sciences in two years. Toward development of the project the Foundation has made a three-year grant of \$58,000.

BOSTON UNIVERSITY

CURRICULUM REVIEW

During the past year Boston University has been reviewing its premedical and medical curricula with a view to making alterations and improvements in its medical education pattern that will reflect recent changes and future trends in the doctor's role. The project has had the effect of stressing the mutual responsibilities and interdependence of the medical and liberal arts faculties, which cooperated in the study, and has stimulated plans for more extensive evaluation and analysis.

Over the next year a subcommittee consisting of a representative from the Liberal Arts College, another from the School of Medicine, and a third familiar with the problems of both will devote its full time to research on the curriculum structure of various other schools in this country and abroad, and to further review of the courses currently being given at Boston University. After the subcommittee reports its findings and recommendations to the parent committee, the group as a whole will formulate final conclusions, and any decisions made in favor of innovations will be tested in operation. The Foundation has assisted the study through a two-year grant of \$50,000.

NEW YORK UNIVERSITY—BELLEVUE MEDICAL CENTER

TRAINING OF BURMESE REHABILITATION PERSONNEL

The need for physical and occupational therapy facilities in Burma has been emphasized by that country's rapidly changing social pattern, which formerly afforded protection for the handicapped within the family unit. Plans have now been made to establish a training center for rehabilitation workers in Burma to be staffed by a core team of Burmese who will study at the New York University—Bellevue Medical Center Institute of Physical Medicine and Rehabilitation.

In 1955 when U Nu, then Prime Minister of Burma, observed the work at the Bellevue Medical Center Institute, he requested Dr. Howard Rusk, the institute's director, to undertake the training of a core group of Burmese rehabilitation specialists. To help meet the expenses of this program during the next year the Foundation is contributing \$30,000.

OTHER GRANTS

University of Wisconsin, Madison : a curriculum study of the Medical School ; \$20,000 ;

Unitarian Service Committee, Inc., Boston, Massachusetts : to send a team of American consultants to Japan to stimulate the teaching of modern anesthesiology in Japanese medical schools ; \$18,000 ;

University of San Marcos, Faculty of Medicine, Lima, Peru :

To conduct a survey of its facilities and curriculum and of current medical education in Latin America, the United States, and Europe ; 120,000 Peruvian soles and \$6,000 (about \$12,000) ;

Dr. Carlos Monge, Jr., assistant professor of internal medicine ; to visit representative medical schools in Brazil ; \$1,500 ;

Florence Nightingale International Foundation, London, England : a conference on the planning of nursing studies ; \$10,000 ;

National Postgraduate School of Nursing, Seoul, Korea: support of teaching activities; \$10,000;

University of Bahia, Brazil: further development of the Department of Physiology, Faculty of Medicine; \$10,000;

University of Guanajuato, Mexico: further development of the Department of Pharmacology, School of Medicine; \$10,000;

University of Medical Sciences, Ministry of Public Health, Bangkok, Thailand: equipment for the School of Public Health; \$10,000;

University of San Luis Potosí, Faculty of Medicine, Mexico:

Equipment for the teaching and research programs of the Department of Physiology; \$10,000;

Dr. Ramón Villarreal, director; to observe the organization and administration of medical schools in Latin America; \$2,275;

University of Sheffield, England: a meeting, with international participants, of a study group on preventive and social medicine; \$9,500;

Radcliffe College, Cambridge, and the Massachusetts General Hospital, Boston: a study of the educational concept on which their joint nursing program is based; \$9,000;

American Nurses Foundation, Inc., New York: to provide field services for nurses from abroad who come to the United States under the Exchange Visitor Program; \$8,600;

Dr. Hiroshi Maki, associate director, Atomic Bomb Casualty Commission, Hiroshima, Japan, and Mrs. Chie Maki: to observe medical aspects of nuclear radiation, medical education procedure, and modern advances in the treatment of tuberculosis in the United States; \$8,050;

University of Cartagena, Colombia: sets of slides for use in the teaching of parasitology in the Faculty of Medicine; \$7,700;

Brazilian Medical Association, São Paulo: a meeting at Ribeirão Preto of representatives of all Brazilian medical schools to discuss medical education in Brazil and to permit attendance of a medical education representative from the United States; \$7,500;

Dr. Federico Marsico, assistant director, Institute of Cardiology, Faculty of Medicine, University of Recife, Brazil, and Mrs. Marsico: travel and salary supplement; \$6,000;

University College of the West Indies, Jamaica:

Dr. Harold Geoffrey Dixon, senior registrar, Institute of Obstetrics and Gynecology, University of London, England: to serve as visiting senior lecturer in obstetrics and gynecology; \$5,500;

Dr. Gerrit Bras, Pathology Department; to visit centers of research on cancer and infantile cirrhosis of the liver in children in the United States; \$400;

Dr. Ittaku Mikata, professor of medicine, School of Medicine, Keio University, Tokyo, Japan: to observe methods of medical education in the United States and Europe; \$5,400;

Dr. Archibald Roy Edmonds, principal, Central Medical School, Suva, Fiji Islands: to visit medical schools in the Far East, Middle East, Africa, United Kingdom, Jamaica, Puerto Rico, and the United States; \$5,350;

American University of Beirut, Lebanon: to invite two visiting professors in the field of public health to the School of Public Health; \$5,300;

Mrs. Juana Basuel Crispino, assistant professor of public health nursing, College of Nursing, University of the Philippines, Quezon City: to visit schools of nursing in the United States and Canada to observe research and graduate teaching programs in nursing; \$5,184;

Tokyo University, Japan:

Miss Masu Yumaki, assistant professor of nursing arts, Faculty of Medicine; to observe university schools of nursing in the United States, Europe, and the Far East; \$5,150;

Teaching materials and equipment for the School of Nursing; \$5,000;

Dr. Sadataga Tasaka, professor of internal medicine, Faculty of Medicine; to visit the United States to observe methods of medical education in teaching hospitals; \$4,475;

Dr. Yushi Uchimura, dean, Faculty of Medicine; to visit medical centers in the United States to observe developments in medical education; \$1,200;

Dr. Norio Shimazono, professor of biochemistry, Faculty of Medicine; to observe recent developments in the teaching of biochemistry in the United States; \$450;

University of Puerto Rico, School of Medicine, Rio Piedras:

Visits by senior personnel of the School of Medicine and the Department of Health of Puerto Rico to the United States to observe comprehensive medical care and regionalization programs; \$5,000;

Dr. Calixto A. Romero, assistant professor of clinical medicine; to observe aspects of regionalization and the teaching of comprehensive medicine in the United States; \$925;

Dr. Renato M. Royo, associate professor of public health practice; to observe comprehensive medical care clinics and family home care programs in the United States; \$925;

Dr. Katsumi Kaida, professor of medicine and director of Branch Hospital, School of Medicine, Kyushu University, Fukuoka, Japan: to visit medical centers in Europe and the United States to observe developments in medical education and research; \$4,825;

Dr. Takeo Suzuki, chief, Department of Industrial Hygiene, Institute of Public Health, Tokyo, Japan: to visit centers of industrial and nuclear medicine in the United States; \$4,700;

Dr. Charles R. B. Blackburn, director, Clinical Research Unit, Royal Prince Alfred Hospital, Sydney, and professor, Chair of Medicine, University of Sydney, Australia: to visit representative departments of medicine in the United States and the United Kingdom; \$4,500;

Dr. Sawlaram Ganapatra Vengsarkar, dean, Seth Gordhandas Sunderdas Medical College, Bombay, India: to observe the organization and administration of full-time departments and integrated teaching methods in medical institutions in Europe, the United States, and Canada; \$4,450;

Dr. Rajendra Vir Singh, professor of clinical surgery, King George's Medical College, University of Lucknow, India: to observe residency training programs and the organization of teaching in surgery in the United States; \$4,350;

Dr. Wiley Davis Forbus, chairman, Department of Pathology, School of Medicine, Duke University, Durham, North Carolina: to act as consultant to the School of Medicine, Keio University, Tokyo, Japan, and to visit other Japanese medical schools and the National Taiwan University; \$4,200;

Dr. S. P. Gupta, reader in pathology and bacteriology, Medical College, Lucknow, India: to observe teaching and new developments in the fields of microbiology and serology in the United States and Europe; \$4,175;

Dr. Louis Monteiro, dean, Topiwala National Medical College, and superintendent, B. Y. L. Nair Charitable Hospital, Bombay, India: to observe modern trends in medical education, research, and hospital administration in the United States and the United Kingdom; \$4,100;

University of Antioquia, Faculty of Medicine, Medellín, Colombia:

Teaching and research materials for the Department of Obstetrics and Gynecology; \$4,000;

Dr. Guillermo Latorre Restrepo, professor of physiology; to visit representative medical schools in the United States to observe recent developments in medical education; \$2,250;

Dr. Oscar Duque, professor of pathology; to observe recent developments in teaching and research in pathology in Central America, Mexico, the United States, and Jamaica; \$1,575;

Dr. Jaime Botero Uribe, associate professor of obstetrics and gynecology; to observe the organization and teaching methods of centers of obstetrics and gynecology in the United States and Jamaica; \$1,250;

University of Valle, Faculty of Medicine, Cali, Colombia:

Dr. Henry C. McGill, Jr., associate professor, Department of Pathology, School of Medicine, Louisiana State University, New Orleans; to serve as visiting professor of pathology; \$4,000;

Dr. Santiago Renjifo Salcedo, chairman, Department of Preventive Medicine and Public Health; to observe the teaching of preventive medicine and the operation of family health service programs in the United States and Puerto Rico; \$2,275;

Dr. Miguel Gracian Casado, professor of microbiology; to observe the teaching of microbiology at Tulane University of Louisiana, New Orleans, and to visit centers of research in microbiology in the United States; \$2,100;

Dr. Carlos Alfredo León, chairman, Department of Psychiatry; to observe the operation of family health service programs and associated functions of departments of psychiatry in the United States; \$1,650;

Ram Das Varma, chief engineer, Local Self-Government Engineering Department, Government of Uttar Pradesh, Lucknow, India: to observe developments in sanitary engineering, including urban and rural water supply, in the United States, Canada, Puerto Rico, the Continent, and Great Britain; \$3,950;

University of Malaya, Faculty of Medicine, Singapore:

Dr. Trevor Arthur Lloyd Davies, professor of social medicine and public health; to observe the teaching of public health and preventive medicine in the United States, Canada, and Australia; \$3,775;

Dr. Wilfred Aloysius Nicholas, senior lecturer in social medicine and public health; to observe the teaching of public health and preventive medicine in the United States, Canada, and Puerto Rico; \$3,450;

Harvard University, Cambridge, Massachusetts:

Dr. Charles A. Janeway, professor of pediatrics, Medical School, and Mrs. Janeway; to visit pediatric centers in India to observe pediatric problems and education; \$3,500;

Miss Elizabeth Prince Rice, associate professor of social work in public health, Department of Maternal and Child Health, School of Public Health; to observe social and health programs in Europe; \$3,125;

Dr. Alexander Sandor Nadas, cardiologist, Children's Medical Center, and assistant professor of pediatrics, Medical School; to visit centers of research in cardiology in Great Britain and the Continent; \$1,200;

Dr. George Packer Berry, dean, Medical School; additional expenses of a visit to the Faculty of Medicine, American University of Beirut, Lebanon; \$410;

University of Saskatchewan, College of Medicine, Saskatoon, Canada: to enable professors and assistant professors in the College of Medicine to visit medical education centers in the United States and Canada; \$3,000;

Professor Torsten Teorell, professor of physiology, University of Uppsala, Sweden: to visit biophysical laboratories in the United States; \$2,825;

Dr. William Hay Taliaferro, chairman, Department of Microbiology, University of Chicago, Illinois: to visit laboratories in Great Britain and the Continent; \$2,800;

Dr. Julio Cabello Ruz, extraordinary professor and first laboratory assistant, Department of Biochemistry, Medical School, University of Chile, Santiago: to visit departments of biochemistry in Puerto Rico and South America; \$2,575;

Dr. John S. Carman, director, Christian Medical College, Vellore, India: to observe recent developments in medical education, surgery, and urology in the United States, Canada, and the United Kingdom; \$2,550;

Madras Medical College, India: toward development of the Department of Pediatrics, under the direction of Dr. V. Balagopal Raju; \$2,500;

Dr. W. Mary Burbury, senior lecturer in psychiatry, University of Leeds, England: to visit institutions in the field of child psychiatry in the United States; \$2,500;

Tulane University of Louisiana, School of Medicine, New Orleans:

Dr. Ralph Victor Platou, chairman, Department of Pediatrics; to visit pediatric centers in Great Britain and the Continent to observe programs of training and evaluation in pediatrics; \$2,500;

Dr. Clifford Grosselle Grulée, Jr., director of graduate medicine; to visit medical schools in Latin America to observe techniques of medical education and the needs of graduate students coming to the United States for training; \$2,000;

Dr. Jesús Kumate Rodriguez, biochemist, Children's Hospital, Mexico City, Mexico: to study radioisotope techniques and radiological safety in the United States; \$2,450;

Dr. Jean Spencer Felton, associate professor of industrial medicine, School of Medicine, University of Oklahoma, Oklahoma City: to visit industrial plants and universities in Great Britain and Ireland to observe methods of radiation hazard control and the teaching of radiologic health as it relates to occupational medicine; \$2,300;

University of Melbourne, Australia:

Dr. John Houghton Colebatch, Department of Obstetrics and Gynecology; to visit departments of pediatrics in the United States; \$2,200;

Dr. John G. Hayden, Stewart Lecturer in Medicine; to observe recent developments in medical education in the United States; \$1,000;

Miss Elinor P. Keresey, assistant professor of nursing, College of Nursing, Wayne University, Detroit, Michigan: to observe nursing education and administration in Norway, Sweden, Denmark, and Finland; \$2,150;

Dr. Robert Joy Glaser, associate dean, School of Medicine, Washington University, St. Louis, Missouri: to visit medical schools in Latin America to observe techniques of medical education and the needs of graduate students coming to the United States for training; \$2,075;

Dr. Gaston Dussaillant Grossetete, chief, Cardiology Department, Service of Internal Medicine, El Salvador Hospital, Santiago, Chile: to visit centers of cardiology in the United States and Mexico; \$1,850;

Dr. Nigel Graham Trott, physicist, Institute of Cancer Research, Royal Cancer Hospital, London, England: to observe the use of small reactors in medical and biological work in the United States; \$1,800;

Victoria University of Manchester, England:

Dr. Margaret Platt, psychiatrist, Manchester Child Guidance Clinic, and consultant psychiatrist, Darbshire House Health Centre; to visit psychiatric centers in the United States; \$1,800;

Professor Robert Platt, head, Department of Medicine; to visit medical schools in the United States; \$1,800;

Dr. Nagib Curi, surgeon, Clinical Hospital, Faculty of Medicine, University of São Paulo, Brazil: to visit centers of thoracic surgery in the United States; \$1,625;

Miss Haydée Guanaes Dourado, Brazilian Nursing Association, Rio de Janeiro: to attend the Conference on How to Plan Nursing Studies, sponsored by the Florence Nightingale Society, at Sèvres, France, during November, 1956; \$1,600;

University of the Andes, Bogotá, Colombia:

Dr. Jorge Restrepo Hoyos, rector; to visit universities in the United States; \$1,600;

Expenses of consultations between the Faculty of the University of the Andes and the Faculty of Medicine of the University of Valle in connection with the development of a program of pre-medical studies; \$1,500;

National University of Mexico, School of Medicine, Mexico City:

Dr. Luis Torregrosa Ferraez, professor of undergraduates in pediatrics and head of services, Children's Hospital, Mexico City; to observe methods of undergraduate teaching in pediatrics in the United States; \$1,359;

Dr. Julio Manuel Torroella y Ordosgoiti, professor of undergraduates in pediatrics and head of services, Children's Hospital, Mexico City; to observe methods of undergraduate teaching in pediatrics in the United States; \$1,359;

Dr. Ruy Perez Tamayo, professor of pathology and director, Pathology Unit; to observe the teaching of pathology and related subjects in medical schools in Central and South America; \$1,000;

Dr. Philip R. Allison, professor of surgery, University of Oxford, England: to observe facilities available in surgical laboratories in the United States; \$1,350;

Dr. Paulo Ginefra, voluntary assistant, Fifth Clinical Department, Faculty of Medicine, University of Brazil, Rio de Janeiro: to accept

an internship and residency at the National Institute of Cardiology, Mexico City, Mexico; \$1,175;

Dr. Richard Trussell Walden, instructor, Department of Preventive Medicine and Public Health, School of Medicine, College of Medical Evangelists, Loma Linda, California: to visit other medical schools in the United States to observe the teaching of comprehensive medicine; \$1,175;

Columbia University, School of Public Health and Administrative Medicine, New York:

Dr. Edwin Gurney Clark, professor of epidemiology; to observe the teaching and practice of epidemiology and preventive and social medicine in Norway and Great Britain; \$1,050;

Dr. Roger Wright Williams, associate professor of medical entomology; to study at the London School of Hygiene and Tropical Medicine, England, and to visit centers of research in parasitology and entomology in England; \$1,000;

Dr. Orlando Rodrigues da Costa, professor of parasitology, Faculty of Medicine and Surgery of Pará, Belém, Brazil: to visit the Department of Parasitology of the University of Chile, Santiago; \$960;

Dr. Lars Philip Bengtsson, assistant professor of obstetrics and gynecology, University Clinic, University of Lund, Sweden: to continue studies in gynecology in the United States; \$600;

Dr. Gerard Leon Joseph Van der Schueren, professor of radiotherapy, Medical Faculty, University of Louvain, Belgium: to observe developments in the field of radiotherapy in the United States; \$565;

Dr. Saib Shawket, dean and professor of surgery, Royal Faculty of Medicine, Baghdad, Iraq: to observe research facilities in relation to clinical research in teaching hospitals in England, Scotland, Norway, and Sweden; \$550;

Dr. Héctor Croxatto, professor of physiology, School of Medicine, Catholic University of Chile, Santiago: to visit centers of physiological research in Sweden, Denmark, and Germany; \$450.

Medical Care

COMMONWEALTH OF PUERTO RICO

DEPARTMENT OF HEALTH

In 1954 the Department of Health of the Commonwealth of Puerto Rico, in collaboration with the University of Puerto Rico Medical School, began a study in the Bayamón Region of the ways in which various factors influencing health care—medical personnel, professional education, and the work of physicians in hospitals and community health services—might be effectively coordinated. The report resulting from this study recommended the establishment of a Regional Health and Welfare Coordinating Office to integrate government and private health programs in the region and to serve as a demonstration area in which the basic pattern of regionalization could be worked out for the entire Commonwealth.

The principal function of the Coordinating Office, already established, is to develop techniques and methods for the regionalization of both public and private medical and health services in the region. During the first year one municipality and its health center will be selected as a pilot area in which techniques will be tested; in subsequent years the office hopes to introduce coordinated services throughout the other 15 municipalities in the Bayamón District Hospital area.

Effective regionalization of medical and health services in Puerto Rico is expected to increase the total efficiency of those services and thereby contribute substantially to a general improvement in the standard of health on the island. Because Puerto Rico is one of four areas chosen by the World Health Organization as an experimental study area in regionalization, the present program is being watched with particular interest.

In 1954 The Rockefeller Foundation contributed \$63,-500 toward the costs of the preliminary study. A new grant of \$155,950 to the Commonwealth of Puerto Rico will continue Foundation support of the regionalization program through the next two years.

OTHER GRANTS

Bingham Associates Fund, Boston, Massachusetts: a survey and evaluation of the Bingham Associates program; \$10,000;

University of California, Extension Division, Berkeley: to continue and complete the development of a certificate course in medical care administration; \$6,000.

Field Service

Area representation continues to be an important factor in the administration of The Rockefeller Foundation's programs in medical education and public health. Resident representatives who are intimately acquainted with the problems of an area, and who can have frequent personal contacts with educational leaders and officials, contribute importantly to the effective management of the Foundation's efforts to encourage the development of better teaching and health care standards. In addition, the representative is available as an informal adviser to the national authorities on many problems within the field of his personal competence, and in some instances it appears that this intangible aid exceeds in ultimate value actual financial assistance through grants.

To promote medical education and public health throughout the world, the Foundation maintains regional offices in Brazil, Chile, and India, and the opening of a new Middle Eastern office is planned for 1957 if political conditions permit. For the support of these offices during 1957,

the Foundation has appropriated \$371,625, an increase of more than \$50,000 over the amount appropriated for 1956.

Following extensive studies, substantial programs in professional education were initiated in 1956 in Japan, India, Brazil, Colombia, and Puerto Rico, and important extensions of programs were instituted in the British Isles, Turkey, the United States, and several Latin American countries.

Among the activities of the Foundation in medical education and public health in 1956, the following more important ones may be commented upon.

In 1956 the first phase of a long-term study of the quality of medical practice was brought to a conclusion at the University of North Carolina and the results published in a professional journal. Eventually this and similar studies which it may encourage should lead to a clearer recognition of the factors in the preparation of a physician which are of the greatest ultimate influence and importance.

A survey of medical education and medical care in Puerto Rico has led to the formulation of a plan of far-reaching significance for the regionalization of medical services. In 1956 the pilot stage of this plan went into operation, and it is anticipated that experience gained in the application of the plan to a single district will eventually lead to a closely integrated system of medical care for the entire Commonwealth of Puerto Rico.

In a number of schools of medicine in the United States there is a growing disposition to investigate the factors which affect the efficiency of medical education. The Foundation has encouraged this trend by means of conferences and through financial assistance. From the studies and analyses are emerging certain significant concepts which may lead to substantial modification of the pattern of medical education in this country during the next decade.

The Foundation has recognized the rapidly growing

importance of nuclear energy in modern society by supporting an inquiry of the highest significance on the part of the National Academy of Sciences into the broad aspects of the effects of radiation upon man and his environment. In addition to the general influence which this study is already beginning to have, it will almost certainly exert appreciable effect on the character of medical and public health programs both in the United States and abroad. The Foundation will continue in 1957 its interest in the development of the positive values of nuclear energy in medicine. The difficult problems which will inevitably be encountered in the exploitation of nuclear energy for peaceful purposes in various parts of the world will require reorientation of the philosophy of medical care and the objectives of public health, a process in which the Foundation is continuing its active interest.

In 1956 the Foundation appointed an officer to the staff to direct its program in nursing education.

OTHER GRANTS

Equipment and supplies to be used by Fred W. Knipe, Rockefeller Foundation staff member, in connection with his assignment to the Malaria Institute of India; \$6,000.

General

HARVARD UNIVERSITY

STUDY OF POPULATION PROBLEMS IN INDIA

In 1953 Harvard University, with the cooperation of the Government of India and the Christian Medical College in Ludhiana, initiated an investigation of population dynamics in India, where overpopulation is an outstanding

problem. An exploratory pilot study was carried out during the last three years in selected Indian villages, with the community rather than the individual as the unit of observation. Its objects were to measure some of the variables, including sociological and cultural factors, important to the growth and recession of populations; to determine the effect of family planning on the size of village populations, on health conditions, and on social status; and finally, to train physicians and other health workers in population problems.

Based on methods developed during the preliminary investigations, the study will be extended during the next four years to a test population of 8,000 persons and a control population of similar size. In support of the Harvard project on population dynamics during the next four years, The Rockefeller Foundation granted \$163,280.

NAGOYA NATIONAL UNIVERSITY

MEDICAL SCHOOL

The Nagoya National University Medical School, Japan, is developing an environmental approach to psychiatric problems. Under the direction of Dr. Tsuneo Muramatsu, head of the Department of Neuropsychiatry, a team of psychiatrists, psychologists, sociologists, and social workers has been assembled to study various aspects of social problems in the Nagoya area.

A new interdisciplinary research project will be undertaken to investigate the relationship of cultural patterns to personality. Under Dr. Muramatsu's direction, the team will gather socio-psychological data by interviewing and testing about 3,000 families from selected urban and rural areas.

The project will be financed in part by a \$60,000 grant, available over a three-year period, from The Rockefeller Foundation.

OTHER GRANTS

Medical Society of the County of Kings and the Academy of Medicine of Brooklyn, New York: a survey to develop plans for a new library to serve the Long Island area; \$10,000;

Departmental University Hospital, Cali, Colombia: to provide the services of a medical record librarian from the United States to assist in the organization of the medical records section; \$7,000;

Fund for grants of amounts not exceeding \$500 for allocation under the supervision of the Director; \$5,000.

BIOLOGICAL AND MEDICAL RESEARCH

IN PROVIDING SUPPORT for the biological and medical sciences, The Rockefeller Foundation tries to be continuously aware of the dual nature of scientific knowledge —its bearing on the solution of immediately practical problems and its more general contribution to understanding and appreciating the natural world. On the practical side, the scientific interests of the Foundation are closely linked with related interests in agriculture, medical education, and public health. In the broader sense, an effort is made to maintain some of the humane flavor in the pursuit of the natural sciences suggested by the old-fashioned term "natural philosophy." As the practical results of science have become more and more obvious, they have tended to obscure the fact that scientific investigations began as part of the effort to understand man by relating him to the universe in which he finds himself. But there are signs that some scientists at least are ready to reassert the claim that science deserves a place in the tradition of the humanities. This claim is put forward not only because science provides one very good way of exploring the condition of man. It is also true that the very practice of science is a daily demonstration of the unique human capacity to ask questions, invent concepts, name names, and express relationships in precise and aesthetically satisfying language.

As in previous years, the most substantial portion of the Foundation's support for the biological sciences went to laboratories working on the chemical and physical aspects of cellular function. It is becoming more and more apparent that the understanding of living processes depends upon understanding the meaning of the structure of certain large molecules. For example, it has been known for some time that such physical characteristics of living things as the strength of muscles, the toughness of skin, and the elasticity of arteries, depend on the structure of the large protein molecules which compose them. This aspect of structural chemistry has much in common with work done in industry on the properties of synthetic fibers and plastics. Even more interesting perhaps is the relationship of molecular structure to the control of chemical reaction within cells. What is it about the shape of an enzyme that enables it to facilitate transformation of starch into sugar or sugar into muscular energy? All such questions lead finally to the most intriguing of them all—How does the shape of the nucleic acids in the genes and chromosomes of one very small cell carry all the information necessary for the orderly development of an entirely new organism?

It is at this point that biochemistry joins hands with classical genetics which has directed its energies to deducing what genes must be like by observing the results of carefully controlled breeding experiments. Such genetic investigations during the first half of this century have provided a consistent theoretical framework for understanding the mechanism of heredity, but there is a serious lack of detailed knowledge. Just how serious this lack is has been clearly demonstrated during the past year by public discussion of the possible biological effects of increased use of atomic energy. It is over 39 years since Professor H. J. Muller first demonstrated that X-rays can increase the normal rate of mutation and that most mutations result in defective offspring. But we are still largely in the dark on the quantita-

tive aspects of the problem, especially as regards man. With the help of a grant from the Foundation, the National Academy of Sciences last year undertook a careful survey of the biological effects of radiation, and the report of its committee on genetics provides a concise summary of current knowledge. Among other things, this report makes very clear the importance of providing precise numerical answers to such questions as: What is the normal mutation rate in man? How much does a given dose of radiation increase it? What proportion of the mutations so induced will cause serious defects in succeeding generations? And perhaps most important—What measures can be taken to protect our priceless germ plasm against the deleterious effects of radiation? Although the Foundation's interest in genetics precedes by some years the development of these urgent, practical questions, attention may be called to the fact that approximately one third of the appropriations listed below were made for work in this field.

Another continuing interest has been in the biology of viruses. A substantial part of this interest is expressed in the Foundation's own operating program which is discussed later in this section of the report. This operating program is concerned with the natural history of one large group of viruses which infect man and the lower animals and are capable of being transmitted by insects. This rather specialized activity is supplemented by grants to outside laboratories at work on more general problems such as viral genetics and the chemical structure of virus particles. Recent progress in virology makes it increasingly clear that viruses have many of the characteristics of genes. A growing body of evidence suggests that infection by a virus may perhaps best be understood as a process whereby the invading virus particle substitutes itself for certain of the cell's own genes. This cell is thus forced to give up part of its normal functions and to turn its energies to reproducing new virus

particles. It is worth noting perhaps that two parts of the Foundation's program which started from rather widely separate points appear to be converging to a common interest—the nucleoproteins. Virus research which began as part of a practical effort to control a specific public health menace now seems to be joining hands with much more theoretical interests in cellular biochemistry and genetics pursued "for their own sake."

The Biological Basis of Behavior

INDIAN COUNCIL OF MEDICAL RESEARCH

NEUROLOGY

The Indian Cancer Research Centre in Bombay, an important center for medical research in India, has included research in neuropathology in its program since 1948. Because of the excellent opportunities for neurological investigation available at the center, plans have now been made to expand the neuropathology unit by adding neurophysiological and biochemical studies.

A number of diseases are prevalent in India that involve the nervous system, such as lathyrism, nutritional deficiencies, encephalitis, and leprosy. Leprosy commonly damages nerves in a selective manner difficult or impossible to duplicate experimentally, and hence offers unique opportunities for study of the pathology and physiology of nerves and especially of their sensory distributions.

To help the Indian Cancer Research Centre expand its neurological research program, The Rockefeller Foundation made a grant of \$88,200, for use over a three-year period, to the Indian Council of Medical Research.

CHILD RESEARCH COUNCIL OF DENVER
STUDIES OF GROWTH AND DEVELOPMENT

The Child Research Council of Denver, Colorado, has been studying human growth and development for over 25 years. Dr. Alfred H. Washburn has directed the program since it began.

Data gathered by the Denver group on the various phases of growth have already been used to determine many of the norms of development accepted by modern pediatricians. When the program is fulfilled, anatomical, physiological, and psychological data will be combined in a rounded description of the growth process, with special attention to the variations in early life which decide the adult pattern.

The individuals under study by the council will be followed for many years into the future before final interpretations are made, but a systematic analysis of the results to date is planned for the next four years. How various growth factors correlate in the successive stages of normal and some forms of abnormal development will be treated in this analysis, which will be published in monograph form.

The Foundation has contributed partial support to the council since 1939 and in 1956 made a new four-year grant of \$85,000.

ROSCOE B. JACKSON MEMORIAL LABORATORY

For a number of years Dr. C. C. Little and his associates at the Roscoe B. Jackson Memorial Laboratory in Bar Harbor, Maine, have conducted research on the genetic factors of intelligence and emotional variation in five breeds of dogs. The behavioral differences among the five breeds are first identified by an extensive series of tests. Cross-breeding experiments are then used to confirm the genetic

character of breed differences and to throw light on the mode of inheritance.

Although final conclusions are not yet available, the results of the study seem to indicate that the most clearly defined differences among the simplest types of inheritance are to be found in basic temperamental and emotional traits rather than in tests of performance. It is becoming increasingly clear that the ability to perform in certain ways is the result of complex adaptations of basic, and presumably genetic, characteristics to a given task, and that animals which differ widely in basic temperamental and physiological characteristics may solve a specific problem equally well by employing different routes.

Since 1945 The Rockefeller Foundation has made grants totaling \$838,000 for support of research at the Roscoe B. Jackson Memorial Laboratory. A 1956 grant of \$50,000 represents the Foundation's final contribution to the study of intelligence and emotional variation in dogs.

UNIVERSITY OF CAMBRIDGE

PSYCHOLOGICAL LABORATORY

The study of psychology as a positive science of the behavior of living things involves a combination of the techniques of neurophysiology and neurosurgery with direct observation of behavior. By using this approach psychologists have been able, during the past twenty years, to map out certain areas of the brain as being primarily concerned with the simpler aspects of behavior. The more complex aspects of perception and memory, however, are not so easily localized.

Professor Oliver Zangwill, professor of experimental psychology at the University of Cambridge since 1952, plans to introduce a long-term program of experimental investigations of animal behavior as the primary research interest of

his department. Professor Zangwill has had long experience in the field of experimental psychology and particularly in the investigation of the psychological effects of circumscribed brain lesions in man. His proposed program at Cambridge will permit more intensive and systematic extension of this study.

To help the University of Cambridge with the initial expenses of the new program, The Rockefeller Foundation has appropriated £15,000 (about \$43,500) for use during a five-year period.

HARVARD UNIVERSITY

RESEARCH ON THE BIOCHEMISTRY OF VISION

While the mechanics by which the lens of the eye casts a well-focused image on the retina have been common knowledge for over a century, understanding of the complicated play of retinal events which translate this image into a coded pattern of nerve impulses for transmission to the receptive areas of the brain has been made possible only by the utmost refinements of modern biochemistry.

One of the foremost investigators working in the biochemistry of vision, Professor George Wald of Harvard University, Cambridge, Massachusetts, has shown that four light sensitive pigments and two proteins are involved in the translation of light into nervous energy. He and his group plan to devote the next few years to the development of mathematical relations between these biochemical phenomena and available electro-physiological data on light adaptation, and to further exploration of the complexities of color vision.

A Rockefeller Foundation grant to Harvard University, the second made for the use of Professor Wald and his group, will provide \$25,000 toward his research expenses during the next five years.

KAROLINSKA INSTITUTE

RESEARCH IN PHYSIOLOGY

The interrelationships between a number of recently discovered chemical compounds which profoundly influence cerebral function and the physiological effects of adrenalin and noradrenalin, both formed and present in the normal organism, have given increased importance to study of the pharmacology and physiology of adrenalin and its relatives. One of the outstanding scientists conducting research in this field is Professor U. S. von Euler of the Karolinska Institute, Stockholm, Sweden, who several years ago won international recognition for his achievement in the isolation and chemical identification of noradrenalin, a substance which appears to be intimately related to the mechanism for the production of adrenalin.

Professor von Euler will continue his researches on the biosynthesis of noradrenalin, its relation to sympathetic nerve fibers, and the mechanism by which it is released from nervous tissue with the aid of a grant of 109,000 Swedish crowns (about \$22,000) from The Rockefeller Foundation. In previous years Professor von Euler held three fellowships from the Foundation, as well as a number of travel and research grants.

OTHER GRANTS

University of Oslo, Norway: research in experimental biology in the Institute of Zoophysiology, under the direction of Professor Per F. Scholander; \$15,000;

University of Copenhagen, Denmark: research in physiology in the Institute of Neurophysiology, under the direction of Professor Fritz Buchthal; \$14,000;

University of Bern, Switzerland: facilities for research on plant physiology in the Institute of Botany; 52,000 Swiss francs (about \$12,500);

University of Chicago, Illinois: research in experimental ecology, under the direction of Professor Thomas Park; \$10,500;

University of California, Berkeley: research on the neurophysiology of Yoga, by Dr. M. A. Wenger; \$10,000;

University of Tucumán, Argentina: research in high altitude physiology, under the direction of Dr. Hugo Chiodi, director, Institute for High Altitude Biology; \$10,000;

Fukushima Medical College, Japan: research in uterine physiology in the Department of Obstetrics and Gynecology, by Dr. Taizo Suzuki; \$8,400;

University of Antioquia, Faculty of Medicine, Medellín, Colombia: research on epilepsy; \$6,500;

American Museum of Natural History, New York: completion of a study of early behavior developments in animals; \$6,100;

Hadassah University Hospital, Jerusalem, Israel: equipment for use in physiological studies in the Department of Ophthalmology, under the direction of Dr. Edgar Auerbach; \$5,000;

University of Michigan, Ann Arbor: a program of research in population studies, under the direction of Dr. Lawrence B. Slobodkin, Department of Zoology; \$4,200;

Professor Jesús S. Moure, Department of Zoology, Faculty of Philosophy, University of Paraná, Curitiba, Brazil: to visit research centers in zoology in the United States and Canada; \$4,150;

Harvard University, Cambridge, Massachusetts: research on creative thinking in work groups, under the direction of Dr. Jerome Bruner, Laboratory of Social Relations; \$4,000;

Nagoya National University, Japan: research in the Biological Institute; \$4,000;

University of Siena, Italy: research in neurophysiology in the Institute of Special Medical Pathology, under the direction of Dr. Alberto Zanchetti; \$3,500;

Dr. Donald A. McDonald, Department of Physiology, St. Bartholomew's Hospital Medical College, University of London, England:

to visit laboratories engaged in physiological and biophysical research in the United States; \$3,300;

University of Cuyo, Faculty of Medical Sciences, Mendoza, Argentina:

Dr. Juan Carlos Fasciolo, director, Institute of Physiology; to visit medical schools and research institutes in Latin America, the United States, and Canada; \$2,800;

Dr. Jorge R. E. Suarez, dean; to visit medical schools and research institutes in Latin America, the United States, and Canada; \$2,800;

University of Heidelberg, Germany: research equipment for the Physiological Institute; \$2,250;

Professor W. F. H. M. Mommaerts, Western Reserve University, Cleveland, Ohio; to study in England methods for measuring muscle heat production; \$1,850;

University of Otago, Medical School, Dunedin, New Zealand:

Dr. Rowland P. Wilson, senior lecturer in ophthalmology; to study recent advances in the field of ophthalmology in the United States and Canada; \$1,500;

Dr. Anthony James, Department of Neurosurgery; to visit neurological research centers in the United States; \$400;

Dr. Ian F. S. Mackay, professor of physiology, University College of the West Indies, Jamaica; to visit centers of cardiovascular research in the United States and Canada; \$1,350;

Dr. José Pisanty, professor and head, Department of Physiology and Pharmacology, University of Guadalajara, Mexico; to observe research and teaching in departments of physiology in the United States; \$1,150;

Royal Veterinary College, Stockholm, Sweden: equipment for research in animal physiology; \$1,100;

Australian National University, Canberra: Miss Ruth Araldsson, technician, University of Lund, Sweden; to join the Department of Physiology of the Australian National University; \$800;

University of Lund, Sweden: expenses of scientists invited to participate in the Second Symposium on Neurosecretion, held in Lund in July, 1957; 4,000 Swedish crowns (about \$800);

Dr. Carlton C. Hunt, Department of Physiology, Albert Einstein College of Medicine, Yeshiva University, New York: to visit laboratories concerned with study of the physiology of the spinal cord in Australia and New Zealand; \$400.

General Biology

INDIANA UNIVERSITY

CYTOGENETICS

The important center for research in plant and animal genetics at Indiana University is under the leadership of three eminent geneticists, Professors H. J. Muller, T. M. Sonneborn, and R. E. Cleland.

Professor Muller, who is working on the modifications of individual genes, was awarded the Nobel prize in 1946 for his discovery that mutations can be brought about by exposure to X-rays or thermal shock. During the 40 years that he has done genetic research, he has contributed to virtually every important discovery of modes of genetic mutations.

Professor Sonneborn has developed a unique personal field of study by utilizing the rapidly reproducing single-celled animal known as Paramecium to show that inheritable characters depend not only upon chromosomal structures within the cell nucleus, but also upon elements which may be found in the cytoplasm and which behave in part like genes and in part like viruses. This discovery may have an important bearing on research on the heredity of mammalian cancer.

Professor Cleland, applying the genetic theory to the

evolution of plants, has shown how a stable recombination of genes can be selected by environmental pressures to produce entirely new species.

The work of the Indiana group is supported by the Atomic Energy Commission, the National Science Foundation, and the American Cancer Society. A grant of \$350,000, made in 1956, brings the total of Rockefeller Foundation contributions toward the work of the group to almost \$700,000.

UNIVERSITY OF COPENHAGEN

INSTITUTES OF BIOLOGY AND OF EXPERIMENTAL MEDICINE AND SURGERY

The University of Copenhagen, toward whose scientific research the Foundation has contributed support since 1924, has created two new science Institutes—of Biology and of Experimental Medicine and Surgery—and new buildings are under construction to house them. In recent years emphasis has been largely on work in human genetics, physiology, and biochemistry, and now parallel studies in biology and in medicine have been planned, extending to the clinical fields the basic research of the geneticist, the physiologist, and the biochemist.

Combined in the new Institute of Biology will be the existing departments of genetics and plant physiology, a newly created department of microbiology, and a full department of biochemistry, including research units for enzyme and isotope chemistry. New research laboratories in the Institute of Experimental Medicine and Surgery will be used for investigations in those areas of medicine lying between the purely basic sciences and clinical fields.

The university's genetic studies are concerned with chemical induction of mutations, the genetic and biological basis of sex differentiations in *Neurospora*, and the distri-

bution and ecology of Danish Drosophila populations. Work in plant physiology is concentrated on respiratory exchange in the beech tree stem, the role of sugar and amino acid concentration in frost resistance in wheat, and the comparative biochemistry of sugar oxidation in plants. In experimental medicine, studies are being made of the normal and pathological physiology of the kidney, the chemistry of experimental renal hypertension, the relation between plasma cells and serum globulin production, and plasma proteins and blood substitutes. Microbiology research includes studies of the cytology of microorganisms, the synthetic activities of bacteria during various phases of cell division, and the transfer of nucleic acids during the reproduction of viruses.

To enable the University of Copenhagen to purchase research equipment for the new institutes, the Foundation has made a grant of \$260,000, to be available over a three-year period.

NATIONAL UNIVERSITY OF MEXICO

SCIENTIFIC RESEARCH

With most of its schools and departments now located in the splendid physical facilities afforded by the 30 buildings of the new "University City," near Mexico City, the National University of Mexico is increasing its emphasis on research to complement its strengthened instructional program. To aid the research activities of six of the university's scientific divisions during the next three years, The Rockefeller Foundation made two grants totaling \$190,000 in 1956.

Half the cost of a 36-inch reflecting telescope for the Institute of Astronomy will be met by the new funds. To be located sufficiently far south to permit satisfactory observation of the Galactic Center, the most critical part of the galaxy to which the Earth belongs, the new instrument will

cover a region not effectively accessible to observatories in the United States.

Investigations of the natural products of Mexican plants and fruits by the Institute of Chemistry, to which the Foundation has contributed since 1941, will receive renewed support. The work has already been highly successful in isolating, identifying, and determining the structure of a number of pharmacologically active substances derived from local fruits and plants.

The Institute of Biology, which will receive part of the funds, conducts studies in its sections of biochemistry, botany, zoology, and a recently created division which concerns itself with the role which various kinds of bats play in the transmission of rabies. The institute has published its own journal for over a quarter of a century, and has emphasized basic taxonomic studies of Mexican flora and fauna.

The Radiochemistry Laboratory of the Institute of Physics will use its portion of the new grant for the purchase of research equipment and supplies. The activities of the laboratory are in the charge of scientists trained in part at Oak Ridge and at the University of Chicago.

In the Institute of Geography, the funds will aid chiefly the work in cartography, which is carried out in close co-operation with other divisions of the university and with government agencies. The institute has previously helped the commission for the Papaloapan settlement area—Mexico's "TVA"—the national malaria campaign, and ecological surveys of certain areas. New cartological projects of the institute will concern land use, population settlement, fisheries, and natural resources.

The final portion of the new funds, a separate allotment of \$14,000, will go to the School of Veterinary Medicine for the use primarily of the Department of Parasitology. The school's library will also be helped in the

acquisition of new materials. The amount for the library is part of a cooperative grant with the Pan American Sanitary Bureau.

AMHERST COLLEGE

BIOLOGY

Since 1934 Amherst College, in Massachusetts, has been developing an undergraduate biological research program unusual in a liberal arts setting. The interest aroused in this work among undergraduates in the Department of Biology, of which Professor Harold H. Plough is chairman, has resulted in a substantial increase in the number of students entering on careers in the biological and medical sciences, and has made the biological courses the most active section of the honors program at Amherst under the post-war curriculum.

The department's program includes a wide range of investigations, which are being carried on under Professor Plough's direction. Researchers are studying the genetics of fruit flies, bacterial genetics, the metabolism of protozoa, vertebrate evolution, and the biochemistry of genetic mutations.

The Rockefeller Foundation has contributed to the program in biological research at Amherst since its inception. A new outright grant of \$100,000 was made in 1956.

JOHNS HOPKINS UNIVERSITY

BIOLOGY

Since it was founded in 1947 the McCollum-Pratt Institute of the Johns Hopkins University has collaborated with the university's Department of Biology in biological and biochemical researches in genetics, cytology, and evolution. A new program to consolidate further these two

branches of the university has been planned under the leadership of Professor W. D. McElroy, director of the institute, who was recently appointed chairman of the Department of Biology. Professor McElroy succeeded Professor B. H. Willier, distinguished embryologist, who in 1956 retired as chairman of the department but who will continue to be active in research.

The integrated program gives primary emphasis to the field of genetics in its broadest aspects and ranges from investigations into the minute chemical events involved in the process of mutation to studies on primate evolution and the genetics of man. Researchers are working on radiation biology, studies of primate evolution, the determination of human mutation rates in tissue cultures of primate and human origin, the comparative anatomy of the primates, experimental embryology of the chick, and gene action involving enzymological and immunological approaches.

In support of the new consolidated research program, The Rockefeller Foundation in 1956 made an outright grant of \$100,000 to the Johns Hopkins University, Baltimore, Maryland.

ZOOLOGICAL STATION OF NAPLES

LIBRARY BUILDING

Founded more than 80 years ago by Dr. Anton Dohrn and successively directed by his son and grandson, the Zoological Station of Naples, Italy, is one of the finest marine biology laboratories in the world and perhaps the most international in character, administration, and service. It is financed largely by grants from the Italian government, the Italian Council of Research, and various international organizations.

The chief function of the station has been to provide facilities of space, equipment, animal and plant materials,

and library resources for scientists conducting research in marine biology, experimental embryology, and oceanography. During the past seven years of full postwar activity, the station has been host to nearly 500 investigators from countries throughout the world.

The station's greatest asset is its library of more than 40,000 volumes, 35,000 unbound reprints, and collections of 200 scientific periodicals, some of which date back for nearly 100 years. This comprehensive collection has long since outgrown its quarters in one of the laboratory buildings, and the station is now planning to construct a new building for the library and to reconvert to laboratory use the space it now occupies. The Italian Ministry of Public Construction and various international organizations have provided two-thirds of the funds needed; a Rockefeller Foundation grant of 50,000,000 Italian lire (about \$85,000), available over a two-year period, contributes the final third.

NATIONAL CENTER FOR SCIENTIFIC RESEARCH

INSTITUTE OF GENETICS

In new laboratories at Gif-sur-Yvette, outside Paris, built by the French National Center for Scientific Research for its Institute of Genetics, Professor Boris Ephrussi and his colleagues are continuing research which has earned international recognition and brought increasing numbers of advanced students and foreign investigators to the institute for study.

Research at the institute's Laboratory for Physiological Genetics is concerned principally with the nature and mode of action of cell elements, both nuclear and cytoplasmic, endowed with genetic continuity. Other subjects under study include the factors concerned with synthesis of respiratory

enzymes in yeast and bacteria, the physical and chemical structure of the transforming principle in the Pneumococcus, and the genetics of some of the chlorophyll-containing groups of unicellular algae.

Toward general support of the Laboratory for Physiological Genetics during the next three years, The Rockefeller Foundation has appropriated \$61,000 to the National Center for Scientific Research, Paris. The Foundation has made grants in previous years for research at the Institute of Genetics, and has aided Professor Ephrussi with fellowships and travel grants.

STATE INSTITUTE FOR HUMAN GENETICS

RESEARCH IN HUMAN GENETICS

In Sweden it is not unusual for the student of human genetics to locate all members of a given family for study or to obtain 100 per cent follow-up for groups under observation. Complete and accurate medical and civil records in government files, a relatively small and stable population, and the presence of isolated communities, especially in the north, make it one of the best places in the world for researchers in this field.

For the further development of the State Institute for Human Genetics in Uppsala, a research organization known in the past for its contributions in population genetics and statistical theory, the Foundation in 1956 made a two-year grant of \$50,000. An expanded research program at the institute will include observational projects and study of developments in various experimental sciences applicable to human genetic investigations. Collaboration with first-class institutes in other special branches of genetics also located at Uppsala will be an important feature of the new program.

MINISTRY OF PUBLIC HEALTH, URUGUAY

RESEARCH INSTITUTE OF BIOLOGICAL SCIENCES

The Research Institute of Biological Sciences, Montevideo, Uruguay, was founded almost three decades ago by the Ministry of Public Health as a laboratory for its director, Professor Clemente Estable, the father of experimental biology in Uruguay. The institute, a widely recognized center for biological investigation, has been aided since 1943 by Foundation grants totaling almost \$145,000 for equipment and research expenses, and a number of its staff have been trained under Foundation fellowships.

The institute is now establishing a fellowship program to make possible the appointment of young Uruguayan scientists for training and research in the departments of biomicroscopy, neurobiology, and experimental histology; biochemistry; electrobiotherapy; cell ultrastructure; and cytogenetics.

A new Rockefeller Foundation grant to the Ministry of Public Health will provide 126,000 Uruguayan pesos (about \$39,000) during the next three years toward the institute's new fellowship program.

UNIVERSITY OF WISCONSIN

RESEARCH IN MEDICAL GENETICS

The University of Wisconsin, long known for research in agricultural genetics, is instituting a research program in medical genetics. The importance of genetics to medicine is becoming increasingly apparent as new knowledge is gained of genetic factors in radiation injury, in psychiatric disorders, cancer, metabolic diseases, and blood dyscrasia, as well as in blood grouping, microbial drug resistance, and the evolution of virus and other infectious agents.

The new program will be established in the School of Medicine under the direction of Dr. Newton Morton, a

graduate of Wisconsin's Department of Genetics and formerly a member of the Atomic Bomb Casualty Commission in Japan.

To help the University of Wisconsin develop its program in medical genetics, The Rockefeller Foundation has appropriated \$25,000 for use over the next three years.

UNIVERSITY OF LONDON

LONDON HOSPITAL MEDICAL COLLEGE

Within the past decade investigations in the chemical aspects of human genetics have revealed that inborn biochemical abnormalities in man, far from being associated with only a few rare diseases, are perhaps of common occurrence. These variations are indicated by the numerous blood group systems and by the recent demonstration of a variety of atypical hemoglobins.

The discovery of a previously unsuspected biochemical basis for many diseases has led the London Hospital Medical College of the University of London to undertake a program of research on chemical variations in man under the direction of Professor F. L. Warren and Dr. H. Harris. Studies will be made of errors in carbohydrate metabolism, differences in the electrophoretic patterns of plasma proteins in normal individuals, and newly recognized metabolic abnormalities that occur in a large hospital population.

To help meet some of the expenses of the program, The Rockefeller Foundation has made a three-year grant of £8,250 (about \$24,000) to the London Hospital Medical College.

UNIVERSITY OF SÃO PAULO

RESEARCH IN POPULATION GENETICS

In their studies of genetics and evolution, researchers at the University of São Paulo have unique advantages in

their access to isolated populations of *Drosophila willistoni* on small islands off the coast of Brazil. Representing restricted pools of genes in equilibrium with the selection pressures of the environment, the colonies have been used in studies of the changes which occur in the genetic composition of the populations when alien flies, with known identifiable mutant genes or chromosomal inversions, are introduced.

The research group are now anxious to extend their studies by using high energy radiation to induce mutations in the local flies, not only because the genetic effects of radiation are a matter of great concern at the present time, but also because of the ease with which large numbers of new variations can be made available for study. To help with the costs of equipment and supplies needed for the expanded program, The Rockefeller Foundation in 1956 appropriated \$21,000 to the University of São Paulo, Brazil.

OTHER GRANTS

University of Chile, School of Medicine, Santiago:

Research in experimental cytology and genetics in the Juan Noe Institute of Biology, under the direction of Professor Gabriel Gasic; \$20,000 for a three-year period;

Dr. Gustavo Hoecker, Juan Noe Institute of Biology; to visit centers of genetics research in the United States; \$515;

State University of Iowa, Iowa City: a program of research in genetics, under the direction of Professor Emil Witschi; \$16,000 for a two-year period;

University of Geneva, Switzerland: research in human genetics, under the direction of Professor A. Franceschetti; 42,000 Swiss francs (about \$10,000) for a three-year period;

Royal Faculty of Medicine, Baghdad, Iraq: development of basic research in the Medical Research Institute, under the direction of Dr. Mahmoud A. Jalili; \$9,900;

University of Florence, Italy: research in plant physiology at the Institute of Botany; \$9,000;

University of Bari, Italy: research in histology and embryology, under the direction of Dr. Rodolfo Amprino; 3,000,000 Italian lire and \$3,000 (about \$8,000);

University of Uppsala, Sweden: research in experimental biology, under the direction of Professor Per Eric Lindahl, Zoophysiology Institute; \$7,500;

University of Copenhagen, Denmark: organizational expenses of the first International Congress of Human Genetics; 50,000 Danish crowns (about \$7,275);

McGill University, Montreal, Canada: research in human genetics in the Department of Genetics, under the direction of Dr. F. Clarke Fraser; C\$6,000 (about \$6,180);

Dr. Heitor Segundo Guilherme Medina, Institute of Biology and Technological Research, Curitiba, Brazil: to study cytological techniques in the United States; \$4,700;

University of Parma, Italy: research in plant physiology in the Institute of Botany, under the direction of Professor Fausto Lona; \$3,500;

University of Pavia, Italy:

Professor Giovanni E. Magni, Institute of Genetics; to visit centers of research in genetics in the United States; \$3,500;

Research on the genetics of housefly resistance to insecticides, under the direction of Assistant Professor R. Milani; 900,000 Italian lire (about \$1,500);

University of São Paulo, Brazil:

Professor Jose Oliveira de Almeida, Faculty of Medicine, Ribeirão Preto; to study in the United States; \$3,150;

Dr. Carlos da Silva Lacaz, Faculty of Medicine, São Paulo; to visit centers of research in mycology in the United States and Canada; \$3,000;

Professor Crodowaldo Pavan, Department of General Biology; to visit laboratories in the United States; \$900;

Professor Paulo Sawaya, professor of general and animal physiology, Faculty of Philosophy, Sciences, and Letters; to visit the University of Puerto Rico; \$220;

International Union of Biological Sciences, Naples, Italy: to enable members of the Committee on Nomenclature and Symbolization in Genetics to attend meetings to be held in London or Paris; \$3,000;

University of London, University College, England:

Research on the embryology of primitive mammals in the Department of Zoology; £1,000 (about \$2,900);

Dr. Hans Grüneberg, Department of Eugenics, Biometry, and Genetics; to visit the United States to observe recent research in animal genetics; \$1,000;

Professor Guido Pontecorvo, Department of Genetics, University of Glasgow, Scotland: to visit genetic research centers in the United States; \$1,750;

Dr. B. R. Seshachar, professor of zoology, Central College, University of Mysore, Bangalore, India: to visit laboratories in the United States and Canada; \$1,675;

Dr. Charlotte Marker, assistant professor, Department of Pediatrics, New York University-Bellevue Medical Center, New York: to visit the Pasteur Institute, Paris, France, and to attend the International Pediatric Congress in Copenhagen, Denmark; \$1,650;

Harvard University, Cambridge, Massachusetts: exchange of personnel between the laboratories of Professor Kenneth V. Thimann at Harvard and those of Professor E. C. Wassink at the Agricultural University, Wageningen, Netherlands; \$1,300;

Dr. Tatsuya Tanaka and Dr. Kyoko Kano (Mrs. Tanaka), Department of Zoology, Hokkaido University, Sapporo, Japan: to visit research laboratories in the United States; \$1,250;

Professor C. H. Waddington, head, Department of Animal Genetics, University of Edinburgh, Scotland: to visit centers of research in genetics in the United States; \$900;

Professor Ernst Hadorn, director, Institute of Zoology and Comparative Anatomy, University of Zurich, Switzerland: to visit research centers in the United States; \$750;

Professor Otto Max Bucher, head, Department of Histology and Embryology, University of Lausanne, Switzerland: to visit the United States; \$700;

Professor Claudio Barigozzi, Institute of Genetics, University of Milan, Italy: to visit genetic laboratories in the United States; \$600;

Dr. Italo Suassuna, Institute of Microbiology, Faculty of Medicine, University of Brazil, Rio de Janeiro: to study the serology of enterobacteria at the Institute of Hygiene, Montevideo, Uruguay; \$575.

Biochemistry

CARLSBERG FOUNDATION

CARLSBERG LABORATORY

The Carlsberg Laboratory in Copenhagen, Denmark, a private research institute, is one of the most distinguished in Europe for the originality of its research program, and for the quality of the training it offers the many foreign investigators who come to the laboratory for study under Professor K. U. Linderstrøm-Lang in the Department of Chemistry and Professor Heinz Holter in the Department of Cytochemistry.

Under the leadership of Professor Linderstrøm-Lang, research in chemistry is concerned largely with the development of new theoretical and analytical approaches to the study of proteins, the biological building blocks of the living organism. Studies are in progress on the structure of proteins, their physico-chemical behavior, enzymatic degradations, and synthesis.

Professor Holter and his group in the cytochemistry

laboratory have concentrated on study of chemistry and physiology at the cellular level. As a result of the recent consolidation of the Department of Physiology with the Department of Cytochemistry, researches in the department will be broadened to include studies of the biochemistry of the yeast cell which should contribute valuable information on the way enzymes function in the formation of specific proteins and on the broader problems of energy build-up and release in cells and tissues.

As a contribution toward support of the researches of Professors Linderstrøm-Lang and Holter, both of whom have in the past held Foundation fellowships, The Rockefeller Foundation has made a grant of 411,000 Danish crowns and \$30,000 (about \$90,000) to the Carlsberg Foundation, from which the laboratory receives the major portion of its funds.

UNIVERSITY OF CAMBRIDGE

CHEMICAL LABORATORY

Among the recent accomplishments of the Chemical Laboratory of the University of Cambridge, England, directed by Professor Sir Alexander R. Todd, have been the total synthesis of a number of important coenzymes and, in collaboration with X-ray crystallographers at the University of Oxford, the determination of the definitive structure of vitamin B₁₂. The coenzymes, which include adenosine triphosphate, uredine diphosphate, uredine diphosphate galactase, cozymase, and a number of analogues, are formed by the esterification of phosphoric acid with a "nucleoside" containing a five-carbon sugar and purine base, and have, in general, the same structure as the nucleotides which, when attached to one another in long chains, make up the nucleic acids found in chromosomes and virus particles.

Professor Todd and his associates are now devoting

their efforts to studies of the connection between nucleotides and protein synthesis, and to the development of more highly refined techniques for the preparation of polyphosphates which may make nucleotide coenzymes more readily available for biological investigation. They are also extending their studies of the specificity and mode of action of enzymes, and undertaking further research on the synthesis of porphyrins.

The projected investigations will be facilitated by the transference of the laboratory to one of a complex of huge new chemistry buildings on Lensfield Road being constructed with funds made available by special appropriations of the University Grants Committee. The new quarters will offer more freedom for the organization of team research and ample space for the complex machines of modern synthetic organic chemistry.

The Rockefeller Foundation has previously assisted the laboratory with grants for special expenses sometimes not provided for in official allocations, and in 1956 continued this form of support with a new grant of £30,000 (about \$87,000) for use over a five-year period.

MCGILL UNIVERSITY

RESEARCH IN BIOCHEMISTRY

Affiliated with McGill University and the Montreal General Hospital, the Institute of Special Research in Cell Metabolism is one of the most effective organizations in Canada for training research biochemists. The institute was established shortly after World War II under the leadership of its director, Dr. Juda H. Quastel.

Dr. Quastel, whose researches have been supported by the Foundation since 1936 when he held a fellowship in the medical sciences, was one of the first biochemists to apply modern biochemical methods to study of the brain. His

early discovery of the mechanism of the action of barbiturates in depressing brain metabolism formed the basis of much of the later work done in this field. More recently he has been working with his group at the institute on intermediate carbohydrate metabolism, certain aspects of protein synthesis, and the relation between proteins and fats.

In view of important recent clinical findings on drug therapy and psychosis, Dr. Quastel is returning to the field of his earlier interest. He will conduct a new series of laboratory studies of the effects on the processes of cell metabolism of tranquilizing and other drugs used in the treatment of mental illness.

Toward the researches of Dr. Quastel during the next five years, the Foundation has appropriated C\$55,000 (about \$56,650) to McGill University, Montreal, Canada.

UNIVERSITY OF OXFORD

DYSON PERRINS LABORATORY

When Professor E. R. H. Jones took up his appointment as Waynflete Professor of Chemistry and director of the Dyson Perrins Laboratory at the University of Oxford last year, he introduced in the laboratory long-term studies of the chemistry of two great classes of compounds, the triterpenes and the polyacetylenes, whose wide distribution throughout the plant kingdom suggests that they may be key building blocks for the biosynthesis of a variety of organic substances.

Research projects already in progress at the laboratory and now under the general supervision of Professor Jones include studies of the chemistry of steroids, with special reference to the relation between structure and biological activity; of the metabolism of autotrophic bacteria, especially the mechanism by which hydrogen bacteria utilize molecular hydrogen to reduce carbon dioxide in the forma-

tion of carbohydrates; of the chemistry of lipids produced by acid-fast bacilli; and of the development of general methods for the synthesis of peptides. Toward the costs of these investigations, the Foundation in 1956 made a five-year grant of £8,600 and \$20,000 (about \$45,000) to the University of Oxford, England, renewing previous assistance to the work both of Professor Jones and of the Dyson Perrins Laboratory.

UNIVERSITY OF FERRARA

RESEARCH IN BIOCHEMISTRY

Since the end of World War II the University of Ferrara, Italy, has been directing its efforts toward building up the basic science departments and creating new laboratories. The new biochemistry laboratory now being established by the university will be headed by Professor Enzo Boeri, formerly of the University of Naples. Professor Boeri, a former Rockefeller Foundation Fellow and student under Professor Hugo Theorell in Stockholm, will continue at Ferrara his work on respiratory enzymes and metalloproteins.

A grant of \$40,000 from The Rockefeller Foundation will be used to purchase research equipment for the new laboratory. Ferrarese industrialists have become interested in the new university venture and are contributing funds toward other expenses of the laboratory.

UNIVERSITY OF ROME

INSTITUTE OF BIOLOGICAL CHEMISTRY

Within the past six years the Institute of Biological Chemistry at the University of Rome has become one of the most active biochemical laboratories in Italy. Funds from the Marshall Plan and the Ministry of Public Works,

in addition to those from the university, have helped make possible the expansion and equipment of the center. The institute's director, Professor Alessandro Rossi-Fanelli, is in large measure responsible for the laboratory's excellent progress.

The research interests of the laboratory are focused on the biochemistry of proteins, coenzymes, and vitamins. Professor Rossi-Fanelli himself heads a group in the study of human myoglobin and hemoglobin. A second team is working on the structure and chemical behavior of vitamins, and a third is investigating enzymes and amino acids.

The research of Professor Rossi-Fanelli has been supported by the Foundation since 1953. A new grant to the University of Rome of \$21,500 and 5,000,000 lire (about \$30,000) renews the aid for a four-year period.

UNIVERSITY OF AIX-MARSEILLES

RESEARCH IN BIOCHEMISTRY

Under the direction of Professor Pierre Desnuelle, the Institute of Biological Chemistry of the University of Aix-Marseilles has become an important center of biochemical research and training. It has been designated by the French government as a graduate training unit for advanced work in biochemistry, and a number of foreign investigators have also been attracted there for special work.

Since Professor Desnuelle received a Foundation fellowship 20 years ago, a major portion of his scientific activity has been devoted to study of the complex chain of events which leads to the breakdown of proteins into polypeptides, peptides, and ultimately into amino acids. He has also concentrated on the life history and mode of action of the enzymes and their precursors which are active in this process. Under his leadership a group of young chemists is working

on the structure of fats and fatty acids; another team is investigating the metabolism of fats.

In continued support of Professor Desnuelle's research, The Rockefeller Foundation has appropriated \$25,000, available over a five-year period, for the purchase of supplies and to meet the general needs of the program.

UNIVERSITY OF PARIS

LABORATORY OF BIOLOGICAL CHEMISTRY

Directed since 1947 by Professor Claude Fromageot, a former Foundation Fellow, the Laboratory of Biological Chemistry of the University of Paris is one of the important European centers of research and training in biochemistry. Its research program deals primarily with the broad problems of protein structure and the behavior of the enzymes which hydrolyze proteins into simpler peptides and amino acids. Projects currently in progress include studies of the metabolism of sulphur-containing compounds, of the structure and chemical behavior of certain hormones, and of lysozymes—enzymes which have the capacity to lyse or split the outer coverings of many microorganisms.

To provide general support for the work of the Laboratory of Biological Chemistry during the next five years, The Rockefeller Foundation has made a new grant of \$25,000. The laboratory has received Foundation assistance since 1949.

OTHER GRANTS

Emory University, Georgia: research in biochemistry in the Division of Basic Health Sciences, under the direction of Professor Francis Binkley; \$10,000;

University of Durham, King's College, Newcastle upon Tyne, England: equipment for research on the chemistry of proteins, under the direction of Professor James Baddiley; \$10,000;

University of Padua, Italy:

Research in organic chemistry, under the direction of Professor Silvio Bezzi, Institute of Organic Chemistry; \$10,000;

Research on the chemistry of fats and proteins in the Institute of Biological Chemistry, under the general direction of Professor Achille Roncato; \$7,000;

University of San Marcos, Faculty of Medicine, Lima, Peru: equipment and supplies for research in cell metabolism in the Institute of Biochemistry and Nutrition, by Dr. Marino Villavicencio; \$10,000;

University of Toronto, Canada: research on phosphatides in the Department of Synthetic Chemistry of the Banting Institute, under the direction of Dr. Erich Baer; \$9,000;

The Science Council of Japan, Tokyo: travel expenses of foreign participants in the International Symposium on Enzyme Chemistry, to be held in Japan during 1957; \$8,500;

Pasteur Institute, Paris, France: research in biochemistry, under the direction of Dr. Gérard Milhaud, Isotope Laboratory; \$8,500;

University of London, England: research on the relation of inorganic complex compounds to enzyme reactions, under the direction of Professor R. S. Nyholm, Department of Chemistry; £2,400 (about \$6,960);

Johns Hopkins University, Baltimore, Maryland: research in the field of protein biochemistry, by Professor Emeritus E. V. McCollum; \$6,000;

Washington University, St. Louis, Missouri:

Research on the nature of abnormal hemoglobin synthesis in Mediterranean anemia in the School of Medicine; \$5,800;

Professor Melvin Cohn, Department of Microbiology; to visit the Pasteur Institute, Paris, France, for research on protein synthesis; \$1,000;

University of Glasgow, Scotland: equipment for research in biochemistry in the Department of Biochemistry, under the direction of Professor J. N. Davidson; \$5,000;

University of Edinburgh, Scotland:

Research in the Pharmacological Laboratory, under the direction of Professor J. H. Gaddum; \$5,000;

Dr. John A. Owen, lecturer, Department of Clinical Chemistry; to visit centers of clinical biochemistry in the United States and Canada; \$850;

Dr. T. B. Panse, head, Department of Biochemistry, Indian Cancer Research Centre, Bombay: to visit laboratories in the United States and Europe; \$3,950;

Miss Bella Regina Kupper, Institute of Biology and Technological Research, Curitiba, Brazil: to study enzyme chemistry at the Institute of Biochemical Investigations, Buenos Aires, Argentina; \$3,630;

University of Vienna, Austria: equipment for research in the Pharmacological Institute, under the direction of Professor Franz Brücke; \$3,600;

Tokyo University, School of Medicine, Japan: equipment for research in the Department of Internal Medicine, under the direction of Dr. Kazuo Shizume; \$3,300;

Dr. Ken Sugawara, Chemical Institute, Faculty of Science, Nagoya National University, Japan: to visit scientists in the United States and Europe; \$3,000;

Dr. I. Arthur Mirsky, chairman, Department of Clinical Science, School of Medicine, University of Pittsburgh, Pennsylvania: to visit research centers in Europe; \$2,675;

Dr. P. S. Sarma, professor of biochemistry, University of Madras, India: to visit centers of research in biochemistry in the United States; \$2,675;

National University of Mexico, Mexico City:

Dr. O. H. Wheeler; to spend a third year at the Institute of Chemistry in research on the physical-organic chemistry of natural products; \$2,500;

José Luis Mateos, Institute of Chemistry; to visit the United States and Canada to study infrared spectroscopy; \$2,000;

Dr. P. G. H. Gell, Department of Experimental Pathology, University of Birmingham, England: to visit laboratories of experimental pathology in the United States; \$1,700;

University of Aix-Marseilles, Faculty of Sciences, France: to invite Professor Akira Yoshida, Department of Chemistry, Tokyo University, Japan, to continue studies in the Laboratory of Biochemistry; 540,000 French francs (about \$1,600);

Dr. Henry R. Mahler, Indiana University, Bloomington: to conduct research in enzyme chemistry at the Faculty of Medicine, University of São Paulo, Brazil; \$1,200;

Dr. S. R. Elsden, head, Department of Microbiology, University of Sheffield, England: to visit laboratories of microbiology in the United States; \$950;

University of Gröningen, Netherlands: equipment for protein research, under the direction of Professor Max Gruber; \$900;

Dr. Peter M. Nossal, reader in biochemistry, University of Adelaide, Australia: to complete studies in the United States; \$435.

Biophysics

UNIVERSITY OF COLORADO

BIOPHYSICS

Seven years ago the Medical School of the University of Colorado, Boulder, established a separate Department of Biophysics for instruction and research in this rapidly advancing field. Since that date the department, under the direction of Dr. Theodore T. Puck, has made outstanding progress.

Concerned primarily with biological problems but using the tools of advanced physics and chemistry, Dr. Puck and his group have concentrated on study of the physical properties of cell surfaces and of the events which accompany the

transport of substances across the cell wall. Their contributions to understanding of the ways bacteriophage and virus particles attach themselves to cell surfaces during the process of infection, and the means by which antibodies prevent such attachments, are of wide importance.

Recently Dr. Puck and his associates devised a new and ingenious method for cultivating individual animal cells on culture plates which has facilitated accurate analysis of reproductive rates under varying conditions. The new method will make possible repetition on mammalian material of many of the most revealing genetic experiments conducted by bacterial geneticists during the past two decades, and may well open up new areas of research to exploration.

Toward support of the biophysics research program at the University of Colorado, The Rockefeller Foundation has appropriated \$85,000 for use during the next five years.

OTHER GRANTS

University of Helsinki, Finland: research in biophysics and cytochemistry in the Institute of Forensic Medicine, under the direction of Professor Unto Uotila; \$19,500 for a two-year period;

University of Graz, Austria: research on the structure of proteins and fats in the Institute for Theoretical and Physical Chemistry, under the direction of Professor Otto Kratky; \$15,000 for a two-year period;

University of Utrecht, Netherlands: equipment for research in plant physiology by the Biophysical Research Group of the Laboratory of Physics; \$12,000;

University of Chile, Santiago: research in biophysics in the Department of Medical Physics, School of Medicine; \$10,000;

Indian Cancer Research Centre, Bombay: equipment for research in biophysics, under the direction of Dr. K. S. Korgaonkar; \$7,000;

University of Rio Grande do Sul, Institute of Biophysical Researches, Porto Alegre, Brazil: research and training of the institute staff, under the direction of Dr. C. V. Tondo; \$6,500;

Federal Technical Institute, Zurich, Switzerland: equipment for research in plant cytology, under the direction of Dr. Fritz Ruch, Institute of Plant Physiology; £1,200 (about \$3,500);

Dr. Robert Barer, Department of Human Anatomy, University of Oxford, England: to visit centers of research in electron microscopy in the United States; \$1,900;

Professor and Mrs. René Wurmser, Laboratory of Biophysical Chemistry, University of Paris, France: to discuss with American scientists, while in the United States, their research on the physical chemistry of isoagglutinins and the structure of chlorophylls; \$750.

Virology

WASHINGTON UNIVERSITY

RESEARCH IN VIROLOGY

A recent landmark in virological research, accomplished independently in Professor Barry Commoner's laboratory at Washington University and in another laboratory, was the separation of tobacco mosaic virus into two components, one nucleic acid and the other a characteristic protein, and their recombination into an active virus. Though the reconstituted virus exhibited only a small percentage of the activity to be expected if all of the two components had recombined appropriately, workers in Professor Commoner's laboratory have recently produced recombinant virus with far greater activity than was previously obtained.

The Washington University group has also shown that previously reported differences in the composition of TMV nucleic acid are real rather than due to differences in analytical methods. By separating these nucleic acids and recombining them with TMV protein, apparently new viruses producing different diseases in tobacco have been obtained. If a

virus is actually a combination of slightly different strains, adaptation to a host and changes in virulence may well be a process in which the strain most suited to existing conditions tends to outgrow the others. Further, one may at least speculate that adaptation of a particular virus to the cells of a particular host is related to a similarity between their nucleic acid structures.

One of the most prominent of the research laboratories contributing toward understanding of the nature of viruses, that of Professor Commoner at Washington University, St. Louis, Missouri, has received aid from the Foundation since 1950. A new Foundation grant of \$165,000, made during 1956, will contribute toward general support of Professor Commoner's research program through the period ending June, 1960.

UNIVERSITY OF MALAYA

RESEARCH IN VIROLOGY

The Department of Bacteriology at the University of Malaya—one of the important units in the world-wide system investigating arthropod-borne virus diseases—has devoted itself to a study of Japanese B encephalitis for the past four years. The disease is endemic in Malaya, where cases occur throughout the year. In addition Malaya may be the "nursery" from which it spreads to such areas to the north and south as the Japanese Islands and the Murray Valley of Australia. In these other regions it is very difficult to find in the winter months but in summer it frequently causes epidemics.

In the past several years, Dr. James H. Hale and his associates at the university have discovered that Japanese B is transmitted by a mosquito which feeds by preference on cattle and pigs and on man only in the absence of these animals, and that over 95 per cent of the pigs on Singapore

Island possess antibodies immunizing them against it, indicating the mosquito carrier has bitten them. Part of their research in the next several years will be devoted to finding out whether young pigs, bitten by infected mosquitoes during a brief period of nonimmunity, circulate virus long enough to act as a reservoir for the infection of subsequent mosquitoes. If the hypothesis proves correct, how Japanese B maintains itself continuously in Malaya will be explained.

The department plans also to investigate the behavior of Japanese B and other viruses in neighboring regions. Toward the support of these and related projects during the next five years, The Rockefeller Foundation has appropriated 191,580 Malayan dollars and \$10,000 (about \$73,800) to the University of Malaya, Singapore.

WALTER AND ELIZA HALL INSTITUTE OF
MEDICAL RESEARCH

RESEARCH IN VIROLOGY

Associated with the Royal Melbourne Hospital and with the University of Melbourne Medical School, the Walter and Eliza Hall Institute of Medical Research, Australia, is internationally known for its work on the nature of viruses. Basic researches on the genetics and chemistry of viruses are being carried on as well as a series of clinical and epidemiological studies of diseases of practical importance such as rubella, mumps, herpes, and Murray Valley encephalitis.

The program dealing with various phases of virus research is under the supervision of Sir MacFarlane Burnet, a leading investigator of the biology of viruses and director of the institute. Sir MacFarlane's own studies on the genetics of influenza viruses have resulted in a series of highly important findings.

Foundation support of the Australian institute, which

began in 1934, will be continued for the next eight years by a new \$60,000 grant.

CORNELL UNIVERSITY MEDICAL COLLEGE

RESEARCH IN VIROLOGY

Today when modern methods of therapy are changing the character and manifestations of infectious diseases and altering host-parasite relationships, the circumstances which determine bacterial and virus latency or activation become increasingly important. Studies of virus latency based on the concept of a dynamic balance between host and parasite are not only important to an understanding of certain practical problems of chronic and recurrent disease, but also bear on the fundamental nature and properties of viruses.

The mechanism of bacterial latency and reactivation has been a major long-term research interest of the Department of Public Health of the School of Medicine of Cornell University. This interest is being broadened by the inclusion of work on the analogous general problem of latent viral infections. Dr. Edwin D. Kilbourne, who recently joined the department, will be in charge of the new program.

In 1956 The Rockefeller Foundation appropriated \$48,000, available during a two-year period, to Cornell University for the use of Dr. Kilbourne and his associates in the division of virus research of the Medical College, New York.

THE VIRUS RESEARCH PROGRAM

The virus research program of The Rockefeller Foundation is concerned essentially with study of the incidence, clinical manifestations, and epidemiology of the arthropod-borne (arbor) virus diseases of man and his domestic animals throughout the world. To achieve this objective, the

work of The Rockefeller Foundation Virus Laboratories in New York is coordinated with that of field stations established in South America, Africa, and India. At present, five field laboratories are in operation. Two units are located in South America : one at Port-of-Spain, Trinidad, maintained in collaboration with the Health Department of the Government of Trinidad and Tobago and the Colonial Research and Development Scheme; the other at Belém, Brazil, operated in conjunction with the Serviço Especiales de Saúde Pública. In the Union of South Africa, at Johannesburg, a unit is maintained in cooperation with the South African Institute for Medical Research. In India, a station at Poona is operated jointly with the Indian Medical Research Council. In Berkeley, California, a unit is working in cooperation with the State Department of Health. For the support of the virus research program during 1957, the Foundation appropriated \$827,750 in 1956.

At the initiation of the Rockefeller Foundation virus program very little was known concerning the number, distribution, and prevalence of the arthropod-borne virus diseases. Consequently, one of the first objectives of the field stations is to determine what viruses are present in the region. To obtain this information, an attempt is made to isolate virus strains from humans suffering from febrile diseases of unknown origin, from wild-caught mosquitoes and other arthropods, or from the blood of sentinel animals. The application of these methods has resulted in the isolation of a great number of virus strains in all the field stations. Some of these are, of course, identical to known viruses. However, many appear to be new to science. It is apparent that in nature there are a large number of arthropod-borne viral agents many of which are capable of infecting man. The extraordinary prevalence of these agents is shown by the results obtained in the Amazonian rain forest near Belém. Over a period of approximately two years the sci-

entists in Belém have isolated more than 140 viral agents.

The development of hemagglutination and hemagglutination-inhibition techniques has been the greatest aid in the classification of the viral strains. By the use of these methods it has been shown that many of the agents isolated near Belém constitute an entirely new group of viruses. The group has been provisionally called "group C" of arbor viruses. It will be recalled that previously two groups, A and B, had been established which included most of the arbor viruses known at the time. To group A belong the three equine encephalomyelitis viruses and Sindbis, Mayaro, Chikungunya, and Semliki Forest viruses. In group B are included such important causes of human infection as yellow fever, dengue, St. Louis encephalitis, Japanese B encephalitis, West Nile, and other viruses. Of the viral agents isolated in the Belém area, 34 strains isolated from man, sentinel animals, and mosquitoes have been shown to be members of group A. These agents have been identified as either Eastern or Venezuelan equine encephalitis virus or as strains of the Mayaro virus. Thirty-three Belém agents have been placed in group B. With one exception, all these proved to be strains of yellow fever. The one exception has not been definitely classified, but work to date indicates that it is probably a strain of St. Louis encephalitis. Forty-seven strains have been assigned to the newly established group C.

Apart from the strains of virus which have been classified as belonging to the three groups mentioned above, 27 Belém strains under study have not been classified to date. From none of these was it possible to prepare hemagglutinins. However, studies employing complement-fixation and neutralization tests indicate that in all probability two additional, entirely new groups of agents are present.

The tropical rain forest is the region of the earth where the arthropod-borne viruses are most prevalent. This is to be expected owing to the favorable climatic conditions

found there. The tropics are distinguished from other regions of the earth by the abundance not only in number but in species of animal and insect life. As it is probable that all the arbor viruses are maintained in nature by cycles involving arthropods as well as vertebrates, it is clear that in the tropics the conditions are most favorable for the maintenance of these cycles. By a process of diffusion from the tropics it is likely that some of these viruses have extended their range into the more temperate zones of the world.

The Belém studies have been chosen as an example of the variety of different agents which can occur in a distinct ecological zone. Studies in Trinidad have given a great deal of information concerning the prevalence of human infections which may occur. Of particular interest here is the work on the incidence of infection to two agents, Ilhéus and dengue viruses. Survey studies on the distribution of antibodies indicated that infection of man with the Ilhéus virus was largely confined to the lowland forested region of the island. The immunity rate to this virus was higher in males than in females, showing that in all probability the infection was acquired in the forest. In Sangre Grande—a region where the immunity rate to Ilhéus virus is high and, hence, where the infection is in all probability present—efforts were made to determine the type of disease this virus produced in man. Numerous attempts to isolate Ilhéus virus from the blood of humans suffering from fever were all without success, in spite of the fact that at the time of these studies several strains of Ilhéus virus were isolated from mosquitoes in the neighboring forest. It was apparent that the cause of the febrile infection prevalent at the time in Sangre Grande was not the Ilhéus virus. The possibility must also be considered that this infection in man may at times be entirely symptomless. Support for this supposition was obtained when a strain of Ilhéus virus was isolated from the blood of a mosquito catcher who at the time

showed no fever or any other signs or symptoms of illness.

A second infection very prevalent in Trinidad is dengue. Extensive serological studies in Port-of-Spain, the capital, have indicated that this infection is very prevalent there. In spite of its prevalence a clinical diagnosis of dengue is very seldom made. The majority of infections occur in children and it is possible that in children the infection may be very mild without the skin rash and fever that are seen in typical cases in adults. This is an excellent example of how prevalent an infection with an arbor virus can be without producing any serious manifest disease. It is becoming more and more evident that with many arbor virus infections the great majority of cases are mild. Severe clinical manifestations are the exception. In certain regions of the United States human infections with the St. Louis virus and Western equine encephalitis virus are comparatively common. Most of the infections are mild or even possibly completely without symptoms. However, on occasions both of these viruses can cause encephalitis which at times is fatal.

While of necessity the most intensive work by the field laboratories is done in regions most accessible to their laboratories, considerable information as to the presence and prevalence of the arbor viruses in more distant regions is obtained by serological studies on bloods collected in those regions. The development of the hemagglutination-inhibition tests has added a very important method for such surveys of immunity. By the use of this test information is very rapidly obtained as to the incidence and prevalence of antibodies to group A, B, and C agents. In some instances, the hemagglutination-inhibition tests are sufficiently distinctive so that a specific diagnosis can be made. These tests have shown that immunity to the Chikungunya virus is prevalent in Africa as well as in Malaya. This agent was originally isolated in Tanganyika by scientists of the Virus Research

Institute in Entebbe, Uganda, during a dengue-like epidemic. Recently workers of the same institute have isolated strains of Chikungunya virus in Uganda. The range of immunity to the Chikungunya virus in Africa extends from Tongaland in the south to Nigeria on the west coast.

Survey work to determine the geographical distribution of arbor viruses is being continually extended. In the Caribbean, it has been shown that antibodies to dengue are prevalent in Tobago, Trinidad, Grenada, and Puerto Rico. Epidemics caused by this virus have not been reported in recent years. It must, therefore, be assumed that this infection has become widely endemic. Epidemics of dengue are usually observed only when the infection is newly introduced into an area. If conditions are favorable for the year-round maintenance of the virus cycle, the disease becomes endemic. If, however, the infection is introduced into a more temperate region where the usual vector, *Aedes aegypti*, becomes very rare during the winter season, the epidemic will come to an end, and the infection will disappear completely. The prevalence of endemic dengue in the Caribbean is, thus, a constant threat to the United States where it is possible that in some of the southern states there are sufficient *Aedes aegypti* mosquitoes during the summer months to produce an epidemic. The last epidemic of dengue in the United States was in the summer of 1934 when many thousands of cases occurred. This outbreak was stopped by the advent of winter.

Extension of the serological survey studies has indicated that infection with dengue virus is exceedingly prevalent in many parts of the tropics. Antibodies to this virus are quite prevalent in East Africa in the Newala region of Tanganyika, as well as in Ilobi, a small town in the West African Federation of Nigeria. It seems likely that infections with dengue virus are very prevalent in tropical Africa. It is probable that dengue was introduced into the New

World with the slave trade from the West African coast. Epidemics of dengue were at one time prevalent in the Caribbean, and these epidemics must have occurred when the virus was newly introduced into the region.

The detailed serological study of human infections with the yellow fever virus which occurred in Trinidad and Belém has supplied valuable information concerning the interpretation of both the hemagglutination-inhibition and complement-fixation reactions. Yellow fever virus is a typical member of the group B family of arbor viruses. It was found that the serological response could be divided into two categories. In the first, hemagglutination-inhibition (HI) and complement-fixation (CF) tests were reasonably specific, enabling a definite diagnosis of yellow fever to be made with assurance. In the second category, the convalescent sera when tested against a variety of group B antigens gave high titers of HI and CF antibodies without any indication of specificity. This second type of reaction was interpreted as resulting from yellow fever infection in individuals who had previously been infected with an allied group B virus. In fact, good evidence was obtained that some of these cases of yellow fever had in fact been previously infected with either Ilhéus or dengue virus. These secondary cases differed from primary cases of yellow fever not only in the great overlap of HI and CF antibodies produced, but also in the development of neutralizing antibodies to heterologous group B viruses. Following a primary yellow fever infection, the development of heterologous protective antibodies was slight though definite. The diagnosis in these studies was unequivocably established by the isolation of yellow fever virus from all the patients.

Very good evidence has been obtained that the serological findings in yellow fever, making it possible to distinguish primary and secondary infections, are examples of basic laws applicable to any group B infections. These ob-

servations have supplied much needed information concerning the interpretation of HI and CF tests and have put these tests on a sound scientific basis. This will be of enormous advantage in the future for the interpretation of these tests, and should be of great value in the specific diagnosis of group B virus infections.

The systematic study of the immunological overlap between viruses of group B has suggested the hypothesis that an infection with any one member of the group leads to the production of antibodies not only to the infecting agent, but also to a greater or lesser extent to any other member of the group. That a solid immunity to a heterologous virus is not produced was clearly shown by the fact that infections with yellow fever occurred in individuals who had previously been infected with Ilhéus and dengue. However, the exceedingly rapid and massive production of antibodies to a variety of viruses is good evidence that these individuals were relatively immune.

The history of yellow fever and its distribution throughout the world are subjects of much speculation. It is one of the objectives of the Rockefeller Foundation virus program to explain, if possible, many of the unsolved riddles of this disease. It is hoped that eventually sufficient knowledge will be available to answer such questions as: Why has yellow fever disappeared from the Antilles, where epidemics of this disease were prevalent during the last century? Why have no epidemics of yellow fever occurred in East Africa, and why have India and Egypt never been infected? A possible answer to some of these questions may lie in the well-established immunological overlap between the virus of yellow fever and other group B agents. The prevalence and wide distribution of dengue infections throughout the tropics point to this disease as possibly producing a relative immunity to yellow fever. To examine this hypothesis the protective action against yellow fever of sera from humans

immune to dengue was tested. The protection or neutralization test used in these studies was a highly sensitive one making possible the demonstration of antibodies to yellow fever in sera which in the routine yellow fever test showed no protective action. By the use of this sensitive test it was clearly established that most human sera containing neutralizing antibodies to dengue are capable of protecting mice against yellow fever. Dengue immune sera which showed this action were obtained from Port-of-Spain, Trinidad; Tobago; Puerto Rico; Newala in Tanganyika; and Illobi in Nigeria. A similar protective action was shown by sera from the Amazon containing Ilhéus antibodies, sera from Egypt containing West Nile antibodies, as well as sera from India containing a variety of group B neutralizing antibodies. It is generally accepted that neutralizing or protective antibodies to an infective agent indicate some immunity to that agent. These studies, consequently, afford suggestive evidence that individuals who have had infections with Ilhéus, dengue, or West Nile viruses are relatively immune to yellow fever. It seems likely that the mildness of many cases of yellow fever results from the relative immunity produced by a previous group B infection. This may be the reason why yellow fever infections in many parts of Africa are often mild in the indigenous population, whereas in recent immigrants from Europe infections are often fatal. It is of interest in this connection to recall that Asibi, an African from whom a virus was isolated, was suffering from a very mild clinical case of yellow fever. Yet the virus isolated from Asibi was responsible for several severe and two fatal infections in laboratory workers. The possibility must also be considered that in a population largely immune to dengue or any other group B virus, an epidemic of yellow fever transmitted by *Aedes aegypti* is not likely to become established. This may be the explanation why this disease failed to establish itself in Port-of-Spain during the recent epidemic of jungle yellow fever in

Trinidad in spite of the fact that the yellow fever mosquito *Aedes aegypti* was very prevalent in the city. It is even conceivable that one of the reasons why yellow fever diminished in the Caribbean towards the end of the last century was that dengue had become endemic over a large part of that area.

OTHER GRANTS

University of Perugia, Italy: equipment for research on plant viruses in the Institute of Plant Pathology of the Faculty of Agronomy; \$15,000 for a two-year period;

East African Virus Research Institute, Entebbe, Uganda: equipment for research in virology; \$10,000;

King George's Medical College, Lucknow, India: research in virology in the Department of Pathology; \$10,000;

University of Cambridge, England: research in virology, under the direction of Dr. M. G. P. Stoker, Department of Pathology; \$10,000;

University of Padua, Italy: research in virology in the Institute of Pharmacology; \$10,000;

University of Geneva, Switzerland: research on the structure of viruses, under the direction of Dr. Edouard Kellenberger, Institute of Physics; \$9,500;

National Institute of Health, Tokyo, Japan: research in the Department of Virology and Rickettsiology, under the direction of Dr. Masami Kitaoka, director; \$7,700;

Kyushu University, Fukuoka, Japan: equipment for research in virology, under the direction of Dr. Kazuo Yamafuji, Agricultural Chemistry Institute, Agricultural College; 1,792,115 yen (about \$5,375);

Dr. Rosalind E. Franklin, Birkbeck College, University of London, England: to visit centers of research in virology in the United States; \$2,375;

Dr. A. Balasubramanian, medical officer, Pasteur Institute, Conoor, India: to visit centers of research in virology in the United States and Europe; \$1,950;

Arthur Edwin Green, virus technician, Trinidad Regional Virus Laboratory, Port-of-Spain: to visit The Rockefeller Foundation Virus Laboratories in New York; \$1,450;

Dr. Ambhan Dasaneyavaja, instructor in microbiology, Department of Pathology, Chulalongkorn Hospital, Bangkok, Thailand: to visit virus laboratories in India, Singapore, and Kuala Lumpur, Malaya; \$1,250;

Miss Jean Neff, Viral and Rickettsial Disease Laboratory, State of California Department of Health, Berkeley: to visit The Rockefeller Foundation Virus Laboratories in New York; \$725.

Special Projects

NATIONAL ACADEMY OF SCIENCES

STUDY OF THE EFFECTS OF ATOMIC RADIATION

Although there has been general recognition of the possible threat to living organisms posed by fall-out from tests of nuclear devices, from the large-scale use of such devices, and from atomic experimental and power installations, far too little is known about the real nature and the actual degree of the human hazards involved in the use of atomic energy. Recognizing the urgent need for fuller information about these hazards, the National Academy of Sciences, Washington, D.C., initiated a broad study of the possible dangers to present and future generations resulting from exposure to atomic and other radiations, with the hope of clarifying some of the biological issues and problems created by the atomic age. At about the same time the Medical Research Council of Great Britain began a similar study.

With the aid of several small Rockefeller Foundation grants in aid, made during 1955, and of a 1956 grant of \$250,000, the National Academy of Sciences established six panels, each composed of approximately twenty special-

ists in various fields, to study genetic effects, short- and long-range pathological effects, the disposal and dispersal of radioactive wastes, meteorological aspects, oceanographic aspects, and aspects relating to food and agriculture. Liaison officers, joint sessions, and overlapping membership on closely related panels provided coordination of the work. Throughout their study the panels had the full cooperation of the United States government, the Atomic Energy Commission, and industries connected with the atomic effort.

The first reports were published in April, 1956, and aroused widespread interest and concern on the part of the public, the press, and doctors and scientists whose professions involve the use of radiation. Copies of the report were widely circulated to interested agencies and individuals, and sent to every public library in the United States. The First International Congress of Human Genetics, held during the summer of 1956 under the sponsorship of the World Health Organization, recognized the gravity and accuracy of the National Academy of Sciences report in a resolution calling for greatly extended and intensified study of the dangers inherent in the use of nuclear energy.

The panels are now giving their attention to new problems revealed in their initial studies, and to the need to re-orient and focus scientific research on important aspects of atomic radiation which have not yet received adequate attention. Although their studies are expected to continue for some time to come, the panels will make full reports to the public as the work progresses.

NATIONAL RESEARCH COUNCIL AND THE LONDON
SCHOOL OF HYGIENE AND TROPICAL MEDICINE

STUDIES OF NUTRITION

Hundreds of millions of the world's inhabitants spend their lives in a marginal state of malnutrition due not to the

lack of small amounts of a single essential factor like a particular vitamin but to the inadequacy of total food intake or deficiencies in a relatively broad class of foodstuffs. Nutrition authorities familiar with conditions in underdeveloped countries are practically unanimous in agreeing that deficiencies in dietary protein constitute the outstanding nutritional problem.

A permanent improvement in the situation can be expected only if the quality and quantity of protein in indigenous diets can be augmented by increased production and utilization of local foods of good protein content.

Because greater knowledge of local products is necessary to attack the problem of protein deficiency, research on low-cost, protein-rich foods will be the object of two projects which The Rockefeller Foundation will assist during the next three years. A grant of \$250,000 to the National Research Council, Washington, D.C., will be used to study the nutritional value of proteins in products available to underdeveloped countries. The London School of Hygiene and Tropical Medicine in England will use a grant of £17,000 (about \$49,300) for research on the biological value of proteins in tropical foodstuffs.

The National Research Council will investigate highly nutritious protein foods, such as fish flour, and oil press cake from natural products like soybeans, sesame seed, peanuts, and cotton seed, which are potentially useful for human consumption but are now often wasted or insufficiently utilized. Surprisingly little is known about the suitability and adequacy for human nutrition of these and other sources of high-quality proteins, and their promotion for human feeding might be dangerous unless based upon sound laboratory research plus thorough field investigations within the food-deficient countries themselves. Wherever possible, work will be conducted in cooperation with leading nutrition scientists in the underdeveloped countries, so that

local research programs will receive additional benefit from the project.

The London School of Hygiene and Tropical Medicine will undertake extended research to determine the characteristics of tropical foods. Protein malnutrition in tropical countries is particularly serious since many of the dietary proteins come from plant sources which are, in general, inferior to animal proteins in biological value. The protein content of existing tropical foods will be ascertained and information obtained as to the amino acid composition and the biological value of these proteins.

CORNELL UNIVERSITY

STATISTICAL RESEARCH

A statistical research group has been organized in the Department of Public Health and Preventive Medicine of Cornell University Medical College, New York, for independent study and to aid medical investigators in the college, in the New York Hospital, and in the Sloan-Kettering Institute for Cancer Research.

The statistical design, analysis, and evaluation of medical research in progress at the three institutions will be aided by the group in its advisory capacity. As part of its independent work it will undertake improvement of the statistical procedures available for the treatment of certain specialized medical problems.

Dr. Irwin Bross, statistical consultant for the three institutions and assistant professor in the Cornell Medical College Department of Public Health and Preventive Medicine, will head the group. Toward its support over a five-year period, the Foundation in 1956 appropriated \$50,000 to Cornell University.

UNIVERSITY OF CHICAGO**STATISTICS FOR PRACTICING SCIENTISTS**

For the past five years professors in the Department of Statistics and in a number of other departments at the University of Chicago have been collaborating in an unusual training program in statistics for scientists in other fields. A grant from The Rockefeller Foundation has helped support the project since it began.

Biologists, physicists, or social scientists who want statistical training need individualized instruction on an advanced level, in line with the special nature of their fields. Just such training is being provided under the Chicago program, in part through the assistance of the cooperating professors, who are trained in advanced statistical techniques but whose own researches lie in such diverse areas as physics, psychology, economics, and genetics.

Seventeen postdoctoral scientists have studied under the program since it began, including a number to whom the university has granted fellowships and others with fellowships from such groups as the Social Science Research Council and the Fund for the Advancement of Education. Toward the costs of continuing the statistics program through the next five years, the Foundation in 1956 made a five-year grant of \$50,000 to the University of Chicago, Illinois.

OTHER GRANTS

University of Brazil, Research Center of Brazilian Geography, Rio de Janeiro: organization of special geography courses, under the direction of distinguished members of the 18th International Congress of Geography; \$10,000;

Fund for grants of amounts not exceeding \$500 for allocation under the supervision of the Director; \$5,000;

National University of Mexico, Institute of Mathematics, Mexico City: expenses of selected young mathematicians from various countries of the Americas while participating in the International Symposium on Algebraic Topology; \$2,600;

M. J. R. Healy, principal scientific officer, Statistics Department, Rothamsted Experimental Station, Harpenden, England: to visit centers of computer and statistical work in the United States and Canada; \$2,275.

AGRICULTURE

ALTHOUGH there are temporary agricultural surpluses in a few countries, in the world at large food is still in short supply. Lack of food may result from climatic or other conditions which hold down local production, or from economic limitations. Whatever the cause, those countries which desire assistance in the development of their agricultural resources should receive it in ways which are effective and in phase with the customs and desires of the people who live in them.

The agricultural program of The Rockefeller Foundation is designed to provide assistance, in the several critical and strategic aspects of agricultural science and development, where opportunity offers and resources permit. In keeping with the necessity for maximum flexibility, this assistance takes several forms: training programs for professional personnel; the establishment and operation of co-operative area research projects; and the financial support of research which may broaden the frontiers of agricultural science. The Foundation's activities are world-wide in the sense that they are, or can be, located wherever the needs and opportunities are most apparent and where results can be most effectively utilized on a regional basis.

Because agricultural development is a composite of many interrelated sciences, the Foundation's program takes as many of them as possible into consideration. Thus, em-

phasis is given to such disciplines as pathology and entomology, through whose application crops and animals are protected from devastating attacks by diseases and pests; to soil sciences, for the improvement of soils and their management to provide higher and sustained levels of economic crop production; to biology and biochemistry, for a fuller understanding of basic growth and reproduction. The broader fields of conservation, climatology, and the utilization of solar energy are included as nonconventional aspects of agricultural science. Similarly, research on the better utilization of arid lands and on more effective knowledge of marine biology may be expected to pay dividends in increased food supplies for a growing world population. Included also is a search for information as to how scientific agriculture may be adapted to tropical areas long resistant to domestication, and to the rejuvenation of lands which, though badly managed in the past, must serve to support future generations.

The Rockefeller Foundation's investment in the agricultural sciences is integrated with those it makes in the other scientific disciplines represented in its work. In many parts of the world the problems of public health and of agriculture are so closely related that they can be solved only through joint attack. In others, factors within the purview of the social sciences bear directly upon the patterns of agricultural production, and vice versa. Research in basic biology and in medicine frequently produces new ideas, information, and tools useful for all the sciences which deal with living organisms. Conversely, the problems encountered in efforts to increase world food supplies present appealing challenges to those concerned with the fundamental principles of metabolism. There are thus great opportunities for collaboration among disciplines with multiple benefits to the countries concerned.

In recognition of the fact that the Foundation's re-

sources are modest as projected against total needs, every effort is made to use them in ways which yield information and patterns of broad applicability. It is hoped that the projects the Foundation initiates may subsequently attract support from other sources on an increasing scale, for the general benefit of mankind.

Aid to Research and Teaching

UNIVERSITY OF CHILE

COLLEGE OF AGRICULTURE

To help alleviate the shortage of agronomists in Chile, a largely agricultural country, the University of Chile in Santiago has embarked on a major development program involving the establishment of a new College of Agriculture, an agricultural experiment station, and a new building for the Faculty of Veterinary Medicine.

In the five-year period estimated as needed for completion of the building program, the university plans to transfer both teaching and research in agriculture from previous headquarters in Santiago to a new rural center known as "La Rinconada" where students will be able to add practical work in agriculture to their academic studies. The College of Agriculture now trains approximately 200 students yearly. With the new teaching and experiment station facilities at La Rinconada, this number is expected to double within the next ten years, and the present faculty of about 40 full- and part-time professors will also be increased substantially.

Toward the costs of equipment needed in the new center at La Rinconada and in the building for the Faculty of Veterinary Medicine being constructed in Santiago, The Rockefeller Foundation during 1956 appropriated up to

\$300,000 to supplement funds set aside by the University of Chile and provided by the Chilean government for the same purpose. Chile is one of three Latin American countries where the Foundation, in cooperation with the governments concerned, has established research programs in agriculture.

UNIVERSITY OF THE PHILIPPINES

COLLEGE OF AGRICULTURE

During the past five years enrollment in the College of Agriculture of the University of the Philippines has increased from about 500 to over 3,700—a reflection of its rapid recovery from war damage. As the local student population has grown, a demand has developed for services to other Southeast Asian countries and presently more than 50 foreign students, principally from Indonesia, Thailand, and Vietnam, are attending the school.

To enable the college to build a dormitory with living accommodations and dining halls for the increasing numbers of students from abroad, the Foundation has made a three-year grant of \$250,000 to the University of the Philippines. The appropriation complements housing assistance being given by the Philippine government, which is contributing funds to construct dormitories for Filipino students.

A lack of facilities for relaxation and social activity, in combination with crowded living conditions, is a particular hardship for young people removed from their native countries for the first time. The new building will both solve this problem and, since a group of Filipino students will share it with the group from abroad, serve to promote greater understanding among people of the Philippines and other countries in the region.

Rooms will be included in the new structure for up to 12 visiting scientists—facilities not now available elsewhere on the campus. The college will contribute ground and land-

scaping, and set up the income from the dormitory as a rotating fund for its maintenance.

Since 1952 Cornell University has been working closely with the school in Los Baños through an International Cooperation Administration contract. The joint efforts of the regular Filipino staff and ten to fourteen Cornell faculty members in residence since the agreement began have led to enlarged and strengthened research and teaching programs which have attracted attention in many Asian countries. The college has been assisted previously by the Foundation through grants totaling more than \$177,000.

RURAL UNIVERSITY OF THE STATE OF MINAS GERAIS

SCHOOL OF AGRICULTURE

The School of Agriculture of the Rural University of the State of Minas Gerais, in eastern Brazil, has maintained a careful balance between theory and practice in its curriculum throughout its more than thirty-year history. Graduates of the school fit readily into the research and demonstration programs of Brazilian federal and state agricultural agencies and are in great demand throughout the country.

Situated in the country near the small town of Viçosa, where it has sufficient land and buildings to provide housing, instruction, and field work for about 300 students, the school is the official state college of agriculture for Minas Gerais. Its national role now and for the future is related to the rapidly expanding agriculture of the entire country, which is creating a demand for agricultural scientists and technicians much heavier than ever before and larger than the available educational facilities can meet.

For the continued development of the School of Agriculture and the agricultural experiment station, the Foundation in 1956 made a three-year grant of \$200,000 to the Rural University. Increased support from local sources will

further supplement the school's regular budget during the period of the grant, which renews aid previously given to the Rural University for teaching and research in the fields of agriculture, veterinary medicine, and domestic science.

CALIFORNIA INSTITUTE OF TECHNOLOGY

EARHART PLANT RESEARCH LABORATORY

Extensive information is available in agricultural science concerning the general effects of heat, cold, diurnal fluctuations in temperature, and other climatic factors upon crop yields and upon the ability of a particular plant to grow in a particular region. Until recent years, however, virtually nothing was known about the chemical mechanisms through which unfavorable climatic conditions limit plant growth. It now appears that when these mechanisms are better understood, plants may be enabled, through chemical applications, to adapt to normally damaging or even lethal events in the environment.

In one of the first major research programs to be devoted to the subject, the Earhart Plant Research Laboratory at the California Institute of Technology, Pasadena, is investigating the ways harmful climatic changes bring about injury to plants. The ability of plants to synthesize amino acids, their mechanisms for building higher molecular weight compounds, their normal metabolic activity, and other functions that may be affected are under study. Subsequently research will be undertaken to determine how far treatment with certain metabolites may be able to modify plant responses.

The California investigators previously demonstrated that applications of specific chemicals they had isolated and identified enabled pea plants to survive usually deadly temperatures of 35° centigrade. They also found that peas and rye may not need low temperatures for the vernalization

process if they are treated with guanosine, or to a lesser extent with other nucleosides.

The Earhart Laboratory, also known as the "Phyto-tron," is one of the leading centers in the country for the study of plant growth under carefully controlled conditions. The new program, under the direction of Dr. F. W. Went and Dr. James Bonner, will involve the maximum use of its facilities and personnel and will also engage research workers from other sections of the institute's Division of Biology.

The Foundation has assisted the institute since 1953 with grants totaling more than \$1,540,000, and in 1956 contributed toward support of the new study with a five-year appropriation of \$111,900.

BOYCE THOMPSON INSTITUTE FOR PLANT
RESEARCH, INC.

STUDIES OF FUNGICIDE ACTION

Investigation of more precise methods for the control of fungus diseases of plants, an issue of importance in increasing the world's production of food, is one of the major interests of the Boyce Thompson Institute for Plant Research directed by Dr. George E. McNew. Research at the institute, carried out along lines suggested by results obtained by Doctors L. P. Miller, S. E. A. McCallan, and R. G. Owens, has focused on the molecular mechanisms by which fungicides produce their effects in controlling plant diseases.

In an effort to supplement empirical knowledge with greater scientific understanding of fungicide action, the research group at the institute have been studying the modifications in the biological effects of fungicides brought about when minor changes are made in the composition or atomic arrangement of the organic compounds being used. Radioactive ions and labeled molecules are employed to measure the penetration of fungicides into fungus spores and mycelia and to trace their action on plant disease agents.

To give partial support to this research project over the next five years, The Rockefeller Foundation made a grant of \$105,000 to the Boyce Thompson Institute for Plant Research, Inc., Yonkers, New York.

NATIONAL SCHOOL OF AGRICULTURE

The National School of Agriculture, La Molina, Lima, Peru, is one of the largest centers for agricultural research and training in Latin America. The school is distinguished for having developed an animal husbandry curriculum together with its research and teaching program in plant science, and for its emphasis on field and laboratory training along with academic work.

To help solve the most urgent problems facing Peruvian agriculture, a major portion of the school's research has been concentrated on improving basic food crops, especially small grains and corn. In addition, investigations are currently under way on beef cattle production and on the improvement of beef quality in Peru. To prepare its students to meet the country's agricultural needs, the school recently established a postgraduate curriculum to strengthen its agricultural research activities and to offer an opportunity for advanced study.

In support of the combined program of research and postgraduate instruction, The Rockefeller Foundation in 1956 appropriated \$87,000 for a three-year period. Previous Foundation grants, totaling \$95,500, to the National School of Agriculture have aided in the general development of the College of Advanced and Postgraduate Studies and of research on cereals.

BALWANT RAJPUT COLLEGE

AGRICULTURE

Balwant Rajput College in India, affiliated with Agra University, offers instruction in the arts, the sciences, com-

merce, and agriculture. The college has a long record of interest in the educational needs of rural people, and is contributing to the improvement of village life by successfully bridging the gap between agricultural theory and local practice.

Recently the college acquired a 436-acre experimental farm and is moving its agricultural activities to this new location. To assist the college in its program of aid to rural students and in its development of an agricultural training center, The Rockefeller Foundation has made two grants totaling \$80,000. A scholarship and revolving loan fund for local students will be provided by an outright grant of \$10,000. The second appropriation of \$70,000 will be used over a three-year period for building and equipping classrooms, laboratories, and a library at the new site of the College of Agriculture.

UNIVERSITY OF RIO GRANDE DO SUL

PLANT SCIENCE

The Brazilian state of Rio Grande do Sul, an important agricultural region in the production of livestock and of staple crops such as corn, wheat, and rice, is taking a major step to improve the quantity and quality of cattle and other domestic animals. In view of the growing demand for meat products throughout Brazil, the State Secretariat of Agriculture and the University of Rio Grande do Sul, Pôrto Alegre, are embarking on a joint research program on range management, soil improvement, forage crop breeding, and animal husbandry. Dr. José Grossman, a former Foundation Fellow who holds a teaching post at the university and a research post in animal husbandry in the Secretariat of Agriculture, will direct the collaborative effort.

To help carry out the project the university has created a new Institute of Forage Crops Studies, and the Secretariat of Agriculture is making available its Animal Husbandry

Laboratory as well as the facilities at four of its experiment stations throughout the state. Research workers from both institutions will carry out the various phases of the program.

The Rockefeller Foundation will contribute \$75,000, available over a three-year period, toward support of the new research program at the University of Rio Grande do Sul.

CATHOLIC UNIVERSITY OF CHILE

AGRICULTURAL PROGRAM

The great majority of the agronomists needed to carry forward the agricultural development of Chile are trained at the University of Chile and at the Catholic University of Chile, both in Santiago. During 1956 the Foundation made a grant to the University of Chile to assist it with a major building program. In 1956 the Foundation also assisted the Catholic University of Chile in the expansion of its agricultural program with a grant of \$68,000, available through September 30, 1959.

Within the past few years the Catholic University has broadened its program to include work at an agricultural experiment station a few miles outside Santiago and at several rural centers in representative areas. Its program is oriented toward the training of young people in rural areas, and thus reaches sectors of the population which might not otherwise receive opportunities for formal agricultural training. Graduates of the university are in great demand because of the soundness of their training and the critical need for increased numbers of agronomists in Chile.

UNIVERSITY OF MINNESOTA

WHEAT AND ITS PATHOGENS

One of the most fundamental discoveries about the genetics of stem rust fungus in the last quarter-century is

that heterocaryosis (two or more different nuclei per cell) and nuclear dissociation occur in the vegetative stage of the life cycle of rust. This discovery is among the recent accomplishments of a research program on wheat and its important pathogens directed by Dr. J. J. Christensen and Dr. W. M. Myers at the University of Minnesota.

The part heterocaryosis and nuclear dissociation play in the production of virulent races of stem rust and also of other pathogenic fungi, those in particular in which the sexual stage is unknown, will be further explored in the next three years with the aid of a second grant of \$60,000 from The Rockefeller Foundation. In addition to the genetics of stem rust, the morphological and physiological characteristics of wheat involved in rust resistance are being studied, and large stocks of chromosome substitution lines of wheat needed in this work are being developed and tested.

The current program is one of a series on wheat and its pathogens in the Departments of Plant Pathology and Botany and of Plant Genetics and Agronomy which over a period of years have helped make the University of Minnesota a leading center in the production and maintenance of high-yielding, commercial varieties resistant to rust.

INTER-AMERICAN INSTITUTE OF
AGRICULTURAL SCIENCES

ANIMAL HUSBANDRY

For some years Dr. Jorge de Alba, director of the animal husbandry program of the Inter-American Institute of Agricultural Sciences in Turrialba, Costa Rica, has headed a project on dairy cattle breeding based on study of the native or "criollo" cattle so well adapted to the tropical areas of Latin America. Now, with his associates—a livestock manager, a nutrition specialist, and a consulting veterinarian—Dr. de Alba proposes to extend the influence of

this animal husbandry work by initiating a program of post-graduate training for young Latin American scientists.

The students' course work in management practices, breeding improvement, pest and disease control, and nutrition will be supplemented with research projects on pasture management and the improvement of criollo cattle. Collateral courses in related fields will be included in their work.

Toward the expenses of approximately five students yearly during the next six years, The Rockefeller Foundation has made a grant of \$58,500 to the Inter-American Institute of Agricultural Sciences.

KASETSART UNIVERSITY

TEACHING AND RESEARCH

In Thailand, a predominantly agricultural country, the demand is continually increasing for greater numbers of agricultural scientists, teachers, and extension workers to carry out plans for agricultural development. The vast majority of these are trained at Kasetsart University in Bangkok which, aided by the Government of Thailand, is making rapid progress in expanding its agricultural program. During the past few years the university has established a full curriculum in agriculture, including extension activities, and has constructed a number of new buildings equipped with research laboratories. Its faculty, many of whom have been trained in the United States, now number 100, and its enrollment has risen to more than 1,000 students.

To help Kasetsart University continue the development of its agricultural program, largely through the acquisition of research equipment and materials, the Foundation in 1956 appropriated \$50,000 for use over a two-year period.

UNIVERSITY OF COSTA RICA

TEACHING AND RESEARCH

The Faculty of Agronomy of the University of Costa Rica, San José, is located in a region where the shortage of agronomists, felt generally throughout Latin America, is particularly severe. With 31 faculty members, including 25 full-time appointees, for a student body of about 200, the school is able effectively to include research activities in its teaching program. Its graduating classes are an important source of personnel for agricultural extension and research agencies throughout Central America.

The Costa Rican Ministry of Agriculture recently made arrangements to transfer its agricultural research functions to the university. As a parallel development, laboratory facilities in the present agriculture building are being improved, and a new building is being constructed to provide more laboratory space for teaching and research in soils, plant physiology and pathology, entomology, and chemistry. Toward the costs of equipment, laboratory materials, and other supplies for the new building, the Foundation in 1956 made a three-year grant of \$50,000.

KANSAS STATE COLLEGE

BIOCHEMICAL RESEARCH

The deterioration of stored grain is a food problem of world-wide importance. Very little is known, however, of the basic biochemical and physiological changes occurring in stored grain and of the enzyme systems associated with these processes—factors which influence the life span and nutrient qualities of stored seed. A study of this comparatively unexplored area will be undertaken by a group at the Kansas State College under the leadership of Dr. Max Milner, distinguished cereal chemist.

To help finance this three-year project, The Rockefeller Foundation appropriated \$36,000 to Kansas State College, Manhattan.

IOWA STATE COLLEGE

NEMATOLOGY

Control of losses in economic crop plants caused by nematodes, a class of worms extremely common in many agricultural soils, is one of the important factors in the increase of agricultural production in a number of different parts of the world. To gain greater understanding of the over-all biological problems caused by nematodes and related groups of soil organisms, and of their possible long-range impact on agricultural practices, Dr. J. H. Lilly, a leading authority on the biology of certain major groups of soil fauna, has planned a three-year study of the distribution and ecology of soil nematodes under Midwestern conditions.

Dr. Lilly and his research assistants at Iowa State College will concentrate on study of the relationships between soil factors and free-living nematode populations, and on investigation of the complex relationships existing between nematodes, soil-borne insects and mites, and crop plants.

A grant of \$24,000 from The Rockefeller Foundation to Iowa State College, Ames, will be used toward the project's expenses during the next three years.

OTHER GRANTS

Biochemical Institute of the Foundation for Chemical Research, Helsinki, Finland: research on anti-fungal factors; \$20,000 for a two-year period;

Purdue University, Purdue Research Foundation, Lafayette, Indiana: study of senescence in plants, under the direction of Dr. A. C. Leopold; \$18,000 for a three-year period;

West Virginia University, Morgantown:

Research on the physiology of fungi in the Departments of Plant Pathology and Biochemistry; \$18,000 for a two-year period;

Dr. Mannon E. Gallegly, Department of Plant Pathology, Bacteriology, and Entomology; to study potato late blight organisms in Mexico; \$1,650;

Ministry of Agriculture, National Service of Agronomic Research, Rio de Janeiro, Brazil: a research program in soils, genetics, and irrigation; \$15,000;

University of Florida, Gainesville: expansion and redirection of its Latin American student counseling service in agriculture; \$15,000;

Virginia Polytechnic Institute, Blacksburg: development of a research program in veterinary physiology and animal nutrition; \$15,000 for a two-year period;

Rowett Research Institute, Aberdeen, Scotland: equipment for research in animal nutrition; £4,900 (about \$14,000);

Biology Institute of Bahia, Salvador, Brazil: research on animal viruses; \$12,500;

Ohio State University, Columbus:

Research on the process of translocation in plants, by the Department of Botany and Plant Pathology; \$12,100 for a two-year period;

Research on insect sounds by the Department of Zoology and Entomology; \$6,500;

Allahabad Agricultural Institute, India:

Support of the agricultural research program; \$10,000 for a two-year period;

Professor Connayil M. Jacob, associate professor of agricultural engineering; to undertake graduate study in agricultural engineering at Iowa State College, Ames; \$4,000;

Central University, Quito, Ecuador: bacteriological equipment and supplies for the Faculty of Agronomy and Veterinary Medicine; \$10,000;

Department of Scientific and Industrial Research, Auckland, New Zealand: scientific equipment and supplies for the Divisions of Plant Diseases and of Fruit Research; \$10,000;

Institute of Agriculture, Anand, India: books and journals for the library; \$10,000;

Institute of Biology and Technological Research, Curitiba, Brazil: equipment and supplies for research in entomology; \$10,000;

Kasetsart University, Bangkok, Thailand:

Textbooks, reference books, journals, and library materials; \$10,000;

Prince M. C. Chakrabandhu, vice-rector, and his consort, Mom Vibha Chakrabandhu, head, English Department; to observe the work being done in university administration at a number of leading colleges and universities in the United States, and to visit Japan and Western Europe; \$9,200;

Latecunga Practical School of Agriculture, Ecuador: laboratory and field equipment and supplies; \$10,000;

Mexican Institute of Natural Renewable Resources, Mexico City: arid lands research in northeastern Mexico; \$10,000;

National Institute of Genetics, Misima, Japan: books and journals for the library; \$10,000;

National School of Agriculture and Livestock, Managua, Nicaragua: laboratory and field equipment; \$10,000;

Pan American Sanitary Bureau, Washington, D.C.: Institute of Nutrition of Central America and Panama, Guatemala City, Guatemala: to secure the services of a microbiologist, a technician, and a statistical clerk, and to purchase miscellaneous equipment; \$10,000;

Practical School of Agriculture, Duale, Ecuador: equipment, books, and laboratory supplies; \$10,000;

State Secretariat of Agriculture, Industry, and Commerce, Pôrto Alegre, Brazil:

Equipment for the Institute of Veterinary Investigations, Guaiba; \$10,000;

Equipment for the Central Laboratory of Agricultural Technology; \$8,000;

Research in the Department of Plant Production; \$4,000;

State Secretariat of Agriculture, São Paulo, Brazil:

Technical books and periodicals for the Institute of Agronomy; \$10,000;

Equipment for plant virus research in the Institute of Agronomy; \$2,000;

Equipment for the Institute of Biology; \$1,800;

University of Caldas, Manizales, Colombia: an ambulatory clinic for the Faculty of Veterinary Medicine and Animal Husbandry; \$10,000;

University of Concepción, Chile: equipment and supplies for the soils, entomology, plant pathology, and animal nutrition laboratories of the Faculty of Agronomy; \$10,000;

University of San Marcos, Faculty of Veterinary Medicine, Lima, Peru: toward the establishment of a poultry disease diagnostic laboratory; \$10,000;

University of the Punjab, Lahore, Pakistan:

Books, films, and other teaching aids for the College of Animal Husbandry; \$9,750;

Books, journals, and library materials for the College of Home and Social Science; \$9,500;

American Phytopathological Society: to hold plant pathology symposia at its fiftieth annual meeting to be held in conjunction with the American Institute of Biological Sciences in 1958; \$9,000;

Central Luzon Agricultural College, Nueva Ecija, Philippines: laboratory equipment and supplies for use in science courses; \$9,000;

State College of Washington, Pullman: Dr. E. S. E. Hafez, Faculty of Agriculture, Fouad University, Giza, Egypt; to participate at the college in fundamental studies on animal nutrition and breeding; \$9,000;

Plant Breeding Institute, Castelar, Argentina: laboratory equipment; \$8,000;

Institute of Veterinary Investigations, Guayaquil, Ecuador: equipment and supplies; \$7,500;

University of Maine, Orono: research in helminthology, by Dr. Gordon E. Gates; \$6,500;

Forest Products Laboratory, College, Laguna, Philippines: books, periodicals, and library materials; \$6,000;

University of the Republic, Faculty of Agronomy, Montevideo, Uruguay: research on grasshopper control, by Ing. A. Silveira Guido; \$6,000;

University of San Simón, Faculty of Agronomy, Cochabamba, Bolivia:

Research in botany and plant pathology by Dr. Martín Cárdenas, and library materials and laboratory supplies; \$6,000;

Ing. Remberto Herbas; to visit the Tibaitatá experiment station, Bogotá, Colombia; \$1,150;

Florida State University, Oceanographic Institute, Tallahassee: Dr. Arne W. Nordskog, professor of poultry breeding, Iowa State College, Ames; to serve as visiting professor; \$5,000;

University of Buenos Aires, Faculty of Agronomy and Veterinary Science, Argentina:

Books and periodicals for the library; \$5,000;

Hans Gravenhorst, librarian; to visit agricultural libraries in the United States; \$1,000;

University of Kentucky, Lexington: a research project on the nutrition of various plant-feeding mites; \$5,000;

Dr. Hugh C. Thorpe, senior research officer in plant breeding, Department of Agriculture, Nairobi, Kenya: to observe wheat improvement research methods in Latin America; \$4,550;

Rector and Mrs. Juan Gomez Millas, University of Chile, Santiago: to visit land grant colleges and agricultural research centers in the United States and Mexico; \$4,500;

Professor Andres P. Aglibut, associate professor of agricultural engineering, College of Agriculture, University of the Philippines, College, Laguna: to visit agricultural experiment stations in Asia, Europe, and the United States; \$4,500;

University of California:

At Berkeley:

Dr. C. C. Delwiche, The Kearney Foundation of Soils Science; to visit the College of Agriculture of the University of São Paulo, Brazil; \$4,200;

Dr. Charles A. Schroeder; to collect disease-resistant avocado plants in Colombia, Ecuador, and Peru; \$1,270;

At Davis:

Dr. R. E. Hungate, chairman, Department of Bacteriology, College of Letters and Science; to visit the British East Africa Veterinary Research Organization, Muguga, Kenya; \$4,000;

Dr. Chihisa Watanabe, assistant professor of entomology, Hokkaido University, Sapporo, Japan: to visit universities, museums, and experiment stations in the United States, Canada, and Europe to observe insect biological control studies; \$4,200;

Professor Awadh Narayan Bhatnagar, assistant professor of extension, Balwant Rajput College, Agra, India: to observe extension organization and methods at Purdue University, Lafayette, Indiana, and other centers in the United States; \$4,000;

Dhyan Pal Singh, director, Planning Research and Action Institute, Lucknow, India: to visit land grant colleges and universities and agricultural cooperatives in the United States; \$4,000;

Dr. Raul Edgard Kalckmann, head, soils section, Agronomy Institute of the South, Pelotas, Brazil: to visit agricultural research centers in the United States and Latin America; \$3,850;

University of Illinois, Urbana: Department of Agricultural Economics; research on agricultural marketing problems in Colombia, by Phillips Foster; \$3,000;

Dr. Herbert W. Miles, professor of horticulture, Wye College, University of London, England: to visit research laboratories in entomology in the United States; \$2,800;

Dr. Antonio Vieira Machado, director, School of Veterinary Medicine, Rural University of the State of Minas Gerais, Belo Horizonte, Brazil: to visit schools of veterinary medicine in the United States, Canada, and Latin America; \$2,800;

Roald Peterson, Southern Zone Technical Cooperation Program, Organization of American States, Montevideo, Uruguay: to attend the Seventh International Grasslands Conference in New Zealand; \$2,500;

Dr. José Grossman, professor of animal husbandry, School of Agronomy and Veterinary Medicine, University of Rio Grande do Sul, Pôrto Alegre, Brazil: to visit research centers in New Zealand, Australia, and Europe; \$2,250;

Shizuo Kato, Division of Entomology, National Institute of Agricultural Sciences, Tokyo, Japan: to visit museums containing important insect collections in the United States and Europe; \$2,250;

Ing. Alexander Grobman, professor, National School of Agriculture, Lima, Peru: to visit the principal centers of corn breeding in the United States; \$2,200;

Ministry of Agriculture, General Agricultural Division, Mexico City, Mexico:

Ing. Mario Arosemena Dutary, extension information specialist, Department of Agricultural Extension; to visit the United States Department of Agriculture and other centers in the United States; \$2,000;

Ing. Federico Castilla Chacón, assistant chief, Seed Multiplication Department; to visit milling and baking laboratories in the United States; \$1,700;

Ing. Arnaldo Lerma Anaya, extension information specialist, Department of Agricultural Extension; to visit the United States Department of Agriculture and several land grant colleges in the United States; \$1,600;

Ing. Joaquín Loredo, director, Federal Extension Service; to visit agricultural extension centers in Puerto Rico, Jamaica, Colombia, and Costa Rica; \$1,150;

Ing. Agr. Ernesto F. Godoy, chief, Laboratory of Phytopathology, Pergamino Experiment Station, Argentina: to visit research centers in Latin America and to attend the Third International Wheat Rust Conference held in Mexico City during March, 1956; \$1,800;

University of Alaska, Alaska Agricultural Experiment Station, Palmer: to assign a specialist on forage crop diseases to the station for a one-month period; \$1,700;

Pedro Navas Pardo, manager, Agricultural, Industrial, and Mining Credit Agency of Colombia, Bogotá: to visit The Rockefeller Foundation Agricultural Program in Mexico and agricultural research centers in the United States; \$1,700;

Hadrian Siregar, director, Rice Institute, Agricultural Experiment Station, Bogor, Indonesia: to visit rice research centers in Japan and the Philippines; \$1,450;

Dr. Eliseo Gallardo, Animal Virus Department, Bacteriological Institute of Chile, Santiago: to visit laboratories of animal biology in Uruguay, Brazil, and Peru; \$1,300;

Smithsonian Institution, Washington, D.C.: Professor J. J. Mura-yama, professor of applied entomology, Yamaguchi University, Japan; to continue research on Scolytid and Scarabaeid beetles; \$1,200;

Dr. S. D. Richardson, senior lecturer in forestry, University of Aberdeen, Scotland: to participate in research projects on forest physiology in the United States; \$1,125.

Operating Programs

INTRODUCTION

The agricultural program of The Rockefeller Foundation consists of three closely related types of activities. One is the direct operation by staff members and their local

associates of cooperative research and training projects leading to increased production of the food crops of major importance to the host country. This type of work began in a small way in Mexico in 1943 and has grown to include projects in that country, in Colombia, and in Chile. Two collaborative arrangements are in effect, one with the six countries of Central America for corn improvement and another with Ecuador for wheat development, in which Foundation staff members serve as consultants for locally operated projects. The new program in India is an out-growth of the Latin American work. For the support of these activities during 1957, the Foundation appropriated \$1,581,500.

The second type of activity is a system of fellowships, scholarships, and travel grants designed to enrich the experience and broaden the training of selected younger scientists. Many of the fellows and scholars have had preliminary training under the supervision of staff members in one of the operating centers. Over 400 Latin American graduates of agricultural colleges have had training of this kind in the last 14 years. Of these approximately 170 have also been awarded scholarships or fellowships for study in a foreign country, usually the United States. Perhaps the most important result of the program is the outstanding performance of the growing numbers of trained technologists who are reinforcing all aspects of professional agricultural work in their native countries. Already many of them have been advanced to positions of responsibility in ministries of agriculture, colleges of agriculture, research agencies, and private industry; many of them are now helping in the training of a younger generation of technicians and scientists.

The third aspect of the Foundation's agricultural program consists of grants to universities and other institutions for the support of education and research in the agricultural sciences. The grants are oriented toward agricultural edu-

tion which will lead to increased numbers of qualified graduates, toward the application of agricultural techniques to crop and animal improvement, and toward the support of fundamental research with potential long-range benefits. In seeking these objectives, the Foundation has made grants to faculties of agriculture in Latin America and Asia for the strengthening of instruction and for the expansion of research activities. The grants made to institutions in the United States and Europe have in general emphasized research of a fundamental type.

INDIAN AGRICULTURAL PROGRAM

At the invitation of the Ministry of Agriculture of India, three staff members of The Rockefeller Foundation will arrive in India in the early part of 1957 to inaugurate an agricultural operating program in that country. The new program will be the first of its type in Asia, the first agricultural operation of the Foundation outside Latin America, and the first to have as a component the continuous support of Foundation staff in the development of an educational as well as a research program.

The Foundation's effort in India will have two principal aims. The first is to cooperate with Indian officials, scientists, and teachers in the organization of a central postgraduate school of agriculture in the Indian Agricultural Research Institute at New Delhi. The institute plans to develop a graduate program leading to the M.S. degree and eventually to the Ph.D. degree as well. Although the Foundation has not contracted to provide aid to undergraduate education, it is hoped that the graduate program will encourage the production of textbooks, manuals, and reference books which will be of aid to undergraduate agricultural courses in colleges and universities throughout India.

The second part of the Foundation's commitment in India is to cooperate in the establishment of research projects

for the improvement of cereals, with initial emphasis on work with hybrid corn, sorghum, and millet. The experiment station of the Indian Agricultural Research Institute in New Delhi will be the headquarters of the research work but co-operation will also be maintained with a number of state experiment stations in a manner similar to the coordinated federal-state programs for crop improvement in the United States.

MEXICAN AGRICULTURAL PROGRAM

In Mexico the cooperation of The Rockefeller Foundation with the Ministry of Agriculture is implemented through the Office of Special Studies, a dependency of the Ministry. With headquarters in Mexico City and a staff of 18 scientists from the United States and 86 from Mexico, the Office operates four experiment stations and two substations and collaborates in the work of a number of other federal and state stations. The research work on the genetics, protection, and management of basic food crops has yielded results upon which recommendations can be made to farmers, and seed of many improved varieties is now ready for their use. A basis for effective extension has thus been provided and a system of regional "county agents," established five years ago by the Ministry of Agriculture, has become a potent factor in the improved agricultural production which Mexico now enjoys. The Office of Special Studies maintains close relations with the extension department of the Ministry.

The Office of Special Studies is organized into 14 sections, the titles of which give a good indication of the scope of its work. The oldest are those concerned with the basic crops—corn, wheat, and beans—with soil fertility and management, and with plant protection against diseases and pests. The work with corn was later supplemented by a project on sorghums which because of their capacity for resisting

drought are more suitable than corn for many arid regions. A project on rice has been added to that for wheat because the latter is principally grown under irrigation, a condition also favorable for rice. Soybeans have been added to the work of the section on beans. More recent sections are those for vegetables, for forage grasses and legumes, and for weed control. Forage crops were put into the program as a first step toward the establishment of work with animals, and in 1956 a poultry section got under way. To service more effectively the growing extension system of the national Ministry, a section on agricultural information was set up in late 1955. Experiment station operations are centralized in the Office in a management section. The library, housed in the main office in Mexico City, dates back to 1944 and is now an excellent resource not only for the staff but also for agricultural scientists and teachers throughout the country. The staff published 70 research papers, bulletins, and magazine articles in fiscal 1955-1956.

COLOMBIAN AGRICULTURAL PROGRAM

In Colombia the cooperation of the Foundation with the Ministry of Agriculture is through the Office of Special Research, a unit of the Ministry's Department of Agricultural Research. The Office began in 1950 with two Foundation staff members and three Colombian agronomists, and with a program covering only corn and wheat. In 1956 there were 11 Foundation staff members and 40 Colombian agronomists connected with the Office.

The Office now works with five crops—potatoes, beans, and barley in addition to corn and wheat—and also conducts experiments in the basic sciences of soils, plant pathology, and entomology. The experiment station, Tibaitatá, near Bogotá, with excellent buildings and 1,500 acres of land, is the center of the research work, being supplemented by four major regional stations and by 11 smaller zone units.

The latest expansion of the work of the Office is the addition of research in animal husbandry. The initial program in animal physiology and livestock management is being supplemented by studies in dairy cattle nutrition and management. These are only a few of the many opportunities for livestock improvement that have been recommended by distinguished animal scientists who have reviewed the problems of livestock production in Colombia. The work will be centered at three experiment stations representing the major agricultural regions (Bogotá, Medellín, and Palmira) and at nine substations in different agricultural zones. As 1956 ended, the construction of the substantial physical facilities for the new work was well advanced.

During 1956, eight Colombian agronomists were studying in the United States on fellowships. Three scholarship holders and seven trainees from other Latin American countries came to Colombia for practical experience with the Office.

CHILEAN AGRICULTURAL PROGRAM

The work in Chile began in the spring of 1955 and is concentrated on two crops—wheat and forages for livestock feed. Research has been begun in the three chief agricultural regions of the country. Large numbers of plant materials from Mexico, Colombia, and elsewhere are being tested for adaptation and will be used with selected local varieties for increase or as the basis for hybridization for the development of better and higher-yielding varieties suited to Chilean conditions. Experiment station and other facilities are also being improved.

COLLATERAL ACTIVITIES

Crop improvement research is being extended into neighboring countries in a type of operation which is not handled directly by the Foundation but which stems from

the work it has done. In Central America the six governments have each established local corn improvement programs staffed by nationals but using materials from the Colombian and Mexican corn breeding work as a basis for developing autonomous seed and improvement projects. The six local projects were established with orientation and aid from the Foundation, and through cooperation of Foundation staff representatives they are linked into an effective international group. During the three years the work has been in force, appreciable improvement has been made in the quantity and quality of corn produced, in the number of Central American scientists who have been trained for positions within their countries, and in the growth of interest on the part of administrators and agricultural producers in the utilization of improved methods and materials for greater economic benefits.

In Ecuador the Ministry of Agriculture is establishing a wheat improvement project. As in the Central American corn program, a member of the Foundation staff—in this case the leader of the wheat work in Colombia—provides technical advice and guidance. Both Ecuadorian and Colombian agricultural scientists participate in the effort.

INTERNATIONAL COOPERATION

The international cooperative activities of the operating centers are being continued and strengthened. The Foundation is responsible for two of the corn germ plasm banks which are part of the plan of the National Research Council for preserving genetically valuable varieties. These germ plasm banks send seed to scientists all over the world. Those in charge of the work with wheat cooperate with the international wheat rust nursery project of the United States Department of Agriculture. In the fight against the late blight disease of potatoes, the Foundation puts its facilities in the high Valley of Toluca in Mexico at the service of

scientists in a dozen different countries and research centers for testing promising types of commercial potatoes against the virulent strains of the disease there which are found at no other place in the world.

An illustrated report describing the first 13 years of the agricultural program of The Rockefeller Foundation, written by its director, Dr. J. G. Harrar, was published in late 1956 and has been given wide distribution.

OTHER GRANTS

Publication of a thirteen-year review of the agricultural program of The Rockefeller Foundation; \$15,000;

José Sierra, agronomist, Small Grains Section, The Rockefeller Foundation Agricultural Program in Colombia, Bogotá: to visit wheat, oats, and barley rust nurseries in South America; \$1,150.

Special Projects

HARVARD UNIVERSITY

GRADUATE SCHOOL OF PUBLIC ADMINISTRATION

As new and heavier demands have been imposed upon the world's water resources by rising populations, by increased agricultural, industrial, and economic activity, and by the growth of urbanization, the need for highly trained experts in water conservation methods has correspondingly increased.

To offer advanced training in new methods of water conservation and management to specialists in the field, a seminar has been organized by the Harvard Graduate School of Public Administration with the cooperation and assistance of governmental and private institutions and the major federal water resources agencies. Basic factors in-

volved in planning and operating water resources systems will be studied and analyzed, and the applicability of new techniques of analysis to water planning will be tested. So that the many factors involved in designing and operating multiple-purpose, multiple-project river basin developments may be considered simultaneously, models for planning analysis will be developed.

A Foundation grant of \$153,600 to Harvard University will be used during the next three years toward support of the seminar.

COMMONWEALTH OF PUERTO RICO

SURVEY OF THE ADMINISTRATION OF AGRICULTURAL AGENCIES

Since its recent accession to self-government, the Commonwealth of Puerto Rico has embarked on a broad development program as a part of which it undertook, with Foundation help, a survey of its medical and public health services. It has now begun a similar survey of the operation and administration of insular agricultural agencies as an important step toward further agricultural development in the Island.

In its efforts to increase agricultural production, Puerto Rico has the advantages of already operating agricultural agencies and of growing numbers of well-trained professional personnel. Its leaders feel, however, that more efficient coordination of these facilities for education, research, extension, and credit would contribute substantially to the Island's agricultural growth.

Intended to provide the government with recommendations for the improvement of coordination among the different agencies, the survey concentrates on study of the scope, funds, organization, and personnel of the agencies, and the relationships now existing between their programs and activities. It is also considering the needs of the Island's farm-

ers as well as programs designed to increase production of commercial crops. The survey is being carried out by the Bureau of the Budget of Puerto Rico under the supervision of its director, Dr. José Noguera.

The Rockefeller Foundation has made \$85,000 available to the Commonwealth of Puerto Rico to assist with the expenses of the agricultural survey during the next two years.

UNIVERSITY OF ABERDEEN

INSTITUTE OF STATISTICS

Because of the important role played by the design of experiments and statistical analysis in the efficient utilization of data in scientific research, the University of Aberdeen, in conjunction with the Agricultural Research Council of Scotland, recently established an Institute of Statistics to offer both course work leading to a degree in statistics and advice on statistical problems.

Although the major area of concentration in the institute's program will be agriculture, its staff will also be available to other university departments for consultation on statistical problems in medicine, general science, or biology. Under Agricultural Research Council auspices, the institute will act in an advisory capacity for all scientific institutes in Scotland with which the council is concerned.

Toward the costs of constructing and equipping a building for the new Institute of Statistics, The Rockefeller Foundation has appropriated £10,000 (about \$29,000) for use by the University of Aberdeen during the next two years.

OTHER GRANTS

Louis Moss, director, The Social Survey, Central Office of Information, London, England: to consult on the survey of agricultural services in Puerto Rico; \$5,500;

Fund for grants of amounts not exceeding \$500 for allocation under the supervision of the Director; \$5,000.

THE SOCIAL SCIENCES

THE PROGRAM EMPHASIS in the social sciences differs discernibly as between those countries where the social sciences as scientific disciplines are highly developed and those countries where the social sciences are only barely recognized as such and little cultivated. Admittedly, there is no sharp line here and the situation is also highly uneven among the different social science disciplines. Yet some broad distinctions seem to be defensible.

Along with many others, the officers in the social sciences are convinced that the less developed countries in Asia, the Middle East, and Latin America now confront major political, economic, and social problems. Many of these problems—and similar ones that lie ahead as the development process moves forward—will be best analyzed and dealt with by well-trained social scientists from their own populations. Consequently, a major point of program emphasis is to try to train more social scientists from these areas up to the highest levels of professional competence and to assist in the building up of strong teaching and research centers in the social sciences in these countries. Frequently these two endeavors can be effectively linked. A closely related emphasis is to assist highly qualified, mature

social scientists in the more developed countries with their researches where they will deal professionally with apparently key problems in development for the less developed countries. The relevance of such studies is also considerable for many problems and issues which arise in domestic affairs in the more developed countries.

Although the officers in the social sciences believe that the less developed areas warrant greater program emphasis than a few years ago, they are as firmly convinced as ever that in the social sciences, as in others, basic theoretical work, "fundamental" research, or new syntheses must go forward at all times. In the long run no other scientific endeavor yields returns even closely comparable to these. Yet persons capable of the best work of this type are invariably all too few in relation to the need, and more often than not promising opportunities genuinely to assist them are less numerous than one would wish.

Even a restricted program in the social sciences must allow some room for attention to major problems besetting contemporary society. The present-day world produces them in abundance. The officers feel, however, that support for the study of most of these problems is relatively abundant from other quarters so that in most instances this Foundation's resources can be husbanded for other needs. This Foundation has long operated on the principle that the best hope for improving the well-being of mankind over the long run lies in the extension of basic knowledge and its imaginative application in untried, even novel directions. Consequently, the conviction goes deep that the Foundation's few resources should be devoted to current problems only in those comparatively infrequent instances where genuinely substantive research on them may yield solutions with a relevance to other problem areas at home or abroad; where the *ad hoc* research may contribute something to the main stream of scientific thought in the social sciences; and where the problem is of such broad and enduring importance

that the results, if any, are not likely to be rendered irrelevant by the swift march of current events.

The program in the social sciences endeavors to concentrate its emphasis in the three main directions briefly—far too briefly—described in the three preceding paragraphs.

The program in the social sciences also continues to include the special effort in legal and political philosophy begun in 1952. By means of small, individual grants primarily for the work of younger scholars, the Foundation endeavors to allow them free time to pursue their particular researches and theoretical formulations in legal and political philosophy. As will be seen from the listing on pp. 215-216 below, the grants made, with the counsel of a distinguished advisory committee, are for work over a wide spectrum: they range from the history of political theory, through the re-examination of long familiar principles, to efforts to formulate new concepts.

The Social Sciences as Scientific Disciplines

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

COMPUTATION CENTER

The Massachusetts Institute of Technology, Cambridge, recently established a Computation Center to serve as the headquarters for research using a high-speed digital computer of the most advanced type made available to institutions throughout New England by the International Business Machines Corporation.

Professor Philip M. Morse, director of the center, and his colleagues feel that, in addition to its known value in linear programming, input-output analysis, and communications research, the computer may have many other uses in

social science research. With the assistance of three specialists familiar with the social science disciplines who will be added to the staff for a three-year period, they plan to explore the computer's potentialities in the solution of theoretical and applied problems in the social sciences. Because use of the machine is open to any qualified scientist in the New England area, a condition stipulated by IBM, an advisory committee of distinguished social scientists from the region will be established to pass upon requests for work on particular problems.

Toward support of social science research at the Computation Center during the next three years, The Rockefeller Foundation has appropriated \$98,400 to the Massachusetts Institute of Technology.

UNIVERSITY OF CHICAGO

STUDIES IN THE THEORY OF CONSUMPTION

Because data on incomes of individual families and on aggregate consumption outlays have never been carefully linked to general theories of consumers' behavior, important policy decisions are often determined by plausible, yet presumptive, relationships between consumption and income. To find more stable and predictable relationships between consumption and income, the University of Chicago is undertaking a new study under the leadership of Mrs. Dorothy Brady, assistant chief of the Bureau of Labor Statistics.

The research will be based upon preliminary studies which indicate that the total income of family units is made up of two components—permanent and transitory income—and that much of the apparently random behavior of consumption in relation to income tends to disappear if the relationship is made to the "permanent" fraction rather than to the total income.

In support of this University of Chicago project, \$45,400 was appropriated by The Rockefeller Foundation for use during the next three years.

MIAMI UNIVERSITY

SCRIPPS FOUNDATION FOR RESEARCH IN POPULATION PROBLEMS

The cohort system, a recently developed method of analyzing changes in the birth rate, is based on study of childbearing experience during the course of the reproductive life of actual groups of women born in the same year. The use of this system, as opposed to that of analyzing birth statistics for people of different ages or marriage durations in a given year, is resulting in greater understanding of the changes in annual birth rates.

Using the cohort system, the Scripps Foundation for Research in Population Problems at Miami University, Oxford, Ohio, will undertake a new study to assess the main factors influencing population growth and to prepare more accurate estimates of the future population of the United States. The investigation will also be directed toward determining changes in human fertility and in the size of complete families in the United States; the effect of changes in economic conditions on the age at which men and women marry for the first time will also be considered.

A grant of \$40,000 was made by the Foundation to Miami University in support of the two-year project to be conducted under the leadership of Dr. P. K. Whelpton, director of the Scripps Foundation.

YALE UNIVERSITY

COWLES FOUNDATION FOR RESEARCH IN ECONOMICS

Because a modern market economy is highly integrated, important economic decisions which affect others both imme-

dately and in the future must be made, almost without exception, on a basis of incomplete current knowledge and a judgment of what this knowledge portends for the future. In view of the importance of making "good" decisions, people throughout the whole economy try to anticipate, to forecast the future.

Critical research into the problem of short-term economic forecasting, the results of which may be of considerable practical value to persons in important decision-making positions, is being carried out under the auspices of the Cowles Foundation for Research in Economics at Yale University by Arthur Okun in association with Professor James Tobin, director of the Cowles Foundation. The program will be developed along three related lines. Forecasting methods currently in use will be analyzed; an effort will be made to combine more effectively the data now used in different forecasting methods; finally, consideration will be given to the appropriateness of the different forecasting techniques for different purposes.

The Foundation, which has supported the work of the Cowles group since 1942, in 1956 appropriated \$34,000 to Yale University to be used toward the costs of this study.

INSTITUTE FOR ECONOMIC RESEARCH

BUSINESS FORECASTING METHOD

The Institute for Economic Research in Munich, Germany, since early 1950 has been developing a new "business test" method of economic analysis which has already attracted attention through much of Europe as well as in Japan and South Africa.

The test is a questionnaire sent monthly to the heads of industrial and commercial firms in Western Germany requesting information about the trends in their respective firms in terms of the specific experience of the immediate

past and plans for the near-term future. The exceptionally detailed data collected in this way (which cumulatively have agreed with official aggregate statistics) are being used as the basis for reports to German industrial concerns on overall business trends. They are also being used as source material for studies on the horizontal connections between individual economic variables at each level of production and distribution, the vertical connections between the different stages of production and distribution, the time lags within which changes in one section of the economy affect related sections, and other pertinent subjects.

For further work on the method through the next two years, The Rockefeller Foundation has renewed its aid to the institute with a grant of 100,000 German marks (approximately \$24,500).

OTHER GRANTS

Columbia University, New York: Bureau of Applied Social Research; completion and preparation for publication of a study in political historiography, by Dr. Lee Benson; \$7,500;

University of London, England:

Professor David V. Glass, director, Department of Sociological and Demographic Research, London School of Economics and Political Science, and Mrs. Glass; to visit graduate centers of sociological and demographic teaching and research in the United States; \$6,000;

Professor Philip E. Vernon; to consult with specialists in educational and psychological measurement in the United States; \$1,550;

Professor C. von Furer-Haimendorf, head, Department of Cultural Anthropology, School of Oriental and African Studies; to visit centers of anthropological research in the United States; \$850;

Fund for grants of amounts not exceeding \$500 for allocation under the supervision of the Director; \$5,000;

University of Chicago, Illinois: study of adjustment during the middle years of marriage, under the direction of Professor Ernest W. Burgess; \$4,500;

University of Vienna, Austria: Department of Sociology, Social Science Research Laboratory; studies of factors which contribute to the basic social, economic, and political views of major groups in Vienna, under the direction of Dr. Leopold Rosenmayr; \$4,000;

Professor Herman Wold, Statistical Institute, University of Uppsala, Sweden: to study new developments in theoretical and applied statistics in the United States; \$3,375;

Princeton University, New Jersey: research in the history of economic thought from 1600 to 1890, by Professor Jacob Viner; \$2,230;

The British Sociological Association, London, England: participation in the association's meetings on "Sociology in Retrospect and Prospect," by Professor Robert K. Merton, Columbia University, New York; \$1,000;

University of Birmingham, England: books in the field of American economic history; \$650.

The Quest for Economic Development

VANDERBILT UNIVERSITY

INSTITUTE OF RESEARCH AND TRAINING IN THE SOCIAL SCIENCES

The Institute of Research and Training in the Social Sciences at Vanderbilt University, Nashville, Tennessee, has become a major center in the South for work in the field. Since 1952 the Foundation has supported economic research at the institute in two areas: in industrial organization and public policy, under the leadership of the institute's director, Professor George W. Stocking; and in agricultural economics, conducted by Professor William H. Nicholls.

Professor Stocking's research projects on industry are focused especially on the legal and economic problems associated with monopolies, but a somewhat broader emphasis

is planned for the next several years to allow for increased attention to the difficulties and challenges involved in the problems of underdeveloped areas. Professor Nicholls' group has conducted parallel historical investigations in three southern regions to determine the effects of industrial-urban growth on local farm productivity and income; these results will be the basis of further studies of contemporary economic dilemmas and public policies in the South.

Vanderbilt's location close to TVA and in a formerly depressed but now considerably improved agricultural area is an important asset in relation to its curriculum in agricultural economics for students in this country and abroad. Under an International Cooperation Administration contract, the school is conducting summer institutes and year-long graduate courses in economics for officials and scholars from underdeveloped regions.

The social sciences program at Vanderbilt has been supported by the former Laura Spelman Rockefeller Memorial, the General Education Board, and The Rockefeller Foundation through grants totaling more than \$1,000,000. A new five-year grant of \$150,000 made by the Foundation to Vanderbilt University will be used toward the research programs in industrial and agricultural economics, and for a series of grants to individual faculty members for investigations in the social sciences other than economics.

TULANE UNIVERSITY OF LOUISIANA

LATIN AMERICAN LEGAL AND SOCIAL STUDIES

Since its founding in 1847, the School of Law of Tulane University of Louisiana has stressed the study of both Roman civil law and Anglo-American common law. This emphasis has been a practical necessity because Louisiana is the only state to have retained the traditional system of civil law as inherited from the French and Spanish, the

system still in effect in much of Europe and in Latin America. Louisiana's relations with neighboring states, where common law prevails, inevitably necessitated legal training at Tulane in common law as well. Hence Tulane has a long-standing tradition, both in teaching and research, in comparative law.

The law school is now proposing to give major attention under its program in comparative law to Latin American legal and social studies. Provision has been made for the appointment of a professor to direct the work in Latin American law and to promote closer relations with Latin American universities. About four fellowships are to be awarded annually to legal scholars and social scientists from the law faculties of Latin American universities for study and research at Tulane. In addition, the exchange list for the *Tulane Law Review*, which deals extensively with the comparative treatment of subjects and problems, and that publishes many articles in the original Spanish and French, will be broadened.

To help the Tulane law school carry out its program of Latin American legal studies, The Rockefeller Foundation appropriated \$114,000 for a five-year period to Tulane University.

NATIONAL PLANNING ASSOCIATION

ECONOMICS OF COMPETITIVE COEXISTENCE

The economic policies available, respectively, to the Free World and to the Soviet Bloc, and the probable effectiveness of these policies are being analyzed by the National Planning Association, Washington, D. C. In this study of the economics of competitive coexistence, competing policies in international trade, capital movements, and technical assistance will be considered. A series of special investigations, including an appraisal of the economic needs and

potential of five selected underdeveloped countries, will provide the basis for the analysis.

The National Planning Association project is being supported by a Rockefeller Foundation grant of \$109,250, available during the next two and a half years.

STANFORD UNIVERSITY

FOOD RESEARCH INSTITUTE

One of the world's leading centers of research in agricultural economics, the Food Research Institute of Stanford University has long been distinguished for its concentration on international food and agricultural problems. Basic research on the economics of food production, distribution, and consumption has led to the examination of national food management, agricultural policy, international commodity controls, factors that promote or inhibit economic expansion in predominantly agricultural regions, and other important subjects. Recently the institute has added to its interests a growing concern with tropical regions and with problems of economic development.

The growing need felt by national and international agencies and underdeveloped countries for agricultural economists equipped to help them with problems of agricultural development has prompted the Food Research Institute to formulate a program of postgraduate training in the field. In alternate years the institute will appoint five young agricultural economists to two-year research internships during which they will spend half their time in study for the M.A. degree and the other half in research on international agricultural problems under the detailed direction of institute staff members.

Since 1950 The Rockefeller Foundation has contributed more than \$1,000,000 toward support of the Food Research Institute's research and training program. A 1956

grant of \$96,000 to Stanford University will help defray the expenses of the new postgraduate training program during the next six years.

INTERNATIONAL BANK FOR RECONSTRUCTION
AND DEVELOPMENT

ECONOMIC DEVELOPMENT INSTITUTE

In 1955 the International Bank for Reconstruction and Development established an Economic Development Institute to provide training in policy planning and in the formulation and administration of development programs for key administrators from underdeveloped countries. In its courses the institute offers training in the theory and techniques by which problems of economic development can be effectively analyzed, as well as intensive review of concrete problems in a particular setting.

Students at the institute have included senior officials of ministries of finance or economic affairs, of central banks, programming offices, or development corporations, who hold or who are expected to hold important posts involving them in the formulation and implementation of development programs and policies within their own countries. Perhaps as valuable as the training they have received has been the experience the institute gives the participants of cooperating in a common intellectual venture with persons from other countries.

In 1954 The Rockefeller Foundation contributed \$85,000 toward the expenses of the Economic Development Institute during its first two years. A new grant of \$50,000 extends the Foundation's assistance for an additional year.

UNIVERSITY OF DURHAM

MIDDLE EASTERN GEOGRAPHY

Studies of the economic and cultural geography of underdeveloped areas are often a necessary prerequisite to

more specialized studies in the economic, political, and social aspects of development. They form a base for studies of aspects of the development process in particular areas, are valuable as a background for public programs, and contribute to an effective approach by scholars and public officials in underdeveloped countries to the development problems of their countries.

The University of Durham, England, which has gathered together a notable group of scholars specializing on the Middle East, plans to develop within the Department of Geography a more extensive research and training program on the geography of the Middle East under Professor W. B. Fisher, head of the department. Professor Fisher and his colleagues will concentrate their researches on recent economic and social changes in the Fertile Crescent, especially those wrought on agriculture, craft industry, and rural and urban life by the development of oil resources, irrigation facilities, better communications, and the heavy inflow of foreign capital and technical assistance.

A Rockefeller Foundation grant of £16,925 (about \$49,000) will be used by the University of Durham principally for the appointment of two research fellows yearly during each of the next five years, and for the expenses of two scholars yearly who will conduct research in the Middle East.

CENTER OF LATIN AMERICAN MONETARY STUDIES

The Center of Latin American Monetary Studies, Mexico City, was established in 1952 to stimulate sound economic planning in Latin America by training central bank officials in the principles of monetary theory and practice. As a further aid to economic development, the center will prepare and publish an annual survey of current monetary developments in Latin American countries.

Monetary statistics, data on central banking opera-

tions, capital markets, banking legislation, and inflationary trends will be included in the annual survey, as well as reviews of the measures individual South and Central American countries are taking to deal with monetary and fiscal problems.

Toward the costs of the survey during a three-year period The Rockefeller Foundation has appropriated \$36,300.

UNIVERSITY OF ISTANBUL

HISTORY OF THE OTTOMAN EMPIRE

For some years Professor Omer Lüftü Barkan, director of the Institute of Economic History at the University of Istanbul, has been engaged on an economic and social history of the Ottoman Empire which promises to contribute importantly to deeper understanding, in Turkey and the West, of the economic past underlying Turkey's present state of rapid development and economic change.

To help Professor Barkan continue the preparation of his history during the next two years, The Rockefeller Foundation has appropriated up to \$30,000 to the University of Istanbul.

DUTCH ECONOMIC INSTITUTE

DEPARTMENT OF BALANCED INTERNATIONAL GROWTH

The Dutch Economic Institute, affiliated with the Rotterdam School of Economics, is an important research and training center which has received Foundation support since 1931. Now a new Department of Balanced International Growth has been created under the leadership of Professor Jan Tinbergen, one of the institute's distinguished directors, to deal with problems of economic growth and development.

The program of the department is being developed along two lines—research into basic problems of underdeveloped areas and training of young economists in administration of international technical assistance programs. Research findings will be applied to the practical training phase.

To complement support of the new department by the institute and by Dutch business firms during the next three years, the Foundation appropriated 110,000 Dutch florins (about \$29,400) in 1956.

OTHER GRANTS

- Supreme Court of Japan, Tokyo: books for the library; \$19,000;
- American Friends Service Committee, Philadelphia, Pennsylvania: study of two projects in economic and social development in southern Italy, by Dr. F. G. Friedmann; \$12,300;
- University of London, England: development of work in Latin American geography in the Department of Geography; £4,000 (about \$11,600) for a two-year period;
- Harvard University, Cambridge, Massachusetts: Law School; field study of the Soviet system of foreign trade, by Professor Harold J. Berman; \$10,000;
- University of Dublin, Trinity College, Ireland: School of Economics and Political Science; program of research on the economic problems of the Irish Republic; \$10,000;
- New York University, New York: School of Law; legal seminar to be held in Beirut, Lebanon; \$9,160;
- Professor M. N. Srinivas, head, Department of Sociology, University of Baroda, India: research and writing in the United States and the United Kingdom; \$9,000;
- University of Chicago, Illinois:
- Study of the politics of land tenure and related problems in Latin America, by Professor Charles M. Hardin; \$8,410;
 - Research on the theory of economic growth, by Professor Theodore W. Schultz, chairman, Department of Economics; \$5,000;

University of Ankara, Turkey: a series of lectures by distinguished European economists on problems of economic development; \$4,500;

University of Istanbul, Turkey: a series of lectures by distinguished European economists on problems of economic development; \$4,500;

Johns Hopkins University, Baltimore, Maryland: Lim Tay Boh, senior lecturer in economics, University of Malaya, Singapore; to serve as lecturer in problems of labor and management in Southeast Asia at the School of Advanced International Studies during the first semester, 1956-1957; \$4,250;

Korea University, Seoul: research, completion, and translation into English of a book on *Government in Korea*, by Dr. Chin-O Yu in association with Professors Dong-Sep Hahn and Suk-Soon Suh; \$3,800;

University of Bombay, India: research on fish marketing procedures in Southeast Asia; 16,000 rupees (about \$3,500);

University of California, Berkeley: study of urbanization trends in relation to urban planning in Latin America, by Professor Francis Violich, Department of City and Regional Planning; \$3,210;

Japan Society, Inc., New York: preparation of an expanded and up-to-date volume on *Economic Problems of Free Japan*, by Professor Jerome B. Cohen, professor of economics, The City College, New York; \$2,800;

Stanford University, California: Professor Nobushige Ukai, Tokyo University, Japan; continued participation in the Stanford-Tokyo Collaborative Studies Program and continued research for a volume on the modernization of Japanese law; \$2,500;

Kazuo Kitagawa, professor of international economics, Nagoya University, Japan: to extend a study visit to West Germany, England, and the United States; \$2,450;

Joseph J. Mangalam, Forman Christian College, Lahore, Pakistan: to complete graduate studies in rural sociology at Cornell University, Ithaca, New York; \$2,400;

Cornell University, Ithaca, New York: Idrus N. Djajadiningrat of Indonesia; to continue graduate study in international relations; \$1,000;

A. Avasthi, lecturer in public administration, Robertson College, Jabalpur, India: to visit centers of research and training in public administration in the United States; \$875;

Kinji Tanaka, professor of economics, School of Business Administration, Kobe University, Japan: to continue his studies in Europe en route from the United States to Japan; \$775;

Reikichi Kojima, chief of operations and acting chief of research, Tokyo Institute for Municipal Research, Japan: to study the organization and administration of municipal research and of large cities in the United States and Europe; \$500.

Social Science Problems of Contemporary Western Society

THE ROYAL INSTITUTE OF INTERNATIONAL AFFAIRS

For many years The Royal Institute of International Affairs has conducted studies of problems which its Research Committee feels are of current or emerging importance, and is particularly distinguished for research on the problems of underdeveloped areas and the processes of economic, political, and social development. Its approach in initiating a new study has been to stress first a general survey of economic, political, and social conditions in a particular area, and to follow the survey with detailed investigations of particular problems.

The Honorable C. M. Woodhouse, recently appointed director general of The Royal Institute, has formulated plans for a new major research program which will use this approach but which will emphasize problems which are common to various world regions. Among the themes on which the research will focus are the structure and policies of Communist regimes, revolutionary movements in underdeveloped countries, the approach toward European and

"Atlantic" community, and interactions between Western, Asian, and African societies. An investigation of over-all world economic problems will relate the more specialized studies.

Since 1932 The Rockefeller Foundation has supported general and special programs of The Royal Institute with grants totaling more than \$1,000,000. A 1956 grant of £50,000 (about \$145,000) will help finance the new research program.

HARVARD UNIVERSITY

GRADUATE SCHOOL OF BUSINESS ADMINISTRATION

In the American and other economies operating within a price-market system, the dividend policies of private corporations have far wider economic consequences than their effect upon the fortunes of shareholders. Broadly speaking, the rate of secular economic advance is a function of the rate of net capital accumulation for productive purposes and the rate of technical progress. Technical advance, however, is only rarely to be had without substantial new investment in plant and equipment.

In 1952 Professor John Lintner of Harvard University began a study of profits, dividends, and investment policies among listed American corporations in an attempt to accumulate data concerning their role in the economy. In the four years intervening four papers and one book have been published, and two other books and six papers were expected to be ready for publication at the end of 1956.

During the next five years Professor Lintner and his associates will extend studies now in progress on the relation of dividend policy to plant and equipment policy and to technological change, on the policies of corporations with respect to liquidity and external financing, and on the pricing policy of firms in relation to profits and investment-dividend policy. Their work will be partly statistical, partly theoret-

ical, and partly based on direct personal interviews with corporation executives.

The Rockefeller Foundation granted nearly \$70,000 to Harvard University in 1952 toward the costs of Professor Lintner's study. A new grant of \$120,000 continues Foundation support for the next five years.

FOREIGN POLICY ASSOCIATION

SERVICE BUREAU ON WORLD AFFAIRS

Younger teachers of international affairs, especially in the colleges of the Midwest, South, and West, are frequently handicapped by having little first-hand acquaintance with the actual scene of world affairs and the many international agencies active today. During the next four years the newly established Service Bureau on World Affairs of the Foreign Policy Association, New York, will assist at least some members of this group by making funds available to one young teacher annually for study of international organizations and private research agencies in the New York area concerned with nongovernmental aspects of world affairs.

The scholars selected will also have an opportunity to observe the international affairs curricula and programs of Columbia and New York Universities and other major universities in the region, and finally, with a year free from teaching responsibilities, they will have time for exploratory study of various basic issues affecting America's world role. The expenses of the new project will be covered in part through a four-year grant of \$60,000 from the Foundation.

NATIONAL BUREAU OF ECONOMIC RESEARCH

SOVIET ECONOMIC GROWTH

In 1953 the National Bureau of Economic Research undertook a study of Soviet economic growth with the aid

of an initial Foundation grant of \$275,000. Data on the output of individual commodities and services in industry, agriculture, and transportation, and on other aspects of the Soviet economy are being assembled and analyzed by economists and scholars specializing in Russian problems. An assessment will be made of the performance of the Soviet economy since 1928, the first year of the first five-year plan, and, wherever possible, since 1913. Results of the research will be published in several books and papers.

For the completion of this project, The Rockefeller Foundation in 1956 appropriated an additional \$60,000 to the National Bureau of Economic Research, New York.

PRINCETON UNIVERSITY

CENTER OF INTERNATIONAL STUDIES

The Center of International Studies at Princeton University is a major academic division for the study of problems relating to the formulation of foreign policy. The center, which emphasizes three fields of inquiry—the political processes and forces that shape foreign policy; contemporary problems in American foreign policy; and studies of the conditions essential for a more stable international order—has done, over the years, pioneer work in the general area of international politics.

Attention is now being concentrated on further integrating the work at the center into the over-all program of Princeton University. Plans are being made for increased use of the university faculty in research posts at the center and collaboration on projects for the center by members of different branches of Princeton.

The Foundation, which has contributed to the center's work since 1935, appropriated \$40,000 in support of its organizational development during the coming year.

GENEVA GRADUATE INSTITUTE OF INTERNATIONAL STUDIES**INTERNATIONAL POLITICS**

The Geneva Graduate Institute of International Studies is currently expanding its program to include contemporary international politics, in cooperation with the Economic Commission of Europe, the International Labor Organization, and the Carnegie Endowment. The assistance of these other Geneva groups, the institute's location in neutral Switzerland, and its long-term goal of creating a student body drawn equally from the industrialized nations of the West and from the underdeveloped areas, all help explain the special significance of the expanded program, in support of which the Foundation in 1956 appropriated \$30,000 for three years.

COLUMBIA UNIVERSITY**SCHOOL OF INTERNATIONAL AFFAIRS**

For the next three years the School of International Affairs at Columbia University plans to bring to Columbia, from other colleges or universities, one or two visiting scholars a year. Professor Leland M. Goodrich and his colleagues will supervise the research of the visitors, who will be selected among young men, in the 25- to 35-year age bracket, concerned with fundamental issues and unsolved problems in international organization.

Columbia's resources for an effective training program in world organization include its proximity to United Nations headquarters and a teaching staff combining to an exceptional degree theoretical knowledge and practical experience. Its faculty have contributed to the work of the United Nations as official delegates, members of commissions, or advisors for the specialized agencies, served on

the editorial boards of various professional journals, and written on such varied subjects as parliamentary diplomacy, collective security, international aviation, and peaceful change. Toward the costs of the new project the Foundation has made a three-year grant of \$30,000.

GERMAN SOCIETY FOR INTERNATIONAL RELATIONS

YEARBOOK OF WORLD POLITICS

The recently organized German Society for International Relations, Frankfurt, through its research section, the Institute for European Politics and Economics, has undertaken to publish an annual review of Germany's foreign relations entitled the *Yearbook of World Politics*. A board of leading German scholars and editors will select the contents of the series, contribute articles on subjects of special interest to them, and supervise the research of five younger scholars who will be appointed to the institute staff from German and Austrian universities.

The greater commitment of younger men to studies of contemporary international relations is expected to be one of the important values of the new project, toward the costs of which the Foundation in 1956 made a three-year grant of 80,000 German marks (about \$19,400).

OTHER GRANTS

University of California:

At Berkeley:

A conference on "Leadership and Political Institutions in India"; \$10,000;

Professor Joseph P. Harris; to visit Great Britain and France in connection with his study of "Parliamentary Control of Administration"; \$2,100;

At Los Angeles:

- Assistant Professor James S. Coleman; research on modern African political associations in British Central and East Africa; \$8,850;
- Indian Council of World Affairs, New Delhi: books, maps, microfilms, and related equipment for the library; \$10,000;
- University of Oxford, England: expenses of a committee to study the expansion of the university's law library facilities; \$10,000;
- Yale University, New Haven, Connecticut: continued study of field organization in the United Nations system, by Professor Walter Sharp; \$9,500;
- Washington University, St. Louis, Missouri: research on political stability and democratic consensus in France, by Associate Professor Roy Macridis; \$8,025;
- Dartmouth College, Hanover, New Hampshire: research on the techniques of diplomacy, by Professor Richard W. Sterling; \$5,850;
- University of North Carolina, Chapel Hill: research and travel in connection with a study of political parties in Chile, by Professor Federico G. Gil; \$5,625;
- German Institute for Economic Research, Berlin: research on the foreign economic policy of Germany, by Dr. Hans J. Dernburg, Federal Reserve Bank of New York; \$5,500;
- Harvard University, Cambridge, Massachusetts: Mrs. Barbara Ward Jackson, London, England; to serve as visiting lecturer on international relations; \$5,000;
- Pakistan Institute of International Affairs, Karachi: books for the library; \$4,000;
- University of Chicago, Illinois: Professor Martin Wight, London School of Economics and Political Science, England; to teach international relations and conduct research on "The Revolutionary Tradition in International Relations"; \$3,575;
- Keith B. Callard, associate professor of political science, McGill University, Montreal, Canada: to visit Pakistan to complete a study in political science; \$3,300;

New York University, New York: a research project on United Nations voting; \$3,275;

University of Denver, Social Science Foundation, Colorado: a study of the international relations philosophy of Secretary of State John Foster Dulles, by Professor E. Raymond Platig; \$2,850;

University of Oslo, Norway: Petter Jakob Bjerve, director, Central Bureau of Statistics of Norway; to complete research on the Norwegian national budget; \$2,500;

Institute for Advanced Study, Princeton, New Jersey: research on Soviet-German relations, by Dr. Gerald Freund in association with Professor George F. Kennan; \$2,300;

University of Malaya, Singapore: books in the field of international law and international relations; \$1,500;

Hafeezul Rahman, head, Faculty of Law, Aligarh Muslim University, India: to visit law schools in the United States; \$1,050;

Hiroshima University, Japan: completion in the United States of studies in international relations, by Professor Takeo Horikawa; \$175.

Legal and Political Philosophy

UNIVERSITY OF CALIFORNIA, COLUMBIA
UNIVERSITY, AND HARVARD UNIVERSITY

POLITICAL SCIENCE

Increasingly in recent years political scientists have directed their efforts toward deepening understanding of the political process as a whole and of the values which govern the ways by which men seek to order their relations with one another on the social and political plane. In their research they are stressing critical analysis and interpretation in an attempt to discover theories that will bring order

into masses of data otherwise largely disconnected and that will provide a framework for testing imaginative hypotheses.

In political philosophy the new theoretical emphasis has led greater numbers of scholars to re-examine significant concepts and formulations—such as constitutionalism, natural law and rights, and the relation of political parties to democratic consensus—and to apply long-standing political ideas and classical theories to the contemporary scene. Scholars in political theory are studying newer concepts, such as power, interest groups, representation, and the electoral process, as a means of reducing political behavior to tractable proportions. Finally, in international politics, current studies are increasingly concerned with general principles of diplomacy, distinguishable types of foreign policy, patterns of alliances and security systems, and other generalized subjects.

Some of the most productive research in political science today is being carried on at the University of California in Berkeley, Columbia University in New York, and Harvard University, Cambridge, Massachusetts. All three have able staffs, active research and publication programs, and excellent library and other facilities. To enable a number of younger political scientists at these institutions to devote their full time to research for periods of six months to a year, The Rockefeller Foundation made three grants totaling \$325,000 during 1956.

One grant of \$200,000 to the University of California and a second of \$75,000 to Columbia University will be used over a five-year period for research by staff members in political theory and the theoretical aspects of international relations. Harvard University will use the third grant of \$50,000 for research on the interrelations of political theory and institutions during the next five years. The Foundation's grants are proportionate to the number of scholars working in these fields at the three schools.

THE AMERICAN LAW INSTITUTE

MODEL PENAL CODE

Although criminal law is the segment of the law that most nearly touches the lives of individuals and the community at large, it has received relatively little scholarly attention. To rectify this neglect, the American Law Institute made in 1950 a preliminary study of needed changes in criminal law and its administration in the United States. Using the study's findings as a basis, the institute since 1952 has been preparing a model penal code that will represent the most searching judgment by lawyers, judges, legislators, and others concerned with the criminal law.

Professor Herbert Wechsler, professor of law at Columbia University, is directing the undertaking with the assistance of three associates from the fields of law, criminology, and penal administration. An advisory committee consisting of forensic psychiatrists, prison administrators, lawyers, a sociologist, a professor of English, judges, and law professors is available for consultation.

In drafting a model penal code, the institute group is dealing with criminal law as a whole and with its different parts in three steps. The first is the definition of the important, troublesome problems and issues in the code so that the best possible solutions can be found; second, the preparation of a comprehensive and detailed legal code in statute form with commentaries setting forth the issues, the knowledge bearing on these issues, and the reasoning which led to the principles and conclusions expressed in the statute form; and third, the submission of the draft to the Executive Council and members of the institute and to others who are interested for further comment and criticism.

The Rockefeller Foundation has contributed a total of \$500,000 to the American Law Institute for this project since 1950. The most recent grant, of \$200,000, was made

in 1956, and will continue Foundation support through the next four years.

OTHER GRANTS

University of California:

At Berkeley:

Institute of International Studies; a study of Marxism and the Far Eastern intellectual, by Professor Robert A. Scalapino; \$18,000 for a three-year period;

Neal N. Wood; to continue in the United Kingdom a study of academic Marxist thought in contemporary Britain; \$3,000;

At Los Angeles:

Studies in England of comparative law and legal philosophy, by Professor Foster H. Sherwood; \$5,417;

Research on contemporary American political thought, by Professor Thomas P. Jenkin, chairman, Department of Political Science; \$4,500;

New School for Social Research, New York: a study of political justice, by Professor Otto Kirchheimer; \$9,000;

The City College, New York: research and travel in connection with a study of the political and social philosophy of John Stuart Mill, by Professor Henry M. Magid, Department of Philosophy; \$7,500;

Ohio State University, Columbus: research on the relationship of moral and political principles to political action in the career of Abraham Lincoln, by Professor Harry V. Jaffa; \$7,360;

Harvard University, Cambridge, Massachusetts:

A research seminar on the problem of political ideology, to be conducted by six scholars in political philosophy; \$7,100;

Research on the meaning and development of modern socialist movements, by Professor Adam B. Ulam; \$3,800;

Cornell University, Ithaca, New York: a study of justice in relation to moral and political thought, by Professor John B. Rawls; \$7,000;

Kenyon College, Gambier, Ohio: research and travel in connection with an analysis of the philosophy of constitutional government as developed in Britain and the United States, by Professor Raymond English; \$6,290;

Hobart and William Smith Colleges, Geneva, New York: research on the natural right basis of American constitutionalism, by Professor Maynard O. Smith; \$5,500;

Mount Holyoke College, South Hadley, Massachusetts: research on the relationship between philosophy and political science, by Professor George V. Tovey, chairman, Department of Philosophy; \$5,300;

Union Theological Seminary, New York: research on the relation between religion, morality, and politics in contemporary America, by William Lee Miller, lecturer in Christian ethics; \$5,000;

Wayne University, Detroit, Michigan: study and research in jurisprudence at the Harvard Law School, by Professor Samuel I. Shuman; \$4,000;

University of Chicago, Illinois: research into the relationships in political theory among politics, society, and work, by Dr. Hannah Arendt; \$2,250;

Louisiana State University, Baton Rouge: research on jurisprudence, by Professor Eric Voegelin; \$1,860;

Professor G. Christopher Morris, fellow and director of studies in history, King's College, University of Cambridge, England: to visit American universities and conduct research in political theory; \$1,570.

THE HUMANITIES

A LARGE proportion of the grants in the humanities during 1956 constituted continuations of earlier interests reported in other years. Assistance to intercultural studies continued on a substantial scale. There were two sizable grants for Middle Eastern studies: one to Harvard University which has recently strengthened its program in this field by the appointment of Sir Hamilton Gibb; and one to the American University of Beirut for continuation of its Arab Studies Program. In India assistance was renewed to the Deccan College Postgraduate and Research Institute for study of Indian languages. Help was continued to the seminar on modern China at the Toyo Bunko, in Tokyo, and a new grant was made to the Association for Asian Studies (formerly the Far Eastern Association) in the United States for work on Chinese thought. As in the past, interest in American studies abroad was continued, illustrated by a grant to the University of Ankara.

New developments in intercultural studies during 1956 are reflected in a series of grants in the general field of the history of religion and comparative religion. The largest went to the University of Chicago for a program of inter-religious studies, but there were smaller grants to the Institute for the Study of Religions in Japan, to Harvard University to bring to the United States a distinguished Japanese scholar of Zen Buddhism, and to Tokyo University

for research on the significance of mountains in Japanese religion. These grants reflect the Foundation's conviction that religion is an important aspect of intercultural understanding which has, perhaps, been unduly neglected in the United States in recent years.

Three projects in the humanities illustrate the trend toward expansion of Rockefeller Foundation activities in Asia, Africa, and Latin America. A grant made early in the year made it possible for the American Library Association to establish an office of international library relations which it is hoped will enable the association to play a more active role in library projects in many parts of the world, whether those projects are supported locally, by international action, by the United States government, or by private American organizations. A small grant to the International Youth Library in Munich enables the competent founder of that library, Mrs. Jella Lepman, to devote more time during the next several years to encouragement of the development of children's literature and children's libraries in Asia, Africa, and Latin America. With the assistance of The Rockefeller Foundation, Stanford University will hold in the summer of 1957 a seminar on problems of university administration for the administrative officers of a number of the privately established universities in Japan. It is hoped that this may contribute to the continued healthy progress of the privately supported universities which now provide facilities for well over half of all the university students in Japan, and which have played an important role in Japan's modern educational development.

The Foundation was again active in 1956 in assisting the arts in ways that continued its former patterns of operation. For example, grants to the American Symphony Orchestra League, to the American Shakespeare Festival Theatre and Academy, and to the *Partisan* and *Hudson Reviews* for literary fellowships carry on activities previously supported.

A small grant for literary fellowships in Canada is one of the relatively few projects in the arts which The Rockefeller Foundation has undertaken abroad, although there has been help in previous years to writers in Mexico through the Mexican Writing Center and in England through the Atlantic awards. Aid toward the reorganization of the dance collection at the New York Public Library is, of course, related to earlier interests in the dance manifested through support of the ballet company of the New York City Center and of the work in modern dance at Connecticut College. A grant to the University of Pennsylvania School of Fine Arts for work on landscape architecture was made with purposes analogous to those of an earlier grant to the Massachusetts Institute of Technology for exploration of the aesthetic aspects of city planning. Grants to the Pratt Institute for the establishment of a graphic arts center and to the American Federation of Arts for the Art Film Festival held at the Metropolitan Museum of Art in the spring of 1957 represent attempts to discover constructive ways of encouraging progress in the visual arts.

Intercultural Studies

AMERICAN UNIVERSITY OF BEIRUT

ARAB STUDIES PROGRAM

Since its organization seven years ago, the Arab Studies Program of the American University of Beirut, Lebanon, has developed into one of the most effective efforts to contribute, through research and teaching, to a better understanding of the modern Arab world. The emphasis in the program has been on significant phases of recent—mainly twentieth century—Arab life and thought. Scholarly work already published or in progress includes studies of the uni-

fying and divisive forces in the contemporary Arab world, of the Muslim Brotherhood, of the Ottoman background of modern Arab states, and of the Sanusi Movement.

Important factors in the development of the program have been the university's annual Arab Studies Conferences attended by leading scholars from other Arab states. Six volumes containing the addresses and subsequent discussions at these conferences have now been published. A more recent addition to the program—one that is expected to contribute greatly to its progress—is the invitation to foreign scholars to spend from a month to a year at the American University as visiting professors. Those invited for the 1956-1957 academic year include such distinguished figures as Sir Zafrullah Khan, Pakistani statesman recently appointed a judge of the International Court of Justice, and Professor Arnold Toynbee, retired Director of Studies of The Royal Institute of International Affairs.

The Rockefeller Foundation has contributed more than \$300,000 toward support of Arab studies at the American University of Beirut since 1949. A 1956 grant of \$216,000 continues Foundation assistance through the period ending August 31, 1960.

HARVARD UNIVERSITY

CENTER FOR MIDDLE EASTERN STUDIES

In 1954 Harvard University's concern with the Middle East found expression in the establishment of a Center for Middle Eastern Studies to serve as the nucleus of post-graduate work in the field. Prompted by the need—more urgent today, perhaps, than ever before—for better understanding of this important part of the world and for greater numbers of scholars on the Middle East, the university is now developing within the center a major research and training program on the contemporary Middle East.

The emphasis in the new program will be mainly on the historical and humanistic background essential to understanding of the modern Middle East. Research will focus on the evolution of Middle Eastern societies from the beginning of the nineteenth century to the present, and on the social and economic problems of these societies in terms of their evolution. Sir Hamilton Gibb, one of the world's foremost scholars in the field and recently appointed director of the Center for Middle Eastern Studies, will supervise the program.

The work will be carried out by research associates in a variety of fields who will receive three-year appointments, and by research fellows in history, the social sciences, and comparative studies who will receive one- or two-year appointments. The program will be available to scholars in specialized fields who wish to include a knowledge of Middle Eastern problems within their disciplinary framework.

To make possible the appointment of approximately seven scholars yearly, and to finance travel to the Middle East for at least three of these each year, The Rockefeller Foundation in 1956 appropriated \$205,000, available over a six-year period.

UNIVERSITY OF CHICAGO

FEDERATED THEOLOGICAL FACULTY

Because important developments are taking place in religious thought throughout the world, sympathetic study and understanding of other religions are becoming increasingly important both to the development of general international relations and to the international activities of religious organizations. As part of a larger effort to clarify the relevance of religion in contemporary society, the Federated Theological Faculty of the University of Chicago is developing a new program of interreligious studies under

the direction of Dr. R. Pierce Beaver, professor of the history of religions.

Dr. Beaver, whose study of Chinese religions, philosophy, and language was aided by the Foundation in 1944, will visit religious centers in South Asia. Dr. Joseph M. Kitagawa, assistant professor of the history of religions, plans to study Buddhism and related aspects of Asian religions in Japan. To enrich the offerings in religious studies at the university, two visiting experts on Buddhism will come to Chicago from Asia, and a third Asian scholar will be appointed to experiment with interreligious discussions among university faculty and graduate students. In addition, two research internships will be awarded.

To assist the Federated Theological Faculty in the development of this program, The Rockefeller Foundation has made \$140,000 available for a three-year period of the University of Chicago.

DECCAN COLLEGE POSTGRADUATE AND
RESEARCH INSTITUTE

STUDIES OF INDIAN LANGUAGES

The Constitution of India officially recognizes 14 major indigenous languages which are spoken by about 320 million people. The existence of more than a dozen principal languages in one country poses many important problems and questions related to language policy. For example, how can national unity, the spread of modern ideas, and inter-regional communication be maintained; which languages are to be used and taught in education; should traditional scripts be changed?

To clarify the framework and essentials of urgent language problems a large-scale program was inaugurated in 1954 at the Deccan College Postgraduate and Research Institute, Poona, India. Indian linguists are being trained and

a scientific description of the main contemporary languages of India is being made. The knowledge gained is also being applied to the development of better means for learning these languages. Indian and American scholars are cooperating in the systematic study of selected languages in different parts of India. Intensive training for Indian linguists will be continued in a two-month linguistic school to be held each year and in occasional working conferences.

In support of the Deccan College Postgraduate and Research Institute during the next 15 months, The Rockefeller Foundation has appropriated 229,800 rupees and \$76,775 (a total of about \$126,775) for the continuation of training and descriptive studies in the languages of India.

THE ASSOCIATION FOR ASIAN STUDIES, INC.

The principal academic organization in the United States for scholars in the field, the Association for Asian Studies, Inc. (formerly the Far Eastern Association), in Ann Arbor, Michigan, has as its major purpose the encouragement of greater understanding of modern Asia. To help support two of its activities directed toward this end, The Rockefeller Foundation in 1956 made grants totaling \$67,500 to the association.

The first grant, of \$57,400, will support studies by the association's Committee on Chinese Thought during a four-year period. The research will focus on the role of Confucianism in actual political and social practice in Chinese history, and will be carried out by selected scholars from a wide variety of institutions who will be commissioned to prepare papers on significant topics. After full discussion at conferences, one to be held in 1957 and the other in 1959, the papers will be revised and published in two volumes which will form additions to the series of studies already produced by the committee. As a part of the program, two leading foreign scholars in the field—one from Europe and

one from Japan—will be invited to spend a year of study in the United States and to participate in the conferences.

A three-year grant of \$10,100 will help the association's recently formed Committee on South Asia explore and promote ways of strengthening South Asian studies at American universities through surveys of new scholarly work in the field and sponsorship of projects on important problems. The committee will, for example, encourage libraries to cooperate in the acquisition of research materials, and stimulate study of the history, languages, and religions of South Asia.

TOYO BUNKO

SEMINAR ON MODERN CHINA

In an effort to achieve a more balanced understanding of modern China, approximately 20 of Japan's most able scholars in the field of Chinese studies formed a seminar at the Toyo Bunko, or Oriental Library, in Tokyo, Japan, for research stressing the history of China since 1900. Since the organization of the seminar in 1954, the group have produced a substantial number of publications which have proved of value not only to Japanese scholars but also to Western scholars in the field. At the same time, visits to the United States and Europe by Japanese scholars associated with the seminar have served to establish and maintain liaison between Japanese and Western studies of recent Chinese history.

The Foundation, which aided the establishment of the seminar in 1954, made a further contribution in 1956 of 9,277,200 yen and \$26,865 (about \$54,700) toward its support during the next three years. Part of the funds will be used to enable one Japanese scholar to visit the United States and Europe during each of the next three years.

MODERN LANGUAGE ASSOCIATION OF AMERICA

FOREIGN LANGUAGE TEXTBOOKS

During the past few years, in part as a result of the activities of the Modern Language Association, study of foreign languages has increased markedly at all levels in American schools. Among the association's projects have been definition of essential professional qualifications for language teachers, preparation of new and improved patterns of both method and content for foreign language instruction, and sponsorship of model textbooks for language instruction in elementary schools.

The association now plans to prepare model foreign language textbooks for use at the college level and, as its first project, has commissioned six leading authors of Spanish textbooks to collaborate in producing a text for first-year Spanish. After a semester of joint classroom testing, rewriting, and final editing, the new book will be assembled at the University of Texas. Royalties will accrue to the MLA, and will be used to start a revolving fund to finance similar textbooks for other languages.

Toward the costs of the new project, The Rockefeller Foundation has appropriated \$40,500, available over a two-year period to the Modern Language Association, New York. In previous years the Foundation has made grants totaling \$325,000 toward support of the association's Foreign Language Program.

UNIVERSITY OF ANKARA

AMERICAN STUDIES

With the assistance of visiting American professors, the University of Ankara, Turkey, has established both American history and American literature as regular courses of study in its Faculty of Letters, and has already proposed

creation of a professorship in American literature as a permanent appointment in the faculty.

The aid of visiting American professors is needed for an additional two years, at which time the university expects Turkish scholars to carry on the courses in American studies. The Foundation helped finance the appointment of American professors in 1954 and 1955, and in 1956 made a new grant of \$30,000 to enable the university to continue the appointment of American professors for an additional two years.

OTHER GRANTS

International Institute for the Study of Religions in Japan, Tokyo: toward support of its general program; \$18,000 for a three-year period;

Harvard University, Cambridge, Massachusetts:

Studies in the field of comparative religion, to be carried out with the cooperation of two visiting Japanese scholars; \$13,500 for a two-year period;

Thomas J. Wilson, director, Harvard University Press; to visit Japan, Korea, and Indonesia to develop relations with university presses and publishers; \$3,750;

Professor Raphael Demos, Department of Philosophy; to study contemporary thought in Greece; \$2,200;

The Trustees of Robert College, Istanbul, Turkey: conferences on the development of courses in the humanities dealing with the interplay of Eastern and Western civilization; \$10,000;

Dr. Majid Khadduri, professor of Middle East studies, Johns Hopkins University, Baltimore, Maryland: to prepare in the Near East a translation of the treatise on Muslim law, the *Risala* of Shafi'i; \$8,250;

University of Oxford, St. Antony's College, England: development of research in Near Eastern studies, under the direction of Frank Stoakes; £2,600 (about \$7,800);

Tarik Z. Tunaya, docent in constitutional law, Faculty of Law, University of Istanbul, Turkey: research on the history of the Turkish revolution, principally in the United States; \$7,500;

University of Pennsylvania, Philadelphia: development of plans for intensive studies of the Maharashtra and Gujarat regions of India, under the direction of Professor W. Norman Brown; \$7,500;

Tokyo University, Japan: expenses and fellowships related to summer seminars on American studies in Japan sponsored by Tokyo University and Stanford University, California; \$7,000;

Abdul Jabbar Chalabi, Iraq Development Board, Baghdad: to study developmental planning in the United States and Mexico; \$6,500;

University of California, Berkeley: to appoint Dr. John J. Gumperz as instructor in Hindi; \$6,500;

University of Glasgow, Scotland: support of the program of Latin American studies of the Department of Hispanic Studies; \$6,500;

European Association for American Studies, Zurich, Switzerland: general support and conferences; \$6,000;

Dr. V. S. Krishna, vice-chancellor, Andhra University, Waltair, India: to visit universities in Europe and the United States to discuss higher education policies; \$4,525;

University of Chicago, Illinois:

Professor R. Pierce Beaver, professor of the history of religions, Federated Theological Faculty; to visit religious centers in Asia; \$4,250;

Dr. Marshall G. S. Hodgson; to gain a direct acquaintance with contemporary Arabic thought in Islam, principally in the Arab countries; \$3,725;

Mrs. Lily P. H. Chong, assistant professor of Chinese language and literature, University of Hawaii, Honolulu: to study Chinese literature in Hong Kong, Formosa, and Japan; \$4,000;

Stanford University, California: a conference on the utilization of the collections of the Hoover Institute and Library in research on the history of modern Turkey; \$4,000;

University of Pisa, Italy: books, periodicals, and other materials for the Institute of English and American Literature; \$3,750;

Professor N. K. Sidhanta, vice-chancellor, University of Calcutta, India: to visit universities in the United States to discuss higher education policies and problems; \$3,600;

University of Cologne, Germany: books and materials for Latin American studies; \$3,500;

Fund for Asia, Inc., New York: a program for international discussion of cultural relations between South and Southeast Asia and the United States, under the direction of the United States National Commission for Unesco; \$3,360;

Free University of Berlin, Germany: exchange of professors in American studies with Bennington College, Vermont; \$3,350;

University of Rome, Italy: translation into English of recent Italian philosophy and translation into Italian of recent American philosophy, under the direction of Dr. Franco Lombardi, director, Institute of the History of Philosophy, Faculty of Education; \$3,250;

University of Michigan, Ann Arbor: Yuzo Yamamoto, Japanese novelist and playwright; to visit American universities for conferences with writers and scholars on Japanese and American literature; \$3,150;

Professor Bertold Spuler, University of Hamburg, Germany: to visit the United States and Canada to observe programs in Near Eastern and related studies; \$3,000;

I. J. C. Foster, librarian, School of Oriental Studies, University of Durham, England: to visit centers of Oriental studies in the United States and Canada; \$2,500;

Professor A. H. Dodd, University College of North Wales, Bangor: to visit centers of American studies in the United States; \$1,000;

Waseda University, Tokyo, Japan: books and magazines for the use of the Japanese Association for the Study of American Philosophy; \$1,000;

Savoie Lottinville, director, University of Oklahoma Press, Norman: to study problems related to the publication of translations in the United States and Mexico; \$732.

Humanistic Research

UNIVERSITY OF CHICAGO

MADISON PAPERS

James Madison, fourth President of the United States, ranks as a major figure in American history not only as a Founding Father but also as one of the chief architects of American constitutional theory and practice. Because the only existing edition of his writings, nine volumes published between 1900 and 1910, represents but a fraction of his works, the preparation of a more complete 22-volume annotated edition of the Madison papers will be undertaken jointly by the University of Chicago and the University of Virginia.

An editorial board composed of three men representing both universities will direct the project which will span the next 12 years. A special advisory board of distinguished scholars on the early period of United States history will be appointed for consultation on technical matters and for policy advice. Much of the editorial activity will be concentrated on developing full and accurate notes.

Since Madison's papers are largely concentrated at the Library of Congress, the National Archives, and the University of Virginia, no problems in tracing lost materials are anticipated.

To help support the preparation of this new edition of the writings of James Madison, The Rockefeller Foundation has appropriated \$150,000 to the University of Chicago, for use during the next 12 years.

AMERICAN HISTORICAL ASSOCIATION

GUIDE TO HISTORICAL LITERATURE

In recognition of a growing demand within the historical profession, the American Historical Association is currently preparing a revised *Guide to Historical Literature* which will not only bring the 1931 edition up to date, but will also place much more emphasis on world history and the history of non-Western countries than did the earlier *Guide*.

In the new edition the editors are not attempting primarily to assist the scholar in his specialty but rather to provide a standard reference book for the serious student of history seeking to improve his acquaintance with the literature of less familiar areas. The listing of titles will nevertheless be inclusive, and selection will be based solely on the value of each work rather than upon such factors as the language in which it is written.

The revised *Guide* is especially needed at this time in view of rising school and college enrollments and the demands being made on the available teachers for broader historical competence. It will be prepared during the next several years under the general supervision of a committee of distinguished historians. A full-time editor and a number of section editors will be responsible for the selection and annotation of materials in the various fields of specialization. Toward the costs of this work, the Foundation in 1956 made a two-year grant of \$75,000 to the American Historical Association, Washington, D.C.

INSTITUTE FOR CONTEMPORARY HISTORY

RECENT GERMAN HISTORY

Founded in 1951 for the purpose of making known what happened under the National Socialist regime in Ger-

many, the Institute for Contemporary History in Munich has established active research and publication programs and has brought together a rich collection of materials and documents relating to the period. It publishes the *Quarterly for Contemporary History*, and has produced a number of volumes on special phases of Nazi history as well as detailed monographic essays and studies.

Currently in progress under the institute's research program are studies of the SS, of anti-Semitism in Germany, and of the German occupations of European countries during World War II.

To assist the Institute for Contemporary History with research expenses, The Rockefeller Foundation in 1956 appropriated 105,600 German marks (about \$26,000) for use over a two-year period.

OTHER GRANTS

Professor John D. Goheen, Stanford University, California: to study developments in philosophy in Asia and Western Europe; \$14,000;

Kyushu University, Fukuoka, Japan: research on Chinese thought from the Sung to the Ming dynasties, under the direction of Professor Masatsugu Kusumoto; 3,600,000 yen (about \$10,800) for a three-year period;

Indian Council of World Affairs, New Delhi: collection and cataloguing of information concerning the late M. N. Roy, political entrepreneur and philosopher; \$10,000;

Tokyo University, Japan: research on the significance of mountains in Japanese religion, under the direction of Dr. Hideo Kishimoto, head, Department of Religion; 3,492,000 yen (about \$10,000);

University of Madras, India: continued preparation of the Catalogus Catalogorum of Sanskrit texts, by Professor V. Raghavan; \$10,000;

Professor Abraham Kaplan, University of California, Los Angeles: to study philosophical developments in India, Japan, and Israel; \$9,800;

New York University, New York: study of arid zone life in antiquity, by Dr. Philip Mayerson; \$9,750;

Kyoto University, Japan: research on the history of the modernization of Japan, under the direction of Professor Yoshio Sakata; 2,620,000 yen (about \$7,860);

Columbia University, New York: research on Britain as the first industrial society, by Professor J. Bartlett Brebner; \$7,000;

Pan American Institute of Geography and History, Commission on History, Mexico City, Mexico: research and writing on a history of the Americas, under the direction of Dr. Silvio Zavala; \$6,400;

Laval University, Quebec, Canada: studies in French Canadian folklore, by Professor Luc Lacourcière; \$6,000;

University of Michigan, Ann Arbor: philosophical studies in Great Britain and the Continent, by Professor William Frankena, head, Department of Philosophy; \$6,000;

Yale University, New Haven, Connecticut: study of early Russian history and languages, by Professor Ralph T. Fisher, Jr.; \$5,500;

University of Hawaii, Honolulu: expenses of continued publication of the quarterly, *Philosophy East and West*; \$4,000 for a two-year period;

University of Cambridge, Peterhouse, England: studies of historiography in Europe, by B. H. G. Wormald, senior lecturer in history; £1,200 (about \$3,500);

Princeton University, New Jersey: preparation of a biography of General Hideki Tojo, by Robert Butow; \$2,800;

Professor William F. Goodwin, University of Wisconsin, Madison: to study contemporary social philosophy in India; \$2,750;

Jean-Claude Gardin, French Institute of Archaeology, Beirut, Lebanon: to consult with archaeologists in the United States, Great Britain, and Germany, on the development of a system for the classification of archaeological artifacts; \$2,400;

Literary Society of Bengal, Calcutta, India: continued study of the cultural and social development of twentieth century Bengal, by Sibnarayan Ray; 7,200 rupees (about \$1,575);

Free University of Berlin, Germany: a conference of Western scholars on the problems connected with a critical appraisal of Marxist philosophy, sponsored by the East European Institute; \$1,500;

University of London, School of Oriental and African Studies, England: Dr. Hiralal Singh, lecturer in history, Benares Hindu University, India; to prepare source materials on recent Indian history for publication; £500 (about \$1,500);

Jorge Ignacio Rubio Mañé, National Archives, Mexico City, Mexico: to undertake historical research in the United States; \$400.

The Arts

AMERICAN SYMPHONY ORCHESTRA LEAGUE, INC.

WORKSHOPS FOR CONDUCTORS AND MUSIC CRITICS

Because of its concern with the quality of orchestral performances and with public appreciation of symphony concerts, the American Symphony Orchestra League, Inc., in Charleston, West Virginia, has been sponsoring workshops for conductors and for music critics for the past several years.

Eight workshops for conductors have already been held which have made it possible for 150 conductors of community and college orchestras to lead some of the country's major symphony groups. In the summer of 1956 a new type of workshop was inaugurated that provided eight conductors of community orchestras with a week-long opportunity to weld into a unit responsive to their direction 72 musicians from 30 different orchestras who had never before played together. More such workshops are being planned, as well as another series to provide for concentrated practice in conducting special repertoires such as opera, combined orchestral-choral compositions, and contemporary orchestral work. The first of the latter group, featuring opera, is being held

in New York during April, 1957, under the joint auspices of the League and the Opera Theatre of the Juilliard School of Music.

Plans have been made for further seminars for music critics to be held on an annual basis. These are designed for reviewers of all types, including the large group of journalists who are responsible for the music column as only one of many reporting duties. Four previous meetings, in New York, Los Angeles, Louisville, and Cleveland, stimulated wide interest in a continuation of the program and have led to plans for a national association of critics.

The Rockefeller Foundation, which has aided the American Symphony Orchestra League, Inc., since 1954, appropriated \$109,700 in 1956 for continuation of the workshops for conductors and for music critics. The new grant, bringing total Foundation assistance to the League to more than \$250,000, will be available through the next four years.

AMERICAN SHAKESPEARE FESTIVAL THEATRE AND ACADEMY, INC.

The American Shakespeare Festival Theatre at Stratford, Connecticut, inaugurated its first season in July, 1955, with performances of *Julius Caesar*, *The Tempest*, and *Much Ado About Nothing* before audiences totaling 60,000 persons. At the same time, in another building, the Festival Academy began to offer training in the techniques of Shakespearean acting and directing—training which, for a limited number of actors, is continued in New York City during the winter months.

Although the original plan had been to begin the Festival performances in a structure suitable only for the summer season, the Festival trustees in 1954 decided to erect immediately a permanent theatre building for year-round

use. Largely because of this decision, the Festival's expenses have exceeded initial estimates.

The Rockefeller Foundation, which in 1954 contributed \$200,000 toward the costs of establishing the Festival Theatre and Academy, made a final grant of \$100,000 in 1956 to help provide the additional funds needed for completion of its facilities and for operating expenses.

THE FOUNDATION FOR CULTURAL PROJECTS, INC.
THE HUDSON REVIEW, INC., AND THE CANADA
FOUNDATION

CREATIVE WRITING FELLOWSHIPS

The award of fellowships has long been considered one of the most effective ways of encouraging the development of personnel in the scientific and humanistic disciplines. In the creative arts, however, the developing artist needs a more flexible form of assistance than is usually encompassed in the term fellowship. His need is sometimes not for a program of study, but rather for the freedom to practice his art in any way which best suits his individual needs and aspirations.

For a number of years The Rockefeller Foundation, in its program in the humanities, has sought to encourage the development of creative writing through grants to literary reviews for the award, by their editors, of fellowships to younger authors. Four different literary reviews in the United States, whose editors are widely acquainted with the work of young writers and committed to high standards of literary excellence, were selected in the hope that this decentralized approach would encourage both diversity of point of view and wide geographical distribution in the award of the fellowships.

In previous years *The Kenyon Review* and *The Sewanee Review* have received funds for fellowship awards.

In 1956 *The Hudson Review*, New York, and the Foundation for Cultural Projects, Inc., New York, publishers of the *Partisan Review*, each received a grant of \$52,200 to enable them to award approximately four fellowships yearly during the next three years. Although those responsible for the awards are prepared to give fellows any guidance or assistance they may request, the fellowships involve no requirements of residence, formal study, or supervision.

In 1956 the Foundation extended this type of fellowship assistance to Canada through a grant of C\$48,300 (about \$49,750) to the Canada Foundation, among whose purposes is the advancement of the arts and other cultural activities in Canada. The Canada Foundation will use the funds to award four fellowships in creative writing during each of the next three years, and has appointed a committee composed of three English-speaking members and two French-speaking members to select the fellows. With a few exceptions, there are no literary fellowships available to Canadians comparable to those to be offered by the Canada Foundation with Rockefeller Foundation funds.

UNIVERSITY OF PENNSYLVANIA

SCHOOL OF FINE ARTS

The emphasis in urban planning and development upon "surface survival" through improved transport, access to essential facilities, and zoning has frequently resulted in a corresponding disregard of how planned developments look. However, man has been successful in the past and in all parts of the world in reshaping his urban environment so that it meets both his aesthetic and his utilitarian needs. The factors which lead to communities which are socially, culturally, and aesthetically satisfying will be investigated in two studies on the aesthetic aspects of community planning being

undertaken by the University of Pennsylvania's School of Fine Arts.

For the first study, a history of town and country planning, material will be collected on urban development in earlier ages and in different parts of the world; in the second study, new forms of expression and design in landscape architecture which have evolved in relation to expressways, national parks, and community development will be analyzed and appraised. Both projects will result in a series of publications to give historical depth and broader international perspective to the work of architects and city and development planners and to provide basic reference sources and essential teaching materials.

In support of these studies, to be made over a three-year period, The Rockefeller Foundation has appropriated \$66,000 to the University of Pennsylvania, Philadelphia.

METROPOLITAN OPERA ASSOCIATION, INC.

MUSICAL ARTS CENTER

The Exploratory Committee for a Musical Arts Center in New York City was formed at the joint suggestion of the Metropolitan Opera Association and the Philharmonic-Symphony Society of New York to determine the feasibility of a center not only for the Metropolitan Opera and the New York Philharmonic, but also for the performance of chamber music, ballet, light opera, and drama.

If the project materializes, a site would be acquired in the Lincoln Square area, west of Broadway between 62nd and 64th Streets, where both the opera association and the symphony society have decided to relocate their activities in connection with a large redevelopment program conceived by Park Commissioner Robert Moses.

For study by the committee through a period of five

months, the Foundation in 1956 appropriated \$50,000 to the Metropolitan Opera Association, Inc.

PRATT INSTITUTE

GRAPHIC ARTS CENTER

Because the production of a successful print depends to a great extent on specialized craftsmanship in the actual printing, the print-making workshop associated with the Contemporaries Gallery in New York City has become a focal point for the many outstanding artists in the area who work in this medium.

Using the gallery's print-making shop as a nucleus, Pratt Institute is developing a graphic arts center with the functions of both a workshop and a school. Under the direction of Professor F. Eichenberg of the institute and Miss Margret Lowengrund of the Contemporaries Gallery, instruction at an advanced level will be offered in methods of etching, engraving, lithography, woodcutting, silk screen, and mixed media. The center will also be available to professional artists for experimentation and printing. An advisory board includes representatives from leading New York museums as well as from the Pratt Institute.

To help maintain the center for the next three years, The Rockefeller Foundation has appropriated \$50,000 to the Pratt Institute, Brooklyn, New York.

NEW YORK PUBLIC LIBRARY

DANCE COLLECTION

The dance collection of the New York Public Library, a centrally located storehouse of facts and ideas for hundreds of producers, choreographers, costume and scene designers, and scholars, as well as for the general public, has been enriched in recent years by such valuable and extensive

gifts as the Nijinsky, Chamie, Hanya Holm, Denishawn, and Walter Toscanini collections. Toward the expenses of cataloguing and indexing the portions of this new material which are still inaccessible to the public—1,150 books, 10,720 prints and photographs, and 12,100 clippings—the Foundation in 1956 appropriated \$37,560 to the library for use during the three-year period ending June 30, 1959.

AMERICAN FEDERATION OF ARTS

INTERNATIONAL ART FILM FESTIVAL

The American Federation of Arts, New York, has undertaken sponsorship of a third international art film festival featuring films, from the United States and other countries, that deal with the creative process in the visual arts. The films will be selected by museum directors, art critics, and representatives of college art departments and art associations. To be held during 1957 at the Metropolitan Museum of Art in New York, the festival will include discussions of the production and use of art films and film showings at evening sessions open to the public.

In 1956 The Rockefeller Foundation appropriated \$25,000 to the American Federation of Arts to help with the expenses of the festival.

OTHER GRANTS

Japan Society, Inc., New York: to bring to the United States three Japanese print artists; \$16,000 for a three-year period;

Art Society of Korea, Inc., Seoul: encouragement of contemporary work in the arts; \$15,120;

Philippine Normal College, Manila:

Support of the drama program; 17,250 Philippine pesos and \$4,750 (about \$13,500) for a three-year period;

Toward the appointment of a director for the drama program; \$7,200 for a three-year period;

San Francisco State College, California: development of the Poetry Center; \$11,500;

Carnegie Institute of Technology, Pittsburgh, Pennsylvania: an experimental program to increase interest in contemporary original works of art in the public, parochial, and private schools of Pittsburgh, to be undertaken by the Pittsburgh Plan for Art; \$10,000;

National Gallery of Art, Washington, D.C.: preparation, in cooperation with other museums, of an exhibition of Korean national treasures; \$10,000;

Portland Junior Symphony Orchestra Association, Oregon: to commission orchestral works suitable for performance by junior orchestral groups; \$10,000;

Henry Cowell, adjunct professor of music, Columbia University, New York, and Mrs. Cowell: to gain a direct acquaintance with music in the Orient; \$9,600;

American National Theatre and Academy, New York: toward the administrative costs of a program of assistance to Hungarian refugee performing artists; \$9,150;

Zainul Abedin, principal, Government Institute of Arts, Dacca, Pakistan: to visit centers of artistic activity in Japan, the United States, Mexico, and Europe; \$8,700;

Professor F. Theodore Cloak, Lawrence College, Appleton, Wisconsin: to study recent developments in drama in Europe and the United States; \$6,900;

Yale University, New Haven, Connecticut:

Preparation for publication of his studies in the field of color, by Professor Josef Albers; \$6,000;

Professor René Wellek, Sterling Professor of Comparative Literature: to visit Europe in connection with his studies of literary criticism; \$2,500;

R. K. Narayan, novelist, Mysore City, India: to meet writers, critics, and publishers in Great Britain, Europe, and the United States; \$5,850;

Nureddin Sevin, director, Department of Drama, National Conservatory of Ankara, Turkey: to observe the theatre and schools of drama in the United States and Canada; \$5,800;

Mardio Koesoemaatmadja, director, art education program, Art Academy of the Republic of Indonesia, Djogjakarta: to study art education in the United States and other countries; \$5,500;

William Clifford, New York: to collect information on writing, translation, and book publishing in the Near East and South Asia, with the sponsorship of the American Book Publishers Council; \$5,200;

Professor Walther Killy, Free University of Berlin, Germany: to visit the United States and Canada to study recent German literature; \$5,100;

Stanford University, California:

Professor Yukio Yashiro, Ueno School of Fine Arts, Tokyo, Japan; to continue in the United States studies of Japanese art, and to make a survey of American collections; \$5,000;

Studies of Japanese poetry, by Dr. Robert H. Brower of Stanford University and Dr. Earl Roy Miner of the University of California, Los Angeles; \$2,985;

University of the Philippines, Quezon City:

Recordings for the Listening Room of the University Library; \$5,000;

Professor Jose Maceda; to visit Thailand, Burma, and Indonesia and to purchase necessary equipment for studies of the music of other Southeast Asian countries; \$2,800;

Dr. Khwaja Ahmad Faruqi, reader in Urdu, University of Delhi, India: to examine materials and consult scholars in Great Britain and Western Europe in connection with his study of Urdu literature and Indian life; 18,500 rupees (about \$4,050);

Narayana Menon, director, All India Radio, Madras: to visit the United States to study the relationships between Indian and Western music; \$3,900;

Mrs. H. Fureya, ceramist, Istanbul, Turkey: to observe work in ceramics in the United States and Mexico; \$3,800;

Harvard University, Cambridge, Massachusetts: a conference on "The Little Magazine in America," to be held at the Harvard Summer School of Arts and Sciences and of Education; \$3,500;

International Graphic Arts Society, Inc., New York:

An experimental program in a few American colleges and universities to encourage appreciation of contemporary graphic art through a print lending program; \$3,500;

Purchase and shipment of collections of prints to six art centers in Asia; \$1,200;

Miss Margarita Quijano Teran, assistant professor of comparative literature, National University of Mexico, Mexico City: to study comparative literature in Europe and the United States; \$3,000;

Miss Dorothy Sands, New York: to aid in the development of acting instruction in the Drama Department of the National Conservatory of Ankara, Turkey; \$3,000;

Ernst Erich Noth, editor, *Books Abroad*, and professor of comparative literature, University of Oklahoma, Norman: to visit literary critics, writers, and publishers in Europe; \$2,400;

University of Istanbul, Turkey:

Dr. Berna Moran, docent in English; to continue in England study of the Turkish sources of English literature; \$2,300;

Dr. Fahir Iz, professor of classical Turkish literature, Faculty of Letters; studies of the Turkish poet, Fuzuli; \$1,800;

Pratt Institute, Brooklyn, New York: preparation of a preliminary study of the relationship between art and government in twentieth century democratic society, by Dr. Hellmut Lehmann-Haupt; \$2,200;

University of Malaya, Singapore:

Teaching materials in art; \$2,000;

Poetry and other speech recordings; \$500;

University of Indonesia, Technical Faculty at Bandung: development of the art library; \$2,000;

Indonesian National Theatre Academy Foundation, Djakarta: equipment and supplies for use in connection with the educational program; \$2,000;

League of Composers—International Society for Contemporary Music, U. S. Section, Inc., New York: discussions, between composers and members of the American Symphony Orchestra League, Inc., of the programming of contemporary music by American orchestras; \$1,900;

Professor Kay Fisker, Royal Academy of Fine Arts, Copenhagen, Denmark: to visit schools of architecture in the United States; \$1,400;

Robert P. Griffing, Jr., director, Honolulu Academy of Arts, Hawaii: to visit the Philippines and Indonesia; \$1,200;

Dr. Abraham Moles, Paris, France: to observe recent developments in electronic music and related fields in the United States; \$1,200;

Dr. Domingo Santa Cruz, Santiago, Chile: to visit centers of music and music education in Europe; \$1,200;

Anatole Chujoy, editor, *Dance News*, New York: to study the possibilities of local support for the dance in the United States; \$1,150;

Max Frisch, architect and writer, Zurich, Switzerland: to study design and city planning in Europe and the United States; \$1,000;

University of Wisconsin, Madison: to invite Julius Landau, playwright, to spend six months with the Wisconsin Idea Theatre; \$1,000;

Bryn Mawr College, Pennsylvania: continued study in Japan of modern Japanese painting, by Miss Ellen D. Psaty; \$500.

Special Projects

AMERICAN LIBRARY ASSOCIATION

OVERSEAS DEVELOPMENT

A three-year grant of \$111,600 was appropriated to the American Library Association, Chicago, Illinois, in 1956 for the maintenance of an overseas library planning and development office. The functions of the new unit, which is to be based in this country but to have a traveling director, will be on-the-spot study of library conditions abroad and the recommendation of special projects for execution by the association either alone or in combination with other groups.

The association has previously cooperated in foreign library activities with The Rockefeller Foundation, the United States government, UNESCO, the Ford Foundation, and other agencies. During and immediately following World War II, its International Relations Board, aided by grants from The Rockefeller Foundation, helped establish library training schools in Latin America and stockpiled scholarly publications for postwar distribution to European and Asiatic libraries. More recently, working with The Rockefeller Foundation in the first instance and with the Ford Foundation in the second, the association assisted in the organization of library schools in Tokyo, Japan, and Ankara, Turkey. It also managed last year the programs for two groups of visiting librarians who came to the United States under government auspices.

The new grant, bringing total aid to the association from the former Laura Spelman Rockefeller Memorial and The Rockefeller Foundation well above \$1,400,000, will provide, among other things, salaries for a full-time director and secretary-administrative assistant.

KEIO UNIVERSITY**JAPAN LIBRARY SCHOOL**

The Japan Library School at Keio University, Tokyo, was founded five years ago through the joint efforts of the American Library Association and the United States Department of Defense. The leadership of its first director, Robert Gitler, and the encouragement of the Keio University administration helped it develop rapidly into a national center for the training of librarians, and it is now known and supported by library leaders throughout Japan.

The school was partially staffed by Americans at first but, following a gradual transference of their duties to Japanese personnel, the last of the full-time group, Mr. Gitler, has returned to this country, and the school is now entering a new phase of its development. Toward its further growth during this second period, the Foundation has made a five-year grant of \$60,000. A previous appropriation of \$142,800 assisted the school from 1952 through 1956.

Each year the new appropriation will make possible the appointment of a visiting professor for approximately three months, and study in the United States by a Japanese professor. It will also finance scholarships to the Japan Library School for Japanese students of library science.

STANFORD UNIVERSITY**SEMINAR ON UNIVERSITY ADMINISTRATION**

An important role in the development of Japanese education is being played by that country's privately founded universities which accommodate more than 50 per cent of the nation's university students. The nonacademic administrators of these institutions will be given an opportunity to observe at first-hand administrative and business procedures as practiced in universities of the United States at a seminar

on university administration being held by Stanford University, California, during the summer of 1957.

During the initial two weeks of the seminar the Japanese delegates will participate in discussions of such topics as the responsibilities and functions of trustees, budget control and accounting, and alumni participation in financial development. They will also observe Stanford's handling of finance and administration and subsequently, accompanied by interpreters, will visit a small number of other colleges and universities, foundations, and educational institutions to study fund raising, budget control, and other business methods which they might find helpful.

The Rockefeller Foundation has appropriated \$60,000 to Stanford University as a contribution toward the costs of the six-week program.

KOREAN LANGUAGE SOCIETY

DICTIONARY OF THE KOREAN LANGUAGE

The Korean Language Society, with headquarters in Seoul, began work on the first definitive dictionary of the Korean language while Korea was under the domination of the Japanese. The society was suppressed and its leaders jailed, but the manuscript survived to be completed in the postwar years, when Volume I was published. Although in 1948 The Rockefeller Foundation sent the society the materials needed to print the remaining volumes, only Volume II could be published before the Communists invaded Korea. Subsequently the leader of the project was again jailed; the manuscript had to be hidden; and most of the printed books, as well as printed sheets and printing materials, were lost.

The spelling system and the Korean alphabet adopted by the society in the six-volume dictionary have become standard in Korean writing, from the daily press to school texts and scholarly treatises. To enable the society to pub-

lish all six volumes, making the authoritative dictionary available in its entirety for the first time, the Foundation in 1956 made a one-year grant of \$36,400.

INTERNATIONAL YOUTH LIBRARY

Since its organization in 1949, the International Youth Library in Munich, Germany, has become one of the finest libraries for children in the world, with a collection of over 30,000 books and a wide range of activities for children. Under the leadership of Mrs. Jella Lepman, its founder, the library has established contacts with government cultural departments and library authorities in many of the countries of Asia, Africa, and Latin America, has sent exhibitions of children's books to these areas, and has been host to librarians who have come to Munich for information or training. The library is an affiliate of UNESCO.

Although Mrs. Lepman retired as director of the International Youth Library during 1956, she has stayed on to head a special program of aid to libraries for children in Asia, Africa, and Latin America. Among the services to be offered will be assistance in the compilation of lists of books for publication, translation, or adaptation, advice concerning programs of activities for children, and the exhibition of small collections of children's books.

To help finance the International Youth Library's expanded program, The Rockefeller Foundation in 1956 made a grant of \$35,500 for use during a two-year period. The Foundation has aided the activities of the library continuously since its establishment.

UNIVERSITY OF COLORADO

HONORS PROGRAM

Under the honors program at the University of Colorado, selected students from as early as their freshman year

participate in 29 honors groups in the humanities, the sciences, and the social sciences. One of the program's important features is its arrangement whereby students take part in honors groups outside their field of major study. Approximately ten per cent of the students in the College of Arts and Sciences are doing honors work, and 80 faculty members direct various phases of the program.

Honors work, which provides outstanding students with a richer curriculum and the opportunity for independent study and research, may prove to be an important means of maintaining high scholastic standards threatened by enlarged college enrollments. Since state universities will undoubtedly absorb much of the increase, Colorado has adopted a plan to extend its own honors program, which was established in 1930, and to make its experience available to other institutions. The director of the Colorado program will visit interested universities, and representatives of other state universities may be invited to participate directly in the program at Colorado. In addition, an inter-university conference will be held at Boulder during the summer of 1957.

To help the University of Colorado in this effort, The Rockefeller Foundation has appropriated \$28,000 for use over a three-year period.

OTHER GRANTS

American Council of Learned Societies, Washington, D.C.: continuation of its program of Summer Study Aids in Linguistics; \$10,000;

Brown University, Providence, Rhode Island: continued study of ways by which the teaching of English in Egypt might be improved, by Professor W. Freeman Twaddell; \$7,800;

Ministry of Education, Instruction, and Culture, Djakarta, Indonesia:

The Jang Lok, sub-chief, Inspectorate for Foreign Education; to study methods of education of minority groups, chiefly in the United States and Canada; \$6,475;

Books and equipment for the newly established Provincial Library, Bukittinggi, Sumatra; \$6,000;

Library of Congress, Washington, D.C.:

Preliminary planning for a new and more easily maintained form of the *Union List of Serials*; \$6,000;

Translation into Spanish of a manual on the organization and management of archives, by Dr. Manuel Carrera Stampa, Colegio de México, Mexico City; \$2,500;

University of California, Los Angeles: studies of English language teaching problems in the United States and the Philippines, by two staff members; \$6,000;

Colgate University, Hamilton, New York: further study of the role of the humanities in its program of general education; \$5,500;

San Jose State College, California: continued study of ways by which the teaching of English in Egypt might be improved, by Dr. Paul Roberts; \$5,000;

Chu Saichi, head, Tax Training Institute, Ministry of Finance, Tokyo, Japan: to study problems of taxation in relation to education in North America and Europe; \$4,200;

Ali Afandi, secretary, Gadjah Mada State University, Djogjakarta, Indonesia: to study college and university administration in the United States; \$4,025;

Fund for grants of amounts not exceeding \$500 for allocation under the supervision of the Director; \$3,000;

University of Dacca, Pakistan: books, materials, and equipment for the study and improved teaching of languages; \$3,000;

American Personnel and Guidance Association, Inc., Washington, D.C.: liaison with and assistance to the Japanese Vocational Guidance Association; \$2,750;

Islamic University of North Sumatra, Medan, Indonesia: purchase of books and publications outside Indonesia; \$2,000;

Higher School of Islamic Studies, "Garden of Law," Bukittinggi, Sumatra, Indonesia: purchase of books and publications outside Indonesia; \$2,000;

United Board for Christian Higher Education in Asia, New York: books and publications for the Indonesian Christian University, Djakarta; \$2,000;

Abdul Hamid, Bukittinggi, Sumatra, Indonesia: to study the teaching of English in Great Britain and Europe; \$1,375;

Soedjatmoko Mangoeniningrat, director, Pembangunan Foundation, Djakarta, Indonesia: to visit the United States; \$1,300;

Kobe College, Nishinomiya, Japan: to invite Dr. Mary Ashby Cheek, former president, Rockford College, Illinois, to serve as advisor and visiting lecturer; 352,000 yen (about \$1,050);

Andhra University, Waltair, India: books and materials on linguistics and related subjects; \$1,000;

Annamalai University, Annamalainagar, India: books and materials on linguistics and related subjects; \$1,000;

Samuel Mathai, secretary, University Grants Commission, New Delhi, India: to visit selected universities in Japan; \$1,000;

Gujarat University, Ahmedabad, India: books and materials on linguistics and related subjects; \$1,000;

Dr. José Luis Romero, professor of history, University of La Plata, Argentina: to study problems of higher education in the United States; \$350.

OTHER APPROPRIATIONS

GRANTS which fall somewhat outside the specific programs, or which include elements relating to more than one aspect of the Foundation's work, are taken from general funds. In 1956 five appropriations and 20 smaller grants were of this character.

HUNGARIAN REFUGEE AID PROGRAM

For a program of emergency aid to Hungarian refugees, particularly scholars, students, and members of the arts and professions, The Rockefeller Foundation during December, 1956, made two grants totaling \$1,200,000 for use during 1957.

The primary concern of the Foundation is to aid Hungarian scholars and university students who can establish themselves in institutions of higher learning in Austria and other countries, to help international agencies with the costs of resettling Hungarian scholars, students, and members of the professions, and to assist programs in the United States designed to help Hungarian students adjust as quickly as possible to the American academic community during a preliminary period when they can also be given English language training.

A series of allocations totaling \$422,400 was made to 13 Austrian universities and "Hochschulen" to provide funds for full scholarships for a minimum of 400 Hun-

garian university students. Approximately \$50,000 more is being used by three Austrian universities and three Hochschulen to enable at least 26 young postdoctoral refugee scholars to continue their research activities in these institutions.

Within the United States, a grant of \$10,000 was made to the World University Service, New York, to help meet the administrative costs of its Hungarian relief program. Another grant of a little over \$9,000 was made to the American National Theatre and Academy in New York to enable it to give assistance to Hungarian refugees in the performing arts.

The Foundation joined with the Ford Foundation and the Rockefeller Brothers Fund in contributing toward the funds needed for the operation of an orientation and intensive language training program begun at Bard College in Annandale-on-Hudson, New York, in which nearly 300 Hungarian university students are now participating.

A small number of Hungarian scholars have been given Foundation fellowship awards to enable them to continue advanced research in the sciences. Some of these new Fellows have gone to universities in Great Britain; others are now beginning their studies in the United States.

THE TRUSTEES OF ROBERT COLLEGE

ROBERT COLLEGE AND THE AMERICAN COLLEGE FOR GIRLS

Robert College and the American College for Girls, Istanbul, Turkey, offer a type of instruction and a kind of academic community life familiar in the United States but uncommon in the Middle East: classes are small, student-faculty relations are informal, and the humanities are stressed. Both colleges have played a diversifying role in Turkish education for many years, an influence which has

extended through their alumni into almost every walk of life.

Like many other institutions in and outside Turkey, Robert College and the College for Girls have been hard-hit by inflation and by the shortage of well-trained teachers in relation to the demand. To help them recruit Turkish candidates for faculty positions and award fellowships to them of sufficient amount to finance study for the Ph.D. degree abroad, the Foundation in 1956 made a ten-year grant of \$350,000 to the Trustees of Robert College.

Under the new program both schools will be staffed increasingly by Turks. At the same time, since the fellowship appointees will go to Britain or the United States for study, they will join the faculties of the two institutions as the graduates of Western schools. In this way the colleges will strengthen their ties to Turkey while maintaining the Western character of their educational traditions.

A committee made up of professors from Robert College, the University of Istanbul, and the Istanbul Technical University, together with a few Turkish laymen, will select the recipients of the fellowships—men and women whose graduate work will be supported on condition they spend at least three years after their return on the faculty of Robert College or of the American College for Girls. The first appointments are expected to be for work in the sciences, particularly physics and mathematics, but the humanities and social sciences will soon be included.

Robert College was founded in 1863 through the efforts of a New York merchant, Christopher Rhinelander Robert, and its first president, Dr. Cyrus Hamlin; the American College for Girls was first chartered as a college in 1890. Since 1932 the two have had a common president, and to some extent they share the same faculty, although each retains its own board of trustees. They include preparatory schools and award the bachelor's degree.

INSTITUTE OF INTERNATIONAL EDUCATION

STUDENT EXCHANGE PROGRAM

The exchange of students across national boundaries has some power to counter divisive forces in this era of political crisis, but only if the opportunities are properly used. To stimulate the exchange itself, and to experiment with techniques which will assure maximum benefits from it, are the twin objectives of the Institute of International Education, New York, an organization with nearly thirty years of experience in its field.

Although educational institutions here and abroad are the main training resource recognized by the institute, it has pioneered in the development of nonacademic programs, through which observation tours, on-the-job experience, and field work in a foreign land have been provided to young people from many parts of the world. Among its other services have been the provision of information, advice, and the results of special research projects to other agencies, governments, and individuals; the collection of private funds in the United States to bring foreign students here; the selection of American students for study grants made available by governments and institutions abroad; and leadership in creating learning situations fruitful both for the visitor in the United States and for the academic community he joins.

The presence of foreign student advisors at many colleges and universities in this country is attributable in part to the efforts of the institute. It stimulated the organization of the National Association of Foreign Student Advisors and of numerous foreign relations centers, and through its own regional offices cooperates in the efforts of these other groups to ease the adjustment of foreign students to life on an American campus.

Toward the costs of the institute's international student

exchange program during the next five years, The Rockefeller Foundation appropriated \$250,000 in 1956. The new grant brings to over \$900,000 the amount given since 1927 by both the Foundation and the former Laura Spelman Rockefeller Memorial toward support of the institute.

NEW YORK UNIVERSITY

SCIENCE WRITING SURVEY

More today than in any previous era, science is a matter of public concern. The practical and everyday problems of economic development, of military strength, of national security, and of personal health, with which all persons are inevitably concerned both as individuals and as members of the voting public, are intimately interrelated with development in the sciences. Further, as science is supported more and more by public funds, it becomes increasingly important that the public in general understand more about science and about the circumstances under which it prospers.

In an effort to foster better communication between science and the public, the National Association of Science Writers made a survey, with Foundation funds, of public opinion concerning science writing in newspapers, magazines, and other media of mass communication. Based on 200 interviews, the pilot study indicated (insofar as so small a sample could) that the public is genuinely interested in scientific writing and intellectually prepared to understand properly prepared material on science. In an attempt to obtain more reliable data, the survey will now be extended to include 2,000 interviews on a national basis. It will be undertaken, as was the preliminary survey, by the Survey Research Center of the University of Michigan, a group with extensive experience in this field.

Upon completion of the study, the results will be made available to editors and publishers, public officials, scientists,

educators and students, and others concerned with the dissemination of accurate scientific information to the public.

To finance the National Association of Science Writers survey, The Rockefeller Foundation has appropriated \$70,000 to New York University, which will administer the funds.

OTHER GRANTS

National Education Association, Washington, D.C.: expenses of an American delegation to a workshop for education editors held in Manila, the Philippines, during August, 1956; \$10,000;

National Foundation for Junior Museums, Inc., New York: support of its Two Year Development Program; \$10,000;

University of Arizona, Tucson: toward the establishment of a center for research in geochronology; \$10,000;

University of Pennsylvania, the University Museum, Philadelphia: toward costs of excavation and restoration of the Mayan ruins at Tikal, Guatemala; \$10,000;

World University Service, New York: toward the administrative costs of its Hungarian Refugee Student Program; \$10,000;

University of the State of New York, State Department of Education, Albany: an exploratory study of the possibilities and advantages of inter-institutional cooperation among colleges and universities of the state; \$9,800;

Phelps-Stokes Fund, New York: exploration of the desirability of preparing and maintaining a roster of Negro talent; \$9,500;

Allen Blaisdell, foreign student advisor and director, International House, University of California, Berkeley, and Mrs. Blaisdell: to visit countries in the Far East; \$6,100;

Rufus C. Harris, president, Tulane University of Louisiana, New Orleans, and Mrs. Harris: to visit institutions of higher education in Great Britain and the Scandinavian countries; \$6,000;

Distribution to libraries of gift copies of *John D. Rockefeller, Jr.*, by Raymond B. Fosdick; \$5,750;

Frederick H. Weaver, dean, University of North Carolina, Chapel Hill: to continue graduate study in the field of American history; \$5,250;

Massachusetts Institute of Technology, Cambridge: a conference of scientists from the United States who recently visited Russia; \$5,000;

Congress for Cultural Freedom, Paris, France: Committee on Science and Freedom; expenses of participants in a Study Group on Academic Freedom, held in Europe during the summer, 1956; \$3,600;

Professor Dominic P. Rotunda, foreign student advisor, Mills College, Oakland, California, and Mrs. Rotunda: to visit countries from which students come to Mills College; \$3,600;

C. B. Haselgrove, Department of Mathematics, University of Cambridge, England: to work in physics and astrophysics in the United States; \$2,500;

Professor W. R. Niblett, professor of education, University of Leeds, England: to visit universities in the United States; \$2,500;

Fund for grants of amounts not exceeding \$500 for allocation under the supervision of the Vice-President for Natural and Medical Sciences; \$2,500;

David A. Lockmiller, president, University of Chattanooga, Tennessee: to study the basic educational programs of British provincial universities; \$2,000;

The Star Island Corporation, Boston, Massachusetts: scholarships for theology and science students to attend the 1956 Conference on Religion in an Age of Science conducted in cooperation with the Institute on Religion in an Age of Science; \$2,000;

Dr. Leona Baumgartner, Commissioner of Health of the City of New York, and Dr. Nathaniel Elias, chemical engineer, New York: additional expenses of a visit to India to serve as consultants to the Ministry of Health of the Government of India; \$1,000.

FELLOWSHIPS AND OTHER STUDY AWARDS

THE Foundation's fellowship appointments are integrated with the interests of its several programs.

Through fellowships, chiefly for postdoctoral study, the Foundation seeks to advance knowledge in a wide variety of fields in medical education and public health, biological and medical research, agriculture, the social sciences, and the humanities. Fellowships are awarded on an international basis to outstanding men and women who have completed their specialized training, and who have shown promise of making important contributions to their fields of study in their native countries.

During 1956 a total of 458 persons held Foundation fellowships under both the regular and expanded programs. This number includes 202 fellowships awarded in previous years and continued into 1956, and 256 new awards. Their distribution by program is as follows:

	Number of fellows in 1956	Awards made in 1956	Awards continued into 1956
Agriculture	83	68	15
Biological and Medical Research	59	51	8
Division of Medicine and Public Health ¹	39	0	39
Humanities	75	45	30
Medical Education and Public Health	110	66	44
Division of Natural Sciences and Agriculture ¹	46	0	46
Social Sciences	46	26	20
	458	256	202

¹As a result of action by the Board of Trustees during April, 1955, these Divisions have been eliminated as formal units.

The fellows in 1956 came from 47 different countries. Countries represented by three or more fellows were:

Argentina	4	Jamaica	3
Australia	9	Japan	67
Brazil	56	Korea	5
Chile	18	Lebanon	11
Colombia	27	Mexico	27
Costa Rica	3	Netherlands	4
Denmark	4	Norway	5
Egypt	3	Pakistan	3
Finland	3	Peru	12
France	7	Philippines	20
Germany	10	Portugal	3
Great Britain	17	Sweden	6
India	50	Switzerland	4
Indonesia	8	Turkey	11
Iraq	3	United States	13
Italy	4	Uruguay	7

Fellowships were also held during 1956 by individuals from the following countries: Belgium (2); Burma (1); Ceylon (2); National Republic of China (1); Guatemala (2); Honduras (2); Iceland (2); New Zealand (2); Nicaragua (2); Puerto Rico (2); Syria (1); Thailand (1); Trinidad (2); Uganda (1); and the Union of South Africa (2). Four fellows during 1956 were appointed from the World Health Organization, one from the International Cooperation Administration, and one from the Institute of Nutrition of Central America and Panama.

The Rockefeller Foundation made available a total of \$1,255,000 for its fellowship activities during 1956, allocated for use by the programs as follows: Agriculture, \$300,000; Biological and Medical Research, \$200,000; Humanities, \$200,000; Medical Education and Public Health, \$405,000; and Social Sciences, \$150,000. To support the fellowship program during 1957 the Foundation has appropriated \$1,375,000.

In 1956 the Foundation made available an additional \$700,000 for an expanded program of fellowships, scholarships, and training awards for men and women from Asia, Latin America, the Middle East, and Africa. The funds were allocated for use by the programs as follows: Agriculture, \$250,000; Biological and Medical Research, \$100,000; Humanities, \$100,000; Medical Education and Public Health, \$125,000; and Social Sciences, \$125,000. In 1956 78 awards were made under the expanded program. This number includes 64 fellowships, 13 scholarships, and one training award. In support of the special program during 1957 the Foundation has appropriated \$950,000.

In addition to the fellowships awarded and administered directly by The Rockefeller Foundation, national agencies have awarded fellowships with funds contributed in 1956 and previous years by the Foundation. These agencies administered a total of 149 fellowships during 1956:

National Research Council	
Medical Sciences	14
Social Science Research Council	69
British Medical Research Council	13
Canadian Social Science Research Council	18
Humanities Research Council of Canada	35
	—

Below is a listing of the 256 individuals whose fellowships, awarded under the regular and special programs of The Rockefeller Foundation, became active in 1956, and the six fellows appointed during 1956 by the Medical Research Council of Great Britain. The fellowships awarded by the British Council have been included in this listing because the fellows received guidance and supervisory assistance from Foundation fellowship advisers.

The following information is included for each individual: name; country of origin; date of birth; highest degree; major field of interest; fellowship-awarding agency or program; institution with which fellow was affiliated when appointed; principal countries of fellowship study; and date of fellowship.

- ACHER, ROGER (*France*) b. 1923. D. ès. Sc., Univ. of Paris 1953. Biochemistry — Proteins (BMR). Appointed from Univ. of Aix-Marseilles. *Place of Study:* U.S.A., 1956-.
- AKIN, M. HILMI (*Turkey*) b. 1911. M.D., Univ. of Istanbul 1935. Cardiovascular Surgery (MEPH). Appointed from Univ. of Ankara. *Place of Study:* U.S.A., 1956-.
- ALI, SALEH AHMAD EL (*Iraq*) b. 1916. Ph.D., Univ. of Oxford 1949. Intercultural Understanding (H). Appointed from Coll. of Arts and Sciences, Baghdad. *Place of Study:* U.S.A., 1956-.
- AMACHE, SAMIA (*Lebanon*) b. 1930. M.D., French Faculty of Med., Beirut, 1955. Pediatrics (MEPH). Appointed from American Univ. Hosp., Beirut.
- Place of Study:* U.S.A., 1956-.
- AND, TEVFIK METIN (*Turkey*) b. 1927. LL.B., Univ. of Istanbul 1950. Dance (H). Appointed while free-lance writer. *Place of Study:* U.S.A., 1956-.
- ANDERSON, JOHN (*Great Britain*) b. 1921. M.R.C.P., London, 1954. Internal Medicine (BMRC). Appointed from Univ. of Durham. *Place of Study:* U.S.A., 1956-.
- AOMINE, SHIGENORI (*Japan*) b. 1911. Ph.D., Kyushu Univ., Fukuoka, 1945. Soil Science (A). Appointed from Kyushu Univ. *Place of Study:* U.S.A., 1956-.
- AQVIST, STIG ERIK GÖRAN (*Sweden*) b. 1923. M.D., Karolinska Inst., Stockholm, 1951. Biochemistry — Proteins (BMR). Appointed from Karolinska Inst. *Place of Study:* U.S.A., 1956-.

- ARA, KENJIRO (*Japan*) b. 1925. F.Econ., Hitotsubashi Univ., Tokyo. Economics (SS). Appointed from Hitotsubashi Univ. *Place of Study:* U.S.A., 1956-.
- ARCELLANA, FRANCISCO A., SR. (*Philippines*) b. 1916. Ph.D., Univ. of the Philippines, Manila, 1939. Literature (H). Appointed from Univ. of the Philippines. *Place of Study:* U.S.A., 1956-.
- BASU, AMAL CHANDRA (*India*) b. 1914. D.Phil., Univ. Coll. of Science and Tech., Calcutta, 1953. Animal Science — Entomology (A). Appointed from Directorate of Agric., West Bengal. *Place of Study:* U.S.A., 1956-.
- BEDRI, ABDUL LATIF EL (*Iraq*) b. 1920. F.R.C.S., Royal Coll. of Surgeons, London, 1948. Surgery (MEPH). Appointed from Royal Coll. of Med., Baghdad. *Place of Study:* U.S.A., 1956-.
- BEDRI, LAMIA TAHA EL (*Iraq*) b. 1920. D.R.C.O.G., Royal Coll. of Obs. and Gyn., London, 1948. Obstetrics and Gynecology (MEPH). Appointed from Royal Coll. of Med., Baghdad. *Place of Study:* U.S.A., 1956-.
- BENAVIDES V., LAZARO (*Mexico*) b. 1914. M.D., Military Med. School, Mexico City, 1940. Public Health (MEPH). Appointed from Children's Hosp., Mexico City. *Place of Study:* U.S.A., 1956-.
- BENNETT, FREDERICK DOUGLAS (*Trinidad*) b. 1925. B.S.A., Univ. of Toronto 1950. Plant Science — Plant Parasitology (Entomology) (A). Appointed from Commonwealth Inst. of Biological Control, St. Augustine. *Place of Study:* U.S.A., 1956-.
- BESTERS, HANS (*Germany*) b. 1923. Dr.habil., Univ. of Cologne 1954. Economics (SS). Appointed from Univ. of Cologne. *Place of Study:* U.S.A., 1956-.
- BHAN, KUNWAR CHANDRA (*India*) b. 1918. M.Sc., Univ. of Nanking 1945. Plant Science — Horticulture (A). Appointed from Banana Research Scheme, West Bengal. *Place of Study:* U.S.A., 1956-.
- BHATIA, VANRAJ ANANDJI (*India*) b. 1927. M.A., Elphinstone Coll., Bombay, 1950. Music (H). Appointed from Royal Acad. of Music, London. *Place of Study:* France, 1956-.
- BILIGIRI, HEMMIGE SRINIVASA RANGACHAR (*India*) b. 1925. M.A., Maharaja's Coll., Mysore, 1953. Intercultural Understanding (H). Appointed from Deccan Coll., Poona. *Place of Study:* U.S.A., 1956-.
- BISHOP, JOHN MICHAEL (*Great Britain*) b. 1925. M.R.C.P., London, 1953. Internal Medicine (BMRC). Appointed from Univ. of Birmingham. *Place of Study:* U.S.A., 1956-.
- BLACKSTAD, THEODOR WILHELM (*Norway*) b. 1925. M.D., Univ. of Oslo 1952. Biology—Cytology (BMR). Appointed from Univ. of Oslo. *Place of Study:* U.S.A., 1956-.
- BORDIE, JOHN GEORGE (*United States*) b. 1931. B.A., Univ. of Chicago 1949. Intercultural Understanding (H). *Places of Study:* U.S.A., England, Pakistan, India, 1956-.

- BÖSSMANN, EVA (*Germany*) b. 1929. Dr.rer.pol., Univ. of Frankfurt 1955. Economics (SS). Appointed from Univ. of Frankfurt. *Place of Study:* U.S.A., 1956-.
- BRADLEY, PHILIP BENJAMIN (*Great Britain*) b. 1919. Ph.D., Univ. of Birmingham 1952. Biology—Neurophysiology (BMR). Appointed from Univ. of Birmingham. *Place of Study:* Italy, 1956-.
- BRENT, LESLIE (*Great Britain*) b. 1925. Ph.D., Univ. of London 1954. Biology — Histology (BMR). Appointed from Univ. of London. *Place of Study:* U.S.A., 1956-.
- BUSTRILLOS, NENA ROLA (*Philippines*) b. 1923. B.S.A., Univ. of the Philippines, Quezon City, 1948. Home Economics (A). Appointed from Univ. of the Philippines. *Place of Study:* U.S.A., 1956-.
- CAÑON, JOSÉ JOAQUÍN (*Colombia*) b. 1915. D.V.M., Natl. Univ. of Colombia, Bogotá, 1940. Agricultural Economics (A). Appointed from Ministry of Agric., Bogotá. *Place of Study:* U.S.A., 1956-.
- CARBALLO QUIROS, ALFREDO (*Costa Rica*) b. 1919. Ing. Agr., Univ. of Costa Rica, San José, 1942. Plant Science — Plant Breeding (A). Appointed from Central American Corn Improvement Project, San José. *Place of Study:* U.S.A., 1956-.
- CARDOSO, JOSÉ VICENTE DE JESÚS DE CARVALHO (*Portugal*) b. 1923. M.S., Univ. of Lisbon 1947. Soil Science (A). Appointed from Natl. Agron. Station, Sacarem. *Place of Study:* U.S.A., 1956-.
- CARLSTROM, DIEGO GUSTAF (*Sweden*) b. 1922. M.D., Karolinska Inst., Stockholm, 1955. Biophysics (BMR). Appointed from Karolinska Inst. *Place of Study:* U.S.A., 1956-.
- CASTILLO G., AUGUSTO (*Peru*) b. 1924. D.V.M., Univ. of San Marcos, Lima, 1953. Animal Science — Veterinary Science (A). Appointed from Univ. of San Marcos. *Place of Study:* U.S.A., 1956-.
- CASTRO, MYRIAM (*Puerto Rico*) b. 1931. M.N., Yale Univ. 1955. Nursing—Midwifery (MEPH). Appointed from Presbyterian Hosp. School of Nursing, San Juan. *Place of Study:* U.S.A., 1956-.
- CHAUDHRY, MUHAMMAD IQBAL (*Pakistan*) b. 1929. M.A., Univ. of the Punjab, Lahore, 1955. Economics (SS). Appointed from Inst. of Social Studies, The Hague. *Place of Study:* U.S.A., 1956-.
- CHITAMBAR, JOHN BENEDICT YEPRAKASH (*India*) b. 1920. M.S., Cornell Univ. 1951. Extension (A). Appointed from Allahabad Agric. Inst. *Place of Study:* U.S.A., 1956-.
- CHOWDHURY, MUNIER (*Pakistan*) b. 1925. M.A., Univ. of Dacca 1947. Intercultural Understanding (H). Appointed from Univ. of Dacca. *Place of Study:* U.S.A., 1956-.
- CILENTO, GIUSEPPE (*Brazil*) b. 1923. D.Sc., Univ. of São Paulo 1946. Experimental Biology—Biochemistry (BMR). Appointed

- from Univ. of São Paulo. *Place of Study:* U.S.A., 1956-.
- COPAIRA BELTRÁN, MARCOS (Peru)** b. 1925. D.V.M., Univ. of San Marcos, Lima, 1951. Animal Science—Veterinary Science (A). Appointed from Univ. of San Marcos. *Place of Study:* Brazil, 1956-.
- COSTA VAL, VICENTE DE PAULO (Brazil)** b. 1926. D.V.M., Rural Univ. of the State of Minas Gerais, Belo Horizonte, 1948. Animal Science—Veterinary Science (A). Appointed from Rural Univ. of the State of Minas Gerais. *Place of Study:* U.S.A., 1956-.
- COTES, JOHN EVERARD (Great Britain)** b. 1924. M.R.C.P., London, 1949. Physiology (BMRC). Appointed from BMRC Pneumoconiosis Research Unit, Cardiff. *Place of Study:* U.S.A., 1956-.
- CUTIN, JOSÉ (Brazil)** b. 1922. M.D., Univ. of Rio Grande do Sul, Pôrto Alegre, 1946. Internal Medicine (MEPH). Appointed from Univ. of Rio Grande do Sul. *Place of Study:* Chile, 1956-.
- DASTUR, DARAB KERSASP (India)** b. 1924. M.D., Grant Med. Coll., Bombay, 1952. Biochemistry—Nervous System (BMR). Appointed from Indian Council of Med. Research, Bombay. *Place of Study:* U.S.A., 1956-.
- DAVIDSSON, DAVID (Iceland)** b. 1922. M.D., Univ. of Iceland, Reykjavik, 1953. Physiology (MEPH). Appointed from Univ. of Iceland. *Place of Study:* England, 1956-.
- DE GROUCHY, JEAN (France)** b. 1926. M.D., Univ. of Paris 1953. Biology—Genetics (BMR). Appointed from Natl. Center for Scientific Research, Paris. *Place of Study:* U.S.A., 1956-.
- DHAR, MOTI LAL (India)** b. 1914. Ph.D., Univ. of London 1940. Biochemistry (BMR). Appointed from Central Drug Research Inst., Lucknow. *Place of Study:* U.S.A., 1956-.
- DICK, TUISKON (Brazil)** b. 1927. M.D., Univ. of Rio Grande do Sul, Pôrto Alegre, 1954. Biochemistry (BMR). Appointed from Univ. of Rio Grande do Sul. *Place of Study:* England, 1956-.
- DINCER, MEHMET MEKIN (Turkey)** b. 1922. B.A., Univ. of Ankara 1944. Market Research (SS). Appointed from Industrial Development Bank of Turkey, Istanbul. *Place of Study:* U.S.A., 1956-.
- DORNER, MARC (France)** b. 1922. M.D., Univ. of Strasbourg 1953. Biochemistry—Intermediate Metabolism (BMR). Appointed from Univ. of Strasbourg. *Place of Study:* U.S.A., 1956-.
- DOS SANTOS, JESÚS MARDEN (Brazil)** b. 1927. Eng. Agr., Luiz de Queiroz Coll. of Agric., Piracicaba, 1951. Climatology (A). Appointed from Luiz de Queiroz Coll. of Agric. *Place of Study:* U.S.A., 1956-.
- DUFFIELD, PAUL CALVIN (United States)** b. 1924. M.S., Iowa State Coll. 1950. Plant Science—Plant Parasitology (Pathology) (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1956-.

EALES, LENNOX (*Union of South Africa*) b. 1918. M.D., Univ. of Cape Town 1954. Medicine (MEPH). Appointed from Univ. of Cape Town. *Place of Study:* U.S.A., 1956~.

EGASHIRA, YASUYUKI (*Japan*) b. 1915. M.D., Tokyo Univ. 1941. Pathology (MEPH). Appointed from Natl. Inst. of Health, Tokyo. *Place of Study:* U.S.A., 1956~.

ELIAS, SAMIR A. (*Egypt*) b. 1926. Lic., Teachers' Coll. of Music, Paris, 1952. Music (H). Appointed from Tiegermann Conservatory, Cairo. *Place of Study:* U.S.A., 1956~.

ESCOBAR CERDA, LUIS (*Chile*) b. 1927. M.Econ., Univ. of Chile, Santiago, 1948. Economics (SS). Appointed from Univ. of Chile. *Place of Study:* U.S.A., 1956~.

ESCURO, PEDRO B. (*Philippines*) b. 1923. M.S., Cornell Univ. 1954. Plant Science — Plant Breeding and Genetics (A). Appointed from Univ. of the Philippines, Quezon City. *Place of Study:* U.S.A., 1956~.

ESTRADA CALDERÓN, URIEL (*Colombia*) b. 1923. Med.Chir., Univ. of Antioquia, Medellín, 1949. Pediatrics (MEPH). Appointed from Univ. of Valle, Cali. *Place of Study:* Mexico, 1956~.

ESTRADA RAMOS, NELSON (*Colombia*) b. 1924. Ing. Agr., Natl. Univ. of Colombia, Medellín, 1952. Plant Science — Plant Breeding (A). Appointed from Dept. of Agric. Investigations, Bogotá. *Place of Study:* U.S.A., 1956~.

EUSEBIO, ALFONSO NAPALANG (*Philippines*) b. 1920. M.S., Iowa

State A. and M. Coll. 1950. Dairy Husbandry (A). Appointed from Central Luzon Agric. Coll., Nueva Ecija. *Place of Study:* U.S.A., 1956~.

FERNÁNDEZ BORRERO, OCTAVIO (*Colombia*) b. 1925. M.Agr., Inter-American Inst. of Agric. Sciences, Turrialba, 1953. Plant Science — Plant Parasitology (A). Appointed from Univ. of Caldas, Manizales. *Place of Study:* U.S.A., 1956~.

FERNÁNDEZ TORNINI, JORGE (*Chile*) b. 1928. M.D., Univ. of Chile, Santiago, 1953. Histology (MEPH). Appointed from Univ. of Chile. *Place of Study:* U.S.A., 1956~.

FIGUEIREDO, JOSÉ BRITTO (*Brazil*) b. 1919. D.V.M., Rural Univ. of the State of Minas Gerais, Belo Horizonte, 1943. Animal Science — Veterinary Science (A). Appointed from Rural Univ. of the State of Minas Gerais. *Place of Study:* U.S.A., 1956~.

FIGUEROA POTES, ADALBERTO (*Colombia*) b. 1914. Ing. Agr., Natl. Univ. of Colombia, Palmira, 1939. Plant Science — Plant Parasitology (A). Appointed from Natl. Univ. of Colombia. *Place of Study:* U.S.A., 1956~.

FIGUEROA RUEDA, ENRIQUE (*Chile*) b. 1925. M.D., Univ. of Chile, Santiago, 1950. Biochemistry (MEPH). Appointed from Univ. of Chile. *Place of Study:* Brazil, 1956~.

FIRZLI, SALIM (*Lebanon*) b. 1922. M.D., American Univ. of Beirut 1947. Pediatrics (MEPH). Appointed from American Univ. of

- Beirut. *Place of Study:* U.S.A., 1956-.
- FLORES, MARCO AURELIO (*Guatemala*) b. 1920. B.S., Univ. of Minnesota 1952. Plant Science—Plant Parasitology (Pathology) (A). Appointed from Servicio Coop. Interamericano de Agric., Guatemala City. *Place of Study:* U.S.A., 1956-.
- FREIRE-MAIA, NEWTON (*Brazil*) b. 1918. Ph.D., Univ. of Brazil, Rio de Janeiro, 1956. Experimental Biology—Genetics (BMR). Appointed from Univ. of Paraná, Curitiba. *Place of Study:* U.S.A., 1956-.
- FRICK, GOSTA (*Sweden*) b. 1919. Ph.D., Univ. of Uppsala 1955. Biochemistry — Nucleic Acids (BMR). Appointed from Univ. of Uppsala. *Place of Study:* U.S.A., 1956-.
- FRYDENBERG, OVE (*Denmark*) b. 1929. M.S., Univ. of Copenhagen 1955. Biomathematics—Genetics (BMR). Appointed from Univ. of Copenhagen. *Place of Study:* U.S.A., 1956-.
- FUENTE, JESÚS MARIO DE LA (*Mexico*) b. 1930. Ing. Agr., Technological Inst. and School of Advanced Studies of Monterrey 1955. Plant Science—Plant Parasitology (Entomology) (A). Appointed from Technological Inst. and School of Advanced Studies of Monterrey. *Place of Study:* U.S.A., 1956-.
- GACITÚA LOWICK-RUSSELL, HERNÁN (*Chile*) b. 1918. M.S., Iowa State Coll. 1946. Plant Science—Genetics (A). Appointed from Catholic Univ. of Chile, Santiago. *Place of Study:* U.S.A., 1956-.
- GAI, GOVIND SWAMIRAO (*India*) b. 1917. Ph.D., Deccan Coll., Poona, 1943. Intercultural Understanding (H). Appointed from Government Epigraphist Office, Bombay. *Place of Study:* U.S.A., 1956-.
- GARDNER, CARSTAIRS CLOUSTON (*Jamaica*) b. 1916. F.R.C.S., Univ. of Edinburgh 1948. Pediatric Surgery (MEPH). Appointed from Univ. Coll. of the West Indies, Kingston. *Places of Study:* Canada, U.S.A., 1956-.
- GEYER, HERBERT JOHANN GEORG (*Germany*) b. 1927. Dr.rer.pol., Univ. of Frankfurt 1955. Taxation (SS). Appointed from Univ. of Frankfurt. *Place of Study:* U.S.A., 1956-.
- GHATAGE, AMRIT MADHAV (*India*) b. 1913. Ph.D., Wilson Coll., Bombay, 1940. Intercultural Understanding (H). Appointed from Karnatak Coll., Dharwar. *Place of Study:* U.S.A., 1956-.
- GIBSON, HELEN (*India*) b. 1918. M.B.B.S., Lady Hardinge Med. Coll., Delhi, 1942. Public Health (MEPH). Appointed from India-Harvard-Ludhiana Population Study. *Place of Study:* U.S.A., 1956-.
- GIERSBRECHT, ERNESTO (*Brazil*) b. 1921. D.Sc., Univ. of São Paulo 1947. Inorganic Chemistry (BMR). Appointed from Univ. of São Paulo. *Place of Study:* U.S.A., 1956-.
- GONZALEZ, MARIA DOLORES PEREZ (*Brazil*) b. 1923. Ph.D., Univ. of São Paulo 1949. Experimental Biology—Neurosecretion (BMR). Appointed from Univ. of São Paulo. *Place of Study:* U.S.A., 1956-.

GONZÁLEZ ORTI, JUAN C. (*Colombia*) b. 1924. Grad., Colegio de Cardenas, Palmira. Hospital Administration (MEPH). Appointed from Mental Hygiene Services, Cali. *Place of Study:* Brazil, 1956-.

GOSWAMI, GOLOCKCHANDRA (*India*) b. 1925. M.A., Univ. of Gauhati 1953. Intercultural Understanding (H). Appointed from Univ. of Gauhati. *Place of Study:* U.S.A., 1956-.

GOTO, KAZUO (*Japan*) b. 1905. Ph.D., Tokyo Univ. 1952. Plant Pathology (A). Appointed from Natl. Inst. of Agric. Sciences, Tokyo. *Place of Study:* U.S.A., 1956-.

GOTO, YUICHIRO (*Japan*) b. 1921. D.M.Sc., Keio Univ., Tokyo, 1951. Clinical Medicine (MEPH). Appointed from Keio Univ. *Place of Study:* U.S.A., 1956-.

GOTOH, KANJI (*Japan*) b. 1923. Ph.D., Hokkaido Univ., Sapporo, 1956. Plant Science — Plant Breeding (A). Appointed from Natl. Inst. of Genetics, Misima. *Place of Study:* U.S.A., 1956-.

GRAMICCIA, GABRIELE (*WHO*) b. 1916. M.D., Univ. of Rome 1939. Public Health (MEPH). Appointed from World Health Organization. *Place of Study:* England, 1956-.

GUTIÉRREZ, MANUEL (*Argentina*) b. 1922. Ing. Agr., Univ. of Buenos Aires 1945. Plant Science—Breeding (A). Appointed from Ministry of Agric. and Livestock, Buenos Aires. *Place of Study:* U.S.A., 1956-.

GUZMÁN FORESTI, MIGUEL ANGEL (*INCAP*) b. 1926. B.A., Univ.

of Tennessee 1949. Experimental Statistics (MEPH). Appointed from Inst. of Nutrition of Central America and Panama, Guatemala City. *Place of Study:* U.S.A., 1956-.

GUZMÁN LALINDE, CARLOS ALBERTO (*Colombia*) b. 1922. M.D., Natl. Univ. of Colombia, Bogotá, 1946. General Surgery (MEPH). Appointed from Univ. of Valle, Cali. *Place of Study:* U.S.A., 1956-.

HADDAD, SHAFIC (*Lebanon*) b. 1910. M.R.C.P., Postgrad. School of London 1955. Endocrinology (MEPH). Appointed from American Univ. of Beirut. *Place of Study:* U.S.A., 1956-.

HALONEN, PEKKA ELIAS (*Finland*) b. 1927. M.D., Univ. of Helsinki 1955. Virology (BMR). Appointed from Univ. of Helsinki. *Place of Study:* U.S.A., 1956-.

HARADA, TOGORO (*Japan*) b. 1910. Grad., Kyushu Univ., Fukuoka, 1937. Soil Science (A). Appointed from Natl. Inst. of Agric. Sciences, Tokyo. *Place of Study:* Great Britain, 1956-.

HARSANYI, JOHN CHARLES (*Australia*) b. 1920. Ph.D. (Hons.), Univ. of Budapest 1947. Economics (SS). Appointed from Univ. of Queensland, Brisbane. *Place of Study:* U.S.A., 1956-.

HASAN, KHURSHID (*Pakistan*) b. 1931. M.A., Inst. of Social Studies, The Hague, 1953. International Relations (SS). Appointed from St. Joseph's Coll. for Women, Karachi. *Place of Study:* U.S.A., 1956-.

- HASSNER, PIERRE (*France*) b. 1933. Agrégé per., Univ. of Paris 1955. Social and Political Philosophy (SS). Appointed from Natl. Center for Scientific Research, Paris. *Place of Study:* U.S.A., 1956-.
- HATAYA, MASAAKI (*Japan*) b. 1916. Nogakushi, Tokyo Imperial Univ. 1940. Veterinary Science (A). Appointed from Tokyo Univ. *Place of Study:* U.S.A., 1956-.
- HEIDRICH SOBRINHO, EDMUNDO (*Brazil*) b. 1925. Eng. Agr., Eliseu Maciel School of Agron., Pelotas, 1947. Plant Science—Plant Breeding (A). Appointed from Agron. Inst. of the South, Pelotas. *Place of Study:* U.S.A., 1956-.
- HERMES, EDUARDO GRANHEN (*Brazil*) b. 1915. M.D., Med. School of Pará, Belém, 1938. Pharmacology (MEPH). Appointed from Med. School of Pará. *Place of Study:* Brazil, 1956-.
- HERNÁNDEZ XOLOCOTZI, EFRAIM (*Mexico*) b. 1913. M.A., Harvard Univ. 1948. Plant Science—Botany (A). Appointed from Natl. School of Agric., Chapingo. *Place of Study:* U.S.A., 1956-.
- HORI, ICHIRO (*Japan*) b. 1910. D.Litt., Tokyo Univ. 1953. Intercultural Understanding (H). Appointed from Tohoku Univ., Sendai, Kokugakuin Univ., Tokyo, and Kyushu Univ., Fukuoka. *Place of Study:* U.S.A., 1956-.
- HOSADA, TATSUO (*Japan*) b. 1912. Ph.D., Tokyo Univ. 1952. Animal Science—Physiology (A). Appointed from Natl. Inst. of Agric. Sciences, Chiba-shi. *Place of Study:* U.S.A., 1956-.
- HOYLE, GRAHAM (*Great Britain*) b. 1923. D.Sc., Univ. of Glasgow 1955. Biology—Physiology (BMR). Appointed from Univ. of Glasgow. *Place of Study:* U.S.A., 1956-.
- HURTADO EDWARDS, RAUL (*Chile*) b. 1929. M.D., Univ. of Chile and Catholic Univ. of Chile, Santiago, 1954. Bacteriology (MEPH). Appointed from Salvador Hosp., Santiago. *Place of Study:* Brazil, 1956-.
- INALCIK, HALIL (*Turkey*) b. 1916. Ph.D., Univ. of Ankara 1942. History (H). Appointed from Univ. of Ankara. *Places of Study:* U.S.A., Europe, 1956-.
- INOUE, TOKIO (*Japan*) b. 1909. Ph.D., Kyoto Univ. 1945. Biophysics—Microscopy (BMR). Appointed from Ritsumeikan Univ., Kyoto. *Place of Study:* U.S.A., 1956-.
- ISAAC, JOSEPH EZRA (*Australia*) b. 1922. Ph.D., London School of Econ. and Political Science 1949. Economics (SS). Appointed from Univ. of Melbourne. *Place of Study:* U.S.A., 1956-.
- ISHIZUKA, YOSHIAKI (*Japan*) b. 1907. Ph.D., Hokkaido Univ., Sapporo, 1931. Soil Science (A). Appointed from Hokkaido Univ. *Place of Study:* U.S.A., 1956-.
- IWANAGA, KENKICHIRO (*Japan*) b. 1918. LL.B., Tokyo Univ. 1941. Political Science (SS). Appointed from Tokyo Univ. *Place of Study:* U.S.A., 1956-.
- IWASAKI, TAKEO (*Japan*) b. 1913. D.Litt., Tokyo Univ. 1952. Philosophy (H). Appointed from Tokyo Univ. *Place of Study:* U.S.A., 1956-.

IWATA, KAZUO (*Japan*) b. 1919. D.M.Sc., Tokyo Univ. 1951. Bacteriology (MEPH). Appointed from Tokyo Univ. *Place of Study:* U.S.A., 1956-.

IZUMI, SEIICHI (*Japan*) b. 1915. B.A., Keijo Imperial Univ. 1938. Cultural Anthropology (SS). Appointed from Tokyo Univ. *Place of Study:* U.S.A., 1956-.

JACOBY, EDUARD GEORG (*New Zealand*) b. 1904. LL.D., Univ. of Kiel 1929. Demographic Research (SS). Appointed from New Zealand Dept. of Education, Wellington. *Place of Study:* U.S.A., 1956-.

JALIL RODRÍGUEZ, MARIO ENRIQUE (*Honduras*) b. 1929. B.S.A., Univ. of Florida 1953. Plant Science — Horticulture (A). Appointed from Pan American School of Agric., Tegucigalpa. *Place of Study:* U.S.A., 1956-.

JANES, KENNETH HAROLD (*Great Britain*) b. 1919. Drama (H). Appointed from Backwell Playhouse, near Bristol. *Place of Study:* U.S.A., 1956-.

JENSEN, JØRGEN SINDING (*Denmark*) b. 1927. Cand. Mag., Univ. of Copenhagen 1954. Literature (H). Appointed from Harvard Univ. *Place of Study:* U.S.A., 1956-.

JEREZ, CARMEN (*Colombia*) b. 1930. R.N., Natl. School of Nursing, Bogotá, 1955. Pediatric Nursing (MEPH). Appointed from Univ. of Valle, Cali. *Place of Study:* Mexico, 1956-.

JHIRAD, JUDITH MOSES (*India*) b. 1930. Dipl. in Social Serv. Admin., Tata Inst. of Social Sciences, Bombay, 1954. Medical Social

Work (MEPH). Appointed from King Edward Memorial Hosp., Bombay. *Place of Study:* U.S.A., 1956-.

JOLY, SEBASTIANA (*Brazil*) b. 1920. D.Agr., Luiz de Queiroz Coll. of Agric., Piracicaba, 1954. Plant Science—Microbiology (A). Appointed from Inst. Zimotecnico, Piracicaba. *Place of Study:* Italy, 1956-.

KAKEHI, HIROTAKE (*Japan*) b. 1910. D.M.Sc., Tokyo Univ. 1942. Radiology (MEPH). Appointed from Chiba Univ. *Place of Study:* U.S.A., 1956-.

KALELKAR, NARAYAN GOVIND (*India*) b. 1909. Ph.D., Univ. of Paris 1950. Intercultural Understanding (H). Appointed from Univ. of Baroda. *Place of Study:* U.S.A., 1956-.

KANDLER, OTTO (*Germany*) b. 1920. Ph.D., Univ. of Munich 1949. Biochemistry — Photosynthesis (BMR). Appointed from Univ. of Munich. *Place of Study:* U.S.A., 1956-.

KAKEKO, YOSHINORI (*Japan*) b. 1917. D.M.Sc., Tokyo Univ. 1954. Public Health (MEPH). Appointed from Natl. Inst. of Public Health, Tokyo. *Place of Study:* U.S.A., 1956-.

KASSENAAR, ANTON ALBERTUS HERMAN (*Netherlands*) b. 1922. Ph.D., Univ. of Leyden 1952. Biochemistry (DMPH). Appointed from Univ. of Leyden. *Place of Study:* U.S.A., 1956-.

KATSUDA, KICHITARO (*Japan*) b. 1928. LL.B., Kyoto Univ. 1951. History (H). Appointed from Kyoto Univ. *Place of Study:* U.S.A., 1956-.

- KELKAR, ASHOK RAMCHANDRA (*India*) b. 1929. M.A., Univ. of Poona 1953. Intercultural Understanding (H). Appointed from Deccan Coll., Poona. *Place of Study*: U.S.A., 1956-.
- KELLERMAN, GEOFFREY MILTON (*Australia*) b. 1928. M.B.B.S., Univ. of Sydney 1951. Biochemistry (BMR). Appointed from Univ. of Sydney. *Place of Study*: U.S.A., 1956-.
- KENANOGLU, ABDULLAH (*Turkey*) b. 1925. M.D., Univ. of Istanbul 1949. Pediatric Radiology (MEPH). Appointed from Univ. of Ankara. *Place of Study*: U.S.A., 1956-.
- KERR, MALCOLM HOOPER (*United States*) b. 1931. M.A., American Univ. of Beirut 1955. Intercultural Understanding (H). *Place of Study*: U.S.A., 1956-.
- KEVERIAN, LOUCINE VARTKES (*Lebanon*) b. 1920. Cert., Syracuse Univ. School of Nursing 1953. Nursing Education (MEPH). Appointed from American Univ. of Beirut. *Place of Study*: U.S.A., 1956-.
- KHOURI, MOUNAH ABDALLAH (*Lebanon*) b. 1918. M.A., American Univ. of Beirut 1956. Literature (H). Appointed twice from American Univ. of Beirut. *Place of Study*: U.S.A., 1952-53; 1956-.
- KINASHI, KENKICHI (*Japan*) b. 1914. Ph.D., Kyushu Univ., Fukuoka, 1955. Plant Science—Forestry (A). Appointed from Kyushu Univ. *Place of Study*: U.S.A., 1956-.
- KINTANAR, AGUSTIN, JR. (*Philippines*) b. 1927. M.A., Univ. of Chicago 1954. Economics (SS). Appointed from Univ. of the Philippines, Quezon City. *Place of Study*: U.S.A., 1956-.
- KONURALP, HALID ZIYA (*Turkey*) b. 1904. M.D., Univ. of Istanbul 1925. Surgery (MEPH). Appointed from Univ. of Istanbul. *Place of Study*: U.S.A., 1956-.
- KRAUS, WILLY (*Germany*) b. 1918. Dr.rer.pol., Univ. of Bonn 1949. Economics (SS). Appointed from Univ. of Cologne. *Place of Study*: U.S.A., 1956-.
- LASCELLES, JUNE (*Great Britain*) b. 1924. D.Phil., Univ. of Oxford 1951. Biochemistry—Microbiology (BMR). Appointed from Med. Research Council, Oxford. *Place of Study*: U.S.A., 1956-.
- LAUDENCIA, PEDRO N. (*Philippines*) b. 1922. M.S., Louisiana State Univ. 1951. Engineering (A). Appointed from Central Luzon Agric. Coll., Nueva Ecija. *Place of Study*: U.S.A., 1956-.
- LAUTROP, HANS (*Denmark*) b. 1912. M.D., Univ. of Copenhagen 1938. Bacteriology (BMR). Appointed from State Serum Inst., Copenhagen. *Place of Study*: U.S.A., 1956-.
- LEAL DÍAZ, JAIME (*Mexico*) b. 1933. Ing. Agr., Technological Inst. and School of Advanced Studies of Monterrey 1954. Plant Science—Horticulture (A). Appointed from Technological Inst. and School of Advanced Studies of Monterrey. *Place of Study*: U.S.A., 1956-.
- LEHMANN, FRITZ ERICH (*Switzerland*) b. 1902. Ph.D., Univ. of Zurich 1925. Biology (IEB; NSA; BMR). Appointed from 1) Univ. of Zurich; 2) Univ. of Bern (twice). *Places of Study*:

Germany and U.S.A., 1926-27; Sweden, 1936-37; U.S.A., 1956-.
LEVINE, LEWIS (U.S.A.) b. 1927. B.A., Brooklyn Coll. 1949. Linguistics (H). Appointed from Human Relations Area Files, Inc., New Haven. *Place of Study:* U.S.A., 1956-.

LINDAUER, MARTIN (Germany) b. 1918. Dr.nat.sci., Univ. of Munich 1947. Biology—Animal Behavior (DNSA; BMR). Appointed twice from Univ. of Munich. *Place of Study:* Ceylon, 1954-55; Brazil, 1956-.

LINS, MARCIONILLO DE BARROS (Brazil) b. 1919. Ph.D., Univ. of Recife 1949. Biochemistry (MEPH). Appointed from Univ. of Recife. *Place of Study:* U.S.A., 1956-.

LOBO, MANOEL BRUNO ALIPIO (Brazil) b. 1921. M.D., Univ. of Brazil, Rio de Janeiro, 1948. Experimental Biology — Virology (BMR). Appointed from Univ. of Brazil and Civil Service Med. Service, Rio de Janeiro. *Place of Study:* U.S.A., 1956-.

LOPEZ, JORGE (Brazil) b. 1923. B.S., Univ. of Rio Grande do Sul, Pôrto Alegre, 1953. Animal Science—Animal Nutrition (A). Appointed from Univ. of Rio Grande do Sul. *Place of Study:* U.S.A., 1956-.

LOZANO, RODOLFO (Peru) b. 1919. M.D., Univ. of San Marcos, Lima, 1948. Renal Physiology (MEPH). Appointed from Inst. of Andean Biology, Lima, and Univ. of San Marcos. *Place of Study:* U.S.A., 1956-.

LUBBERT, JENS INGWER ADOLF (Germany) b. 1928. Dr.rer.pol., Univ. of Kiel 1956. International

Economics and Econometrics (SS). Appointed while Visiting Fellow at Massachusetts Inst. of Tech. *Place of Study:* U.S.A., 1956-.

MACAULIFFE FONTANES, WILLIAM EDWARD (Chile) b. 1926. Chemist-Pharmacist, Univ. of Chile, Santiago, 1953. Chemistry (MEPH). Appointed from Univ. of Chile. *Place of Study:* U.S.A., 1956-.

MAESTRI, MOACYR (Brazil) b. 1925. Eng. Agr., Higher School of Agric., Viçosa, 1948. Plant Science (A). Appointed from Higher School of Agric. *Place of Study:* U.S.A., 1956-.

MAKITA, KIYOSHI (Japan) b. 1915. D.M.Sc., Keio Univ., Tokyo, 1951. Child Psychiatry (MEPH). Appointed from Keio Univ. *Place of Study:* U.S.A., 1956-.

MALAFATOPoulos, STAVROS APOSTOLOS (ICA) b. 1921. M.D., Univ. of Salonika 1951. Public Health Administration (MEPH). Appointed from Libyan-American Joint Public Health Service and Internatl. Cooperation Admin., USOM, Tripoli. *Place of Study:* U.S.A., 1956-.

MALACOLOWKIN, CHANA (Brazil) b. 1925. Ph.D., Univ. of Brazil, Rio de Janeiro, 1951. Experimental Biology — Genetics (BMR). Appointed from Univ. of Brazil. *Place of Study:* U.S.A., 1956-.

MARTINELLI FILHO, ALCIDES (Brazil) b. 1927. D.Agr., Univ. of São Paulo 1955. Plant Science—Microbiology (A). Appointed from Inst. Zimotecnico, Piracicaba. *Place of Study:* U.S.A., 1956-.

- MARTÍNEZ PAGAN, ANGELINA (*Costa Rica*) b. 1920. B.S., Louisiana State Univ. 1945. Library Science (H; A). Appointed from 1) Polytechnic Inst., San Germán; 2) Inter-American Inst. of Agric. Sciences, Turrialba. *Place of Study:* U.S.A., 1944-45; 1956-.
- MARTINS, EDUARDO SILVEIRA (*Brazil*) b. 1919. Veterinarian, Univ. of Rio Grande do Sul, Pôrto Alegre, 1940. Biochemistry—Enzymes (A). Appointed from Univ. of Rio Grande do Sul. *Place of Study:* U.S.A., 1956-.
- MATSUO, HIDETOSHI (*Japan*) b. 1917. B.A., Taihoku Imperial Univ., Taiwan, 1940. Soil Science (A). Appointed from Natl. Kyushu Agric. Exper. Station, Chikugo-shi. *Place of Study:* U.S.A., 1956-.
- MATSUO, TAKANE (*Japan*) b. 1912. D.Agr.Sc., Tokyo Univ. 1951. Plant Science—Plant Breeding (A). Appointed from Tokyo Univ. *Place of Study:* U.S.A., 1956-.
- MATSUYAMA, HARUO (*Japan*) b. 1921. Igaku Hakase, Keio Univ., Tokyo, 1954. Neuropathology (MEPH). Appointed from Atomic Bomb Casualty Commission, Hiroshima. *Place of Study:* U.S.A., 1956-.
- MCCORMACK, WILLIAM CHARLES (*United States*) b. 1929. Ph.D., Univ. of Chicago 1956. Intercultural Understanding (H). Appointed from Univ. of Chicago. *Place of Study:* U.S.A., 1956-.
- MCCUNE, EVELYN BECKER (*United States*) b. 1907. M.A., Univ. of California 1950. Intercultural Understanding (H). Appointed from Contra Costa Jun-
- ior Coll., California. *Place of Study:* U.S.A., 1956-.
- MCPHAIL, JOHN EARL BRUCE (*WHO*) b. 1914. M.D., Univ. of Alberta 1939. Public Health (MEPH). Appointed from World Health Organization. *Place of Study:* England, 1956-.
- MELIKIAN, ANAHID (*Lebanon*) b. 1923. Ph.D., Univ. of Wisconsin 1954. Library Science (H). Appointed from Haigazian Coll., Beirut. *Place of Study:* U.S.A., 1956-.
- METZNER, HELMUT FRIEDRICH (*Germany*) b. 1925. Dr.rer.nat., Univ. of Göttingen 1950. Biology—Plant Physiology (BMR). Appointed from Univ. of Göttingen. *Place of Study:* U.S.A., 1956-.
- MILEDI DAW, RICARDO (*Mexico*) b. 1927. M.D., Natl. Univ. of Mexico 1955. Experimental Biology—Neurophysiology (BMR). Appointed from Natl. Inst. of Cardiology, Mexico City. *Place of Study:* Australia, 1956-.
- MIRANDA, MAURY (*Brazil*) b. 1930. M.D., Univ. of Brazil, Rio de Janeiro, 1954. Experimental Biology — Enzyme Chemistry (BMR). Appointed from Univ. of Brazil. *Place of Study:* U.S.A., 1956-.
- MIYAMOTO, TAKENOSUKE (*Japan*) b. 1905. B.A., Tokyo Imperial Univ. 1930. Philosophy (H). Appointed from Tokyo Union Theological Seminary. *Place of Study:* U.S.A., 1956-.
- MORÁN GONZÁLEZ, RODOLFO (*Mexico*) b. 1929. M.D., Univ. of Guadalajara 1953. Preventive Medicine (MEPH). Appointed from Univ. of Guadalajara.

- Place of Study:* Puerto Rico, 1956-.
- MORISHIMA, MICHIO (*Japan*) b. 1923. B.A., Kyoto Univ. 1946. Economics (SS). Appointed from Osaka Univ. *Place of Study:* England, 1956-.
- MORS, WALTER BAPTIST (*Brazil*) b. 1920. B.Chem., Univ. of São Paulo 1942. Experimental Biology—Plant Chemistry (BMR). Appointed from Ministry of Agric., Rio de Janeiro. *Place of Study:* U.S.A., 1956-.
- MUKHERJEE, SUNIL KUMAR (*India*) b. 1914. D.Sc., Univ. of Calcutta 1951. Plant Science—Horticulture (A). Appointed from Govt. of West Bengal. *Place of Study:* U.S.A., 1956-.
- MUNJAL, RAM LAL (*India*) b. 1920. M.Sc., Univ. of the Punjab, Lahore, 1943. Plant Science and Mycology (A). Appointed from Indian Agric. Research Inst., New Delhi. *Place of Study:* England, 1956-.
- NACHIBIN, LEOPOLDO (*Brazil*) b. 1922. Ph.D., Univ. of Brazil, Rio de Janeiro, 1948. Mathematics (BMR). Appointed from Univ. of Brazil. *Places of Study:* Mexico, U.S.A., France, 1956-.
- NAITO, Motoo (*Japan*) b. 1916. Ph.D., Tokyo Univ. 1951. Dairy Science (A). Appointed from Tokyo Univ. *Place of Study:* England, 1956-.
- NAKAYAMA, SHIGERU (*Japan*) b. 1928. M.A., Tokyo Univ. 1951. Philosophy—History of Science (H). Appointed from Heibonsha, Tokyo. *Place of Study:* U.S.A., 1956-.
- NORAT, PRAXEDES (*Puerto Rico*) b. 1914. M.P.H., Univ. of Michigan 1944. Administrative Medicine (MEPH). Appointed from Dept. of Health, Santurce. *Place of Study:* U.S.A., 1956-.
- NOSÉ, YOSHITSUGU (*Japan*) b. 1915. Igaku Hakushi, Kyoto Univ. 1951. Biochemistry — Enzymes (BMR). Appointed from Kyoto Univ. *Place of Study:* U.S.A., 1956-.
- NOWACKI, MARIO José (*Brazil*) b. 1921. Eng. Agr., Higher School of Agric. and Veter. Sciences of Paraná, Curitiba, 1945. Plant Science—Plant Parasitology (Pathology) (A). Appointed from Inst. of Biol. and Tech. Research, Curitiba. *Place of Study:* U.S.A., 1956-.
- ORTEGA TORRES, ENRIQUE (*Mexico*) b. 1921. M.S., Mississippi State Coll. 1950. Soil Science (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1956-.
- OYA, AKIRA (*Japan*) b. 1925. Igaku Hakushi, Tokyo Univ. 1956. Biology—Virology (BMR). Appointed from Natl. Inst. of Health, Tokyo. *Place of Study:* U.S.A., 1956-.
- PAIVA, ANTONIO CECHELLI DE MATTOS (*Brazil*) b. 1929. M.D., Paulista School of Med., São Paulo, 1954. Experimental Biology—Biochemistry (BMR). Appointed from Paulista School of Med. *Place of Study:* U.S.A., 1956-.
- PANCHO, JUAN V. (*Philippines*) b. 1928. M.S., Univ. of the Philippines, Quezon City, 1955. Plant Science: Botany — Taxonomy

- (A). Appointed from Univ. of the Philippines. *Place of Study:* U.S.A., 1956-.
- PASCOE, JAMES EDWARD (*Great Britain*) b. 1924. B.Sc., Univ. of London 1950. Neurophysiology (BMRC). Appointed from Univ. of London. *Place of Study:* Sweden, 1956-.
- PENNY, RONALD EDGAR COOPER (*Australia*) b. 1924. Cand. Ph.D., Australian Natl. Univ., Canberra, 1955. Social Psychology (SS). Appointed from Australian Natl. Univ. *Place of Study:* U.S.A., 1956-.
- PFARFFLE, WILLIAM OTTO (*Nicaragua*) b. 1934. B.S., Iowa State Coll. 1956. Plant Science—Plant Parasitology (Entomology) (A). Appointed from Tech. Agric. Service, Managua. *Place of Study:* U.S.A., 1956-.
- PILLAI, MUTHUMPERUMAL SHANMUGAM (*India*) b. 1920. M.Litt., Annamalai Univ. 1955. Intercultural Understanding (H). Appointed from Annamalai Univ. *Place of Study:* U.S.A., 1956-.
- PINKERTON, JOHN HENRY (*Jamaica*) b. 1920. M.R.C.O.G., Postgrad. Med. School, London, 1950. Gynecological Pathology (MEPH). Appointed from Univ. Coll. of the West Indies, Kingston. *Place of Study:* U.S.A., 1956-.
- PINTO, IRAJA DAMIANI (*Brazil*) b. 1919. Lic. Nat. Hist., Univ. of Rio Grande do Sul, Pôrto Alegre, 1945. Invertebrate Paleontology (BMR). Appointed from Univ. of Rio Grande do Sul. *Place of Study:* U.S.A., 1956-.
- POMPEIANO, OTTAVIO (*Italy*) b. 1927. Lic.Med., Univ. of Bologna 1950. Biology — Neurophysiology (BMR). Appointed from Univ. of Bologna. *Place of Study:* Norway, 1956-.
- PORTILLA, PIEDAD SOFIA (*Colombia*) b. 1932. R.N., Natl. Univ. of Colombia, Bogotá, 1952. Public Health Nursing (MEPH). Appointed from Univ. of Valle, Cali. *Place of Study:* Puerto Rico, 1956-.
- POWELL, THOMAS PHILLIP STROUD (*Great Britain*) b. 1923. F.R.C.S., London, 1950. Neurophysiology (BMRC). Appointed from Univ. of Oxford. *Place of Study:* U.S.A., 1956-.
- PRASAD, RAJENDRA (*India*) b. 1926. M.A., Patna Univ. 1948. Philosophy (H). Appointed from Patna Univ. *Place of Study:* U.S.A., 1956-.
- PURANDARE, NARENDRAG MAHADEO (*India*) b. 1913. M.D., Seth Gordhandas Sunderdas Med. Coll., Bombay, 1945. Pathology (MEPH). Appointed from Seth Gordhandas Sunderdas Med. Coll. *Places of Study:* U.S.A., England, 1956-.
- QUINTANA RODRÍGUEZ, RODOLFO (*Mexico*) b. 1926. Agron., School of Agric., Juárez, 1954. Plant Science—Plant Parasitology (Entomology) (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1956-.
- RABIN, BRIAN ROBERT (*Great Britain*) b. 1927. M.Sc., Univ. of London 1952. Biochemistry — Enzymes (BMR). Appointed from Univ. of London. *Place of Study:* U.S.A., 1956-.
- RAGHAVAN, PADMANABHA (*India*)

- b. 1909.** M.D., Seth Gordhandas Sunderdas Med. Coll., Bombay, 1937. Gastroenterology (MEPH). Appointed from Seth Gordhandas Sunderdas Med. Coll. *Place of Study:* U.S.A., 1956-.
- RAWSON, DONALD WILLIAM (Australia)** b. 1930. Ph.D., Univ. of Melbourne 1954. Political Science (SS). Appointed from Australian Natl. Univ., Canberra. *Place of Study:* England, 1956-.
- RESANOND, PRAIWAN (Thailand)**
b. 1930. B.S., Chulalongkorn Univ., Bangkok, 1954. Business Administration (SS). Appointed from Kasetart Univ., Bangkok. *Place of Study:* U.S.A., 1956-.
- REYES, ALEJANDRO C. (Philippines)**
b. 1919. M.D., Univ. of the Philippines, Quezon City, 1946. Public Health (MEPH). Appointed from Univ. of the Philippines. *Place of Study:* U.S.A., 1956-.
- RIVERA CAMARENA, JORGE ENRIQUE (Mexico)** b. 1928. Ing. Agr., Technological Inst. and School of Advanced Studies of Monterrey 1954. Plant Parasitology (A). Appointed from Technological Inst. and School of Advanced Studies of Monterrey. *Place of Study:* U.S.A., 1956-.
- RODRIGUES, RUBEM (Brazil)** b. 1924. M.D., Univ. of Rio Grande do Sul, Pôrto Alegre, 1950. Cardiology (MEPH). Appointed from Univ. of Rio Grande do Sul. *Place of Study:* Mexico, 1956-.
- RODRÍGUEZ LEIVA, MANUEL (Chile)**
b. 1925. M.D., Univ. of Chile, Santiago, 1948. Bacteriology (MEPH). Appointed from Catholic Univ. of Chile, Santiago. *Place of Study:* U.S.A., 1956-.
- RODRÍGUEZ ZAMBRANA, ENRIQUE (Nicaragua)** b. 1925. Ing. Agr., Antonio Narro Coll. of Agric., Saltillo, 1956. Horticulture (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1956-.
- ROY, AMAL KUMAR (India)** b. 1919. C.E., Univ. of Roorkee 1940. Public Health Engineering (MEPH). Appointed from Local Self Government Dept., Allahabad. *Place of Study:* U.S.A., 1956-.
- RUBBIZ, GEORGE ABDO (Lebanon)** b. 1927. M.D., American Univ. of Beirut 1953. Cardiac Physiology and Cardiology (MEPH). Appointed from American Univ. Hosp., Beirut. *Place of Study:* U.S.A., 1956-.
- SADALI, ACHMAD (Indonesia)** b. 1924. Akademikus, Univ. of Indonesia, Bandung, 1953. Visual Arts (H). Appointed from Univ. of Indonesia. *Place of Study:* U.S.A., 1956-.
- SAKAMOTO, YOSHIKAZU (Japan)** b. 1927. LL.B., Tokyo Univ. 1951. Political Science (SS). Appointed from Tokyo Univ. *Place of Study:* U.S.A., 1956-.
- SALZANO, FRANCISCO MAURO (Brazil)** b. 1928. Ph.D., Univ. of São Paulo 1955. Experimental Biology — Drosophila Genetics (BMR). Appointed from Univ. of Rio Grande do Sul, Pôrto Alegre. *Place of Study:* U.S.A., 1956-.
- SAMUELSSON, SIGURDUR (Iceland)**
b. 1911. M.D., Univ. of Iceland, Reykjavík, 1938. Internal Medicine (MEPH). Appointed from

- Univ. of Iceland. *Place of Study:* U.S.A., 1956~.
- SÁNCHEZ POTES, CARLOSTADIO (*Colombia*) b. 1929. Ing. Agr., Faculty of Agron., Palmira, 1953. Soil Science (A). Appointed from Office of Special Research, Palmira. *Place of Study:* U.S.A., 1956~.
- SANDESARA, BHOGILAL JAYCHAND-BHAI (*India*) b. 1915. Ph.D., Gujarat Vidya Sabha, Ahmedabad, 1950. History (H). Appointed from Univ. of Baroda. *Places of Study:* U.S.A., United Kingdom, Europe, 1956~.
- SANI, ASRUL (*Indonesia*) b. 1926. Ph.D., Univ. of Indonesia, Djakarta, 1955. Drama (H). Appointed from Indonesian Academy of Theatre Arts, Djakarta. *Place of Study:* U.S.A., 1956~.
- SASAKI, SHOGO (*Japan*) b. 1916. D.M.Sc., Keio Univ., Tokyo, 1949. Bacteriology (MEPH). Appointed from Keio Univ. *Place of Study:* U.S.A., 1956~.
- SATO, RYUHEI (*Japan*) b. 1915. B.S., Tohoku Univ., Sendai, 1941. Marine Resources (A). Appointed from Tohoku Univ. *Place of Study:* U.S.A., 1956~.
- SEN, PRAFULLA KUMAR (*India*) b. 1915. M.Ch., Univ. of Bombay 1940. Surgery (MEPH). Appointed from Seth Gordhandas Sunderdas Med. Coll., Bombay. *Places of Study:* U.S.A., Canada, Europe, 1956~.
- SENTANU, RADEN BAMBANG (*Indonesia*) b. 1927. B.Sc., Univ. of Indonesia, Djakarta, 1954. Economics (SS). Appointed from Indonesian Embassy, London. *Place of Study:* U.S.A., 1956~.
- SHAH, KEBERTI VANDRAVANDAS (*India*) b. 1928. M.B.B.S., B.J. Med. Coll., Poona, 1951. Virology (BMR). Appointed from Virus Research Centre, Poona. *Place of Study:* U.S.A., 1956~.
- SHAH, PRABHAKER NAGARDAS (*India*) b. 1922. M.D., Tata Memorial Hosp., Bombay, 1952. Biology — Genetics (BMR). Appointed from Indian Cancer Research Centre, Bombay. *Place of Study:* U.S.A., 1956~.
- SHAstry, SISHTA VENKATA SEETHARAMA (*India*) b. 1928. B.S., Agric. Coll., Bapatla, 1950. Plant Science (A). Appointed from Central Rice Research Inst., Cuttack. *Place of Study:* U.S.A., 1956~.
- SHIMAI, KAZUYO (*Japan*) b. 1919. D.M.Sc., Keio Univ., Tokyo, 1952. Anatomy (MEPH). Appointed from Keio Univ. *Place of Study:* U.S.A., 1956~.
- SHIMIZU, HIROSHI (*Japan*) b. 1907. M.A., Tokyo Imperial Univ. 1935. History (H). Appointed from Rikkyo Univ., Tokyo. *Place of Study:* U.S.A., 1956~.
- SHIMURA, KENSUKE (*Japan*) b. 1919. Ph.D., Tokyo Univ. 1950. Biochemistry (A). Appointed from Tohoku Univ., Sendai. *Place of Study:* U.S.A., 1956~.
- SHINOHARA, TAIZO (*Japan*) b. 1911. Nogakushi, Tokyo Univ. 1935. Agricultural Economics (SS). Appointed from Tokyo Univ. *Place of Study:* U.S.A., 1956~.
- SIE, ING-DJIANG (*Indonesia*) b. 1922. M.A., Univ. of Indonesia, Djakarta, 1954. Far Eastern Languages (H). Appointed from Univ. of Indonesia. *Place of Study:* U.S.A., 1956~.

SIFUENTES AGUILAR, JUAN ANTONIO (*Mexico*) b. 1926. Ing. Agr., Antonio Narro Coll. of Agric., Saltillo, 1953. Plant Science—Plant Parasitology (Entomology) (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1956–.

SILLER FLORES, LUIS REY (*Costa Rica*) b. 1923. M.S., Inter-American Inst. of Agric. Sciences, Turrialba, 1951. Plant Science—Plant Parasitology (A). Appointed from Inter-American Inst. of Agric. Sciences. *Place of Study:* U.S.A., 1956–.

SINGH, BAIJ NATH (*India*) b. 1920. M.A., Univ. of Allahabad 1944. Rural Sociology and Cultural Anthropology (SS). Appointed from Uttar Pradesh State Planning and Development Dept. *Place of Study:* U.S.A., 1956–.

SINGH, RAM NETI (*India*) b. 1916. Ph.D., Benares Hindu Univ. 1949. Soil Science (A). Appointed from Balwant Rajput Coll., Agra. *Place of Study:* U.S.A., 1956–.

SITUMORANG, SITOR (*Indonesia*) b. 1923. Literature and Drama (H). Appointed from Ministry of Education and Indonesian Natl. Theatre Academy, Djakarta. *Places of Study:* Philippines, Japan, U.S.A., Europe, 1956–.

SLADEN, WILLIAM JOSEPH LAMBERT (*Great Britain*) b. 1920. D.Phil., Univ. of Oxford 1954. Biology—Ecology (BMR). Appointed from Falkland Islands Dependencies Survey, Scientific Bureau, London. *Place of Study:* U.S.A., 1956–.

SOLLER, ROSE LILY (*Philippines*) b. 1912. B.S.E., Univ. of the Philippines, Quezon City, 1937. Drama (H). Appointed from Philippine Normal Coll. Arena Theatre, Manila. *Place of Study:* U.S.A., 1956–.

SOUTHWORTH, FRANKLIN CHESTER, III (*United States*) b. 1929. A.B., Harvard Univ. 1951. Intercultural Understanding (H). Appointed from Yale Univ. *Place of Study:* U.S.A., 1956–.

SPECTOR, WALTER GRAHAM (*Great Britain*) b. 1924. M.R.C.P., London, 1948. Pathology (BMRC). Appointed from Univ. of London. *Place of Study:* Australia, 1956–.

STUART, KENNETH LAMONTE (*Jamaica*) b. 1920. M.R.C.P., Univ. Coll. Hosp., London, 1952. Cardiology (MEPH). Appointed from Univ. Coll. of the West Indies, Kingston. *Place of Study:* U.S.A., 1956–.

SUGIYAMA, TADAYOSHI (*Japan*) b. 1913. Ph.D., Tokyo Univ. 1946. Plant Science—Horticulture (A). Appointed from Tokyo Univ. *Place of Study:* U.S.A., 1956–.

SUTCLIFFE, JAMES FREDERICK (*Great Britain*) b. 1922. Ph.D., Univ. of Leeds 1949. Biochemistry (BMR). Appointed from Univ. of London. *Place of Study:* U.S.A., 1956–.

SUZUKI, MASASHI (*Japan*) b. 1921. M.D., Tokyo Univ. 1945. Radiation Biology (MEPH). Appointed from Labor Standard Bureau, Ministry of Labor, Tokyo. *Place of Study:* U.S.A., 1956–.

SYRETT, PHILIP JOSEPH (*Great Britain*) b. 1925. M.A., Univ. of

- Cambridge 1950. Botany—Plant Physiology (BMR). Appointed from Univ. of London. *Place of Study:* U.S.A., 1956~.
- TANDON, OM PRAKASH (*India*) b. 1923. M.D., Univ. of Lucknow 1951. Internal Medicine (MEPH). Appointed from King George's Med. Coll., Lucknow. *Place of Study:* U.S.A., 1956~.
- TEDJASUKMANA, RADEN ISKANDER (*Indonesia*) b. 1915. Cert., Japanese Law Training Centre 1945. Intercultural Understanding (H). *Place of Study:* U.S.A., 1956~.
- TORRES GALLARDO, JESÚS, JR. (*Mexico*) b. 1930. M.D., Univ. of San Luis Potosí 1953. Biochemistry (MEPH). Appointed from Hosp. de Enfermedades de la Nutrición, Mexico City. *Place of Study:* U.S.A., 1956~.
- TOYAMA, TOSHIO (*Japan*) b. 1917. D.M.Sc., Keio Univ., Tokyo, 1949. Public Health (MEPH). Appointed from Keio Univ. *Place of Study:* U.S.A., 1956~.
- TRUJILLO, ALONSO (*Colombia*) b. 1919. M.D., Natl. Univ. of Colombia, Bogotá, 1946. Obstetrics and Gynecology (MEPH). Appointed from Univ. of Valle, Cali. *Place of Study:* U.S.A., 1956~.
- TRUMPER, BERNARDO (*Chile*) b. 1926. M.Arch., Univ. of Chile, Santiago, 1952. Drama (H). Appointed from Catholic Univ. of Chile, Santiago. *Place of Study:* U.S.A., 1956~.
- TSUDA, TSUNBYUKI (*Japan*) b. 1923. B.S., Tokyo Univ. 1947. Animal Physiology (A). Appointed from Tohoku Univ., Sen-
- dai. *Place of Study:* U.S.A., 1956~.
- TSUJIMURA, AKIRA (*Japan*) b. 1926. B.A., Tokyo Univ. 1951. Slavic Studies (H). Appointed from Tokyo Univ. *Place of Study:* U.S.A., 1956~.
- TSUMITA, TORU (*Japan*) b. 1924. M.D., Tokyo Univ. 1948. Biochemistry (BMR). Appointed from Natl. Inst. of Health, Tokyo. *Place of Study:* U.S.A., 1956~.
- TSURU, HARUO (*Japan*) b. 1923. M.S., Univ. of Illinois 1951. Education (H). Appointed from Internat'l. Christian Univ., Tokyo. *Place of Study:* U.S.A., 1956~.
- UEKUSA, MINORU (*Japan*) b. 1913. D.M.Sc., Keio Univ., Tokyo, 1946. Surgery (MEPH). Appointed from Keio Univ. *Place of Study:* U.S.A., 1956~.
- UETAKE, HISAO (*Japan*) b. 1916. Igaku-Hakase, Hokkaido Imperial Univ. 1945. Biology—Virology (BMR). Appointed from Sapporo Med. Coll. *Place of Study:* U.S.A., 1956~.
- VALENZUELA, VICTOR C. (*Philippines*) b. 1919. M.P.H., Johns Hopkins Univ. School of Hygiene and Public Health 1948. Biostatistics (IHD; MEPH). Appointed twice from Univ. of the Philippines, Quezon City. *Place of Study:* U.S.A., 1947-48; 1956~.
- VAN BUITENEN, JOHANNES ADRIANUS BERNARDUS (*Netherlands*) b. 1928. Ph.D., State Univ. of Utrecht 1953. Philosophy (H). Appointed from Deccan Coll., Poona. *Places of Study:* U.S.A., India, 1956~.

VÁZQUEZ GUILLÉN, GREGORIO (*Mexico*) b. 1928. Ing. Agr., Antonio Narro Coll. of Agric., Saltillo, 1954. Plant Science (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1956-.

VEDI, PRATIMA (*India*) b. 1929. B.A., Punjab Univ., Delhi, 1955. Dietetics (MEPH). Appointed from Ministry of Health, Delhi. *Place of Study:* U.S.A., 1956-.

VEGA D., ELMO DE LA (*Peru*) b. 1924. D.V.M., Univ. of San Marcos, Lima, 1951. Animal Science — Veterinary Science (A). Appointed from Univ. of San Marcos. *Place of Study:* U.S.A., 1956-.

VELDKAMP, HANS (*Netherlands*) b. 1923. Dr., State Agric. Univ., Wageningen, 1955. Microbiology (A). Appointed from State Agric. Univ. *Place of Study:* U.S.A., 1956-.

VERGARA AUSTENRITT, JUAN (*Chile*) b. 1928. M.D., Univ. of Chile, Santiago, 1952. Experimental Biology — Cytology (BMR). Appointed from Univ. of Chile. *Place of Study:* U.S.A., 1956-.

VIAL CORREA, JUAN DE DIOS (*Chile*) b. 1925. M.D., Univ. of Chile, Santiago, 1949. Experimental Biology — Nervous System (BMR). Appointed from Catholic Univ. of Chile, Santiago. *Place of Study:* U.S.A., 1956-.

VIAL URREJOLA, SALVADOR (*Chile*) b. 1928. M.D., Univ. of Chile, Santiago, 1953. Physiopathology (MEPH). Appointed from Catholic Univ. of Chile, Santiago. *Place of Study:* U.S.A., 1956-.

WAHLBECK, LARS (*Finland*) b. 1922. D.Econ., Swedish School of Economics, Helsinki, 1955. Economics (SS). Appointed from Economic Research Inst. of Finnish Industry. *Place of Study:* U.S.A., 1956-.

WATSON, RICHARD STANLEY SELVARATNAM (*Ceylon*) b. 1922. Ph.D., Univ. of London 1951. Electrophysiology (MEPH). Appointed from Univ. of Ceylon, Colombo. *Place of Study:* U.S.A., 1956-.

WEILER, ROYAL WILLIAM (*United States*) b. 1927. Ph.D., Univ. of Pennsylvania 1956. Philosophy and Religion (H). *Places of Study:* India, U.S.A., Europe, 1956-.

YALMAN, TUNC (*Turkey*) b. 1925. M.F.A., Yale Univ. 1950. Drama (H). Appointed while free-lance writer. *Place of Study:* U.S.A., 1956-.

YAMADA, KOICHI (*Japan*) b. 1913. B.S., Tokyo Univ. 1938. Food Technology (A). Appointed from Tokyo Univ. *Place of Study:* U.S.A., 1956-.

YOO, CHI-JIN (*Korea*) b. 1905. B.A., Rikkyo Univ., Tokyo, 1931. Drama (H). Appointed from Sinhyup Theatrical Company, Seoul. *Place of Study:* U.S.A., 1956-.

YOSIZAWA, ZENSAKU (*Japan*) b. 1921. Ph.D., Tohoku Univ., Sendai, 1952. Biochemistry (BMR). Appointed from Tohoku Univ. *Place of Study:* U.S.A., 1956-.

ZAMBRANO, ERNESTO (*Colombia*) b. 1926. M.D., Natl. Univ. of Colombia, Bogotá, 1954. Psychiatry

(MEPH). Appointed from Univ. of Valle, Cali. *Place of Study:* U.S.A., 1956.

ZAPATA, JOSÉ MARIO (*Colombia*)
b. 1925. Ing. Agr., Natl. Univ.

of Colombia, Bogotá, 1956. Plant Science — Plant Breeding (A). Appointed from Ministry of Agric., Bogotá. *Place of Study:* U.S.A., 1956.

OTHER STUDY AWARDS

In addition to its fellowship appointments in 1956, the Foundation made under the regular and expanded programs 44 special study awards to persons from 15 countries.

AGARWALA, OM PRAKASH (*India*)
b. 1928. B.S., Allahabad Agric. Inst. 1949. Animal Science — Dairy Husbandry (A). Appointed from Allahabad Agric. Inst. *Place of Study:* U.S.A., 1956.

ARAICA LANDERO, HENRY (*Nicaragua*) b. 1934. Perito en Agron. y Zootecnia, Natl. School of Agric., Managua, 1955. Soil Science (A). Appointed from Tech. Agric. Service of Nicaragua, Managua. *Place of Study:* Colombia, 1956.

ARTECONA, CRESCENCIO RAMÓN (*Paraguay*) b. 1926. Agron., Natl. School of Agric., Asunción, 1950. Soil Science (A). Appointed from Inter-American Tech. Service of Agric. Cooperation, Asunción. *Place of Study:* Mexico, 1956.

ASSEGAFF, MOEHAMAD MOEHSIN (*Indonesia*) b. 1922. Labor Relations and Management (H). Appointed from Sarbumusi, Surabaja. *Place of Study:* U.S.A., 1956.

ATMADILAGA, DIDI (*Indonesia*) b. 1926. Veterinarian, Univ. of Indonesia, Bogor, 1955. Animal Science — Animal Breeding (A).

Appointed from Univ. of Indonesia. *Place of Study:* U.S.A., 1956.

BODHIPAKSHA, PRASIT (*Thailand*) b. 1927. D.V.M., Univ. of Med. Sciences, Bangkok, 1951. Veterinary Science (A). Appointed from Kasetsart Univ., Bangkok. *Place of Study:* U.S.A., 1956.

CHENA G., RODOLFO (*Mexico*) b. 1928. Ing. Agr., Natl. School of Agric., Chapingo, 1955. Soil Science (A). Appointed from Ministry of Agric., Mexico City. *Place of Study:* U.S.A., 1956.

COELHO, ANTONIO SEBASTIÃO RENSI (*Brazil*) b. 1931. Eng. Agr., Luiz de Queiroz Coll. of Agric., Piracicaba, 1954. Agronomy (A). *Place of Study:* Mexico, 1956.

CONTRERAS MENDIZABAL, MAXIMO (*Panama*) b. 1932. Perito Agropecuario, Natl. Inst. of Agric., Panama City, 1954. Plant Science (Plant Breeding) (A). Appointed from Inter-American Cooperation Service in Panama, David. *Places of Study:* Colombia, Mexico, 1956.

COVARRUBIAS CELIS, RAMÓN (*Mex-*

ico) b. 1930. Ing. Agr., Natl. School of Agric., Chapingo, 1956. Plant Breeding and Genetics (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1956-.

DEE-ANANTA, PRASERTSRI (*Thailand*) b. 1925. B.Sc., Chulalongkorn Univ., Bangkok, 1948. Foods and Nutrition (A). Appointed from Kasetsart Univ., Bangkok. *Place of Study:* U.S.A., 1956-.

DJAJAKUSUMA, DJADOEG (*Indonesia*) b. 1918. Drama (H). *Place of Study:* U.S.A., 1956-.

DONOSO ECHEGOYEN, AUGUSTO (*Chile*) b. 1929. Ing. Agr., Univ. of Chile, Santiago, 1955. Agronomy (A). Appointed from Catholic Univ. of Chile, Pirque. *Places of Study:* Colombia, Mexico, 1956-.

GONZÁLEZ AVILA, PEDRO M. (*Peru*) b. 1928. Ing. Agr., Natl. School of Agric., La Molina, Lima, 1956. Entomology and Phytopathology (A). Appointed from Natl. School of Agric. *Place of Study:* Mexico 1956-.

GUTIÉRREZ, JOSÉ S. (*Philippines*) b. 1925. B.S., Univ. of the Philippines, Quezon City, 1949. Agricultural Economics (A). Appointed from Dept. of Agric. and Natural Resources, Manila. *Place of Study:* U.S.A., 1956-.

HABITO, CELESTINO P. (*Philippines*) b. 1919. M.S., Univ. of Minnesota 1952. Education (A). Appointed from Central Luzon Agric. Coll., Nueva Ecija. *Place of Study:* U.S.A., 1956-.

JACOB, JOHAN H. (*Indonesia*) b. 1924. Labor Relations and Management (H). Appointed from Union of Tech. Harbour Workers, Djakarta. *Places of Study:* U.S.A., Europe, Asia, 1956-.

MANNAN, MOHAMMAD ABDUL (*Pakistan*) b. 1933. M.S., Univ. of Dacca 1954. Soil Science (A). Appointed from Food and Agric. Council of Pakistan, Dacca. *Place of Study:* U.S.A., 1956-.

MARTÍNEZ SALAZAR, EUGENIO (*Mexico*) b. 1930. Ing. Agr., Technological Inst. and School of Advanced Studies of Monterrey 1955. Plant Science (Plant Breeding) (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1956-.

MEWENGKANG, SIEBOLD (*Indonesia*) b. 1904. Labor Relations and Management (H). Appointed from Oil Workers Union, East Kalimantan. *Places of Study:* U.S.A., Europe, Asia, 1956-.

MOERDIFI SOERIAATMADJA, TOR-BAGOES (*Indonesia*) b. 1923. Police Training School, Sukabumi, 1945. Languages (H). Appointed from National Police Dept., Djakarta. *Place of Study:* U.S.A., 1956-.

MORA ROSTRÁN, JOSÉ ANTONIO (*Nicaragua*) b. 1931. B.S., Michigan State Univ. 1954. Soil Science — Plant Physiology (A). Appointed from Tech. Agric. Service of Nicaragua, Managua. *Place of Study:* U.S.A., 1956-.

MORA URPI, JORGE (*Costa Rica*) b. 1930. Ing. Agr., Univ. of Costa Rica, San José, 1951. Plant Sci-

- ence—Plant Breeding (Genetics) (A). Appointed from Inter-American Tech. Service of Agric. Cooperation, San José. *Place of Study:* U.S.A., 1956.
- NAGUMO, HISAKO (Japan) b. 1929. B.A., Tokyo Univ., 1953. Child Psychology (SS). Appointed from Tokyo Women's Christian Coll. *Place of Study:* U.S.A., 1956.
- NATH, DEVENDRA (India) b. 1923. M.A., Punjab Univ., Delhi, 1951. Business Administration (SS). Appointed from Indian Council of World Affairs, New Delhi. *Place of Study:* U.S.A., 1956.
- NIETO HATEM, JORGE (Mexico) b. 1930. Ing. Agr., Technological Inst. and School of Advanced Studies of Monterrey 1953. Plant Science (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1956.
- ORTEGA C., JACOB (Mexico) b. 1929. Ing. Agr., Antonio Narro Coll. of Agric., Saltillo, 1956. Plant Science—Plant Pathology (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1956.
- PATIÑO M., GRACIANO (Mexico) b. 1932. Ing. Agr., Antonio Narro Coll. of Agric., Saltillo, 1956. Plant Science—Plant Pathology (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1956.
- RABAJ C., SERAFÍN (Bolivia) b. 1925. Ing. Agr., Univ. of San Simón, Cochabamba, 1952. Engineering (A). Appointed from Juan Misael Saracho Univ., Tarija. *Place of Study:* Mexico, 1956.
- RAMÍREZ CASTAÑO, AMALIA (Colombia) b. 1934. Education (Agricultural Library Science) (A). Appointed from Ministry of Agric., Bogotá. *Place of Study:* U.S.A., 1956.
- RANGKUTY, M. NURMAN (Indonesia) b. 1918. Labor (H). Appointed from Union of Plantation Workers of Indonesia, Medan. *Places of Study:* Philippines, Japan, Hawaii, U.S.A., 1956.
- RASJID, A. MANNAN (Indonesia) b. 1920. Labor (H). Appointed from Islamic Labor Union of Indonesia, Bogor. *Places of Study:* Philippines, Japan, Hawaii, U.S.A., 1956.
- REYES CASTAÑEDA, PEDRO (Mexico) b. 1923. Ing. Agr., Natl. School of Agric., Chapingo, 1954. Plant Science (Plant Breeding) (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1956.
- RUSCHEL, RENATO (Brazil) b. 1933. Eng. Agr., Rural Univ., Rio de Janeiro, 1955. Plant Science (Plant Breeding) (A). *Place of Study:* Mexico, 1956.
- SAID, MOHAMMAD (Indonesia) b. 1917. Education (H). Appointed from Taman Siswa School, Djakarta. *Places of Study:* Asia, U.S.A., Europe, Near East, 1956.
- SALAKI, ALTIEN BERT (Indonesia) b. 1926. Labor Relations and Management (H). Appointed from Caltex Oil Labor Union, Pakanbaru, Sumatra. *Places of*

Study: U.S.A., Europe, Asia, 1956-.

SATHIRASWASTI, WATTANA (*Thailand*) *b.* 1927. B.S., Kasetsart Univ., Bangkok, 1953. Plant Science—Horticulture (A). Appointed from Kasetsart Univ. *Place of Study:* U.S.A., 1956-.

SENVONGS NA AYUDHIA, VATHINEE (*Thailand*) *b.* 1930. B.A., Chulalongkorn Univ., Bangkok, 1955. English and Education (A). Appointed from Kasetsart Univ., Bangkok. *Place of Study:* U.S.A., 1956-.

SITOHANG, RADJIUN B. (*Indonesia*) *b.* 1920. Labor Relations and Management (H). Appointed from Union of Bank Employes of Indonesia, Djakarta. *Places of Study:* U.S.A., Europe, Asia, 1956-.

SOEDARSONO, RADEN (*Indonesia*) *b.* 1921. Labor Relations and Management (H). Appointed from Union of Postal, Telegraph, and Telephone Workers, Bandung. *Places of Study:* U.S.A., Europe, Asia, 1956-.

SUDSANEH, SAOVANEE (*Thailand*) *b.* 1932. M.Sc., Cornell Univ. 1956. Foods and Nutrition (A). Appointed from Kasetsart Univ., Bangkok. *Place of Study:* U.S.A., 1956-.

THONGYAI, M. R. PRAKAITHONG (*Thailand*) *b.* 1931. B.A., Chulalongkorn Univ., Bangkok, 1955. English and Education (A). Appointed from Kasetsart Univ., Bangkok. *Place of Study:* U.S.A., 1956-.

TILO, SANTIAGO NANAT (*Philippines*) *b.* 1930. B.S.A., Univ. of the Philippines, Quezon City, 1954. Soil Microbiology (A). Appointed from Univ. of the Philippines. *Place of Study:* U.S.A., 1956-.

VEIGA, EDWARD (*Brazil*) *b.* 1929. Eng. Agr., Higher School of Agric. of Lavras 1955. Soil Science (Conservation, Irrigation, and Drainage) (A). Appointed from Higher School of Agric. of Lavras. *Place of Study:* Mexico, 1956-.

Report of the Treasurer

REPORT OF THE TREASURER

IN THE FOLLOWING PAGES is submitted a report of the financial transactions of The Rockefeller Foundation for the year ended December 31, 1956.

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SQUIRES & COMPANY
CERTIFIED PUBLIC ACCOUNTANTS
101 PARK AVENUE, NEW YORK 17

March 4, 1957

ACCOUNTANTS' CERTIFICATE

To the Board of Trustees of
The Rockefeller Foundation:

We have examined the balance sheet of The Rockefeller Foundation as of December 31, 1956, and the related statements of its unappropriated and appropriated funds for the year then ended. 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.

The accounting records are kept on a cash basis and, accordingly, no effect has been given in the accompanying statements to income accrued but not received at December 31, 1956, nor to expenditures made from advances for which reports had not been received at the time the books were closed for the year.

In our opinion, with the foregoing explanation, the accompanying balance sheet and statements of unappropriated and appropriated funds present fairly the financial position of The Rockefeller Foundation as of December 31, 1956, and the results of its financial activities during the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

(*Signed*) Squires & Company

BALANCE SHEET — DECEMBER 31, 1956

ASSETS

SECURITIES (Ledger value)	\$204,728,194.84
(Market value \$650,589,531.25)	
CURRENT ASSETS:	
Cash on deposit	4,431,637.29
Advances and deferred charges	\$498,716.79
Sundry accounts receivable	<u>26,767.03</u> 525,483.82
OFFICE AND EQUIPMENT:	
In New York and Paris	<u>174,370.14</u>
	<u><u>\$209,859,686.09</u></u>

FUNDS AND OBLIGATIONS

PRINCIPAL FUND	\$162,426,294.30
COMMITMENTS:	
Unpaid Appropriations	\$41,743,760.04
Unappropriated authorizations	<u>610,945.00</u> 42,354,705.04
INCOME AVAILABLE FOR COMMITMENT	4,865,516.31
CURRENT LIABILITIES:	
Accounts payable and deferred credits	38,800.30
OFFICE AND EQUIPMENT FUND	<u>174,370.14</u>
	<u><u>\$209,859,686.09</u></u>

PRINCIPAL FUND

Balance, December 31, 1955

\$162,800,434.01

Add:

Amount by which the proceeds of securities sold during the year exceeded their ledger value

\$2,284,125.72

Remainderman interest in Trust Fund established by Mr. John D. Rockefeller, Sr.

1,258,392.50

Profit on sale of part interest in Paris office building

58,342.07

Gift received:

Anonymous

25,000.00

3,625,860.29

\$166,426,294.30

Deduct:

Amount transferred to Income Account

4,000,000.00

Balance, December 31, 1956

\$162,426,294.30

APPROPRIATIONS AND PAYMENTS

Unpaid appropriations, December 31, 1955

\$29,210,808.79

Appropriations during the year: (For detail see pages 294 to 371)

Medical Education and Public Health

\$4,730,305.00

Biological and Medical Research

5,012,200.00

Agriculture

4,969,100.00

Social Sciences

3,247,760.00

Humanities

5,963,605.00

General

2,184,000.00

Administration

3,968,335.00

\$30,075,305.00

720,137.97

29,355,167.03

Unused balances of appropriations allowed to lapse

\$58,565,975.82

APPROPRIATIONS AND PAYMENTS—*continued*

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THE ROCKEFELLER FOUNDATION

Payments on 1956 and prior years' appropriations: (For detail see pages 294-371)

Medical Education and Public Health	\$2,970,460.16
Biological and Medical Research	3,901,782.56
Agriculture	2,641,707.50
Social Sciences	2,269,817.63
Humanities	2,039,169.34
Former Program	174,269.70
General	667,062.41
Administration	2,157,946.48
	<u>16,822,215.78</u>

Unpaid appropriations, December 31, 1956

\$41,743,760.04

UNAPPROPRIATED AUTHORIZATIONS

Balance, December 31, 1955	\$1,934,936.00
Add:	
Adjustment in Reserve for Retiring Allowances	<u>176,009.00</u>
	<u>\$2,110,945.00</u>
Less:	
Appropriation for funding of annuities of retired employees	<u>1,500,000.00</u>
	<u>\$610,945.00</u>

INCOME AVAILABLE FOR COMMITMENT

Balance, December 31, 1955	\$6,506,430.59
Add:	
Income and refunds:	
Income from securities	\$22,369,496.00
Refunds	20,765.75
Amount transferred from Principal Fund as of December 31, 1956	4,000,000.00
Unused balance of appropriations allowed to lapse	<u>720,137.97</u>
	<u>27,110,399.72</u>
	<u>\$33,616,830.31</u>

Less:			
Appropriations	\$30,075,305.00		
Authorizations	176,009.00		
	<u>\$30,251,314.00</u>		
Less:			
Appropriation for which funds were previously authorized	1,500,000.00		28,751,314.00
Income available for commitment, December 31, 1956			<u>\$4,865,516.31</u>

OFFICE AND EQUIPMENT FUND

	BALANCE DEC. 31, 1955	CHANGES DURING 1956	BALANCE DEC. 31, 1956
		ADDITIONS	DEPRECIATION
Library	\$9,920.00	\$2,610.72	\$10,125.00
Equipment	93,381.27	69,286.60	140,434.48
Paris Office:			
Part interest in Paris office building	23,810.66	23,810.66
	<u>\$127,111.93</u>	<u>\$71,897.32</u>	<u>\$174,370.14</u>

APPROPRIATIONS AND UNAPPROPRIATED AUTHORIZATIONS

Commitments, December 31, 1955:

Unpaid appropriations	\$29,210,808.79	
Unappropriated authorizations	1,934,936.00	\$31,145,744.79

Add:

Appropriations	\$30,075,305.00	
Authorizations	176,009.00	
	<u>\$30,251,314.00</u>	

Less:

Appropriation for which funds were previously authorized	\$1,500,000.00	
Appropriations lapsed during the year	<u>720,137.97</u>	2,220,137.97

		28,031,176.03
		<u>\$59,176,920.82</u>

Less:

Payment on 1956 and prior years' appropriations		16,822,215.78
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Commitments, December 31, 1956:

Unpaid appropriations	\$41,743,760.04	
Unappropriated authorizations	610,945.00	<u>\$42,354,705.04</u>

APPROPRIATIONS DURING 1956, UNPAID BALANCES OF PRIOR YEAR APPROPRIATIONS,
AND PAYMENTS THEREON IN 1956

294

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
MEDICAL EDUCATION AND PUBLIC HEALTH			
<i>Control and Investigation of Specific Diseases and Deficiencies</i>			
MALARIA			
Europe			
Italy			
Sardinia Anopheles Eradication Program, 1950-1953 (IH 50126)	\$2,962.40	\$.....	\$.....
Medical Care			
UNITED STATES			
American Public Health Association, Washington, D. C. Support of Subcommittee on Medical Care (RF 52055)	20,000.00	20,000.00
University of North Carolina, Chapel Hill Division of Health Affairs. Study of general medical practice (RF 55059)	50,600.00	10,000.00
CANADA			
University of Toronto Faculty of Medicine and the School of Hygiene. Teaching in medical care (RF 54065)	12,624.43
WEST INDIES			
Department of Health, Puerto Rico Development of techniques and methods for regionaliza-			

THE ROCKEFELLER FOUNDATION

tion of the medical and public health facilities in the Bayamón Region (RF 56007)	155,950.00	155,950.00
EUROPE			
France			
Social Hygiene Association of the Aisne, Soissons Support of Soissons Center of Public Health (RF 53090)	65,761.51	24,586.06
Great Britain			
Victoria University of Manchester, England Development of an experimental Health Center (IH 50101)	29,739.00	16,219.33
<i>Professional Education</i>			
UNITED STATES			
Albany Medical College of Union University, New York Experimental radio program of regional postgraduate medical education (RF 56077)	90,000.00	27,500.00
Boston University, Massachusetts Study of the curriculum for the School of Medicine and the College of Liberal Arts (RF 56158)	50,000.00
Cornell University, Ithaca, New York Medical College, New York Statistical consultant in the Department of Preventive Medicine (RF 51119)	2,275.77	2,275.77
Application of electron microscopy to teaching and re- search in the Department of Pathology (RF 55073) (Joint Project with Biological and Medical Research)	95,000.00	39,391.00

MEDICAL EDUCATION AND PUBLIC HEALTH — *continued*

Professional Education — continued

UNITED STATES — *continued*

	APPROPRIATIONS	1956	1956
	PRIOR YEARS	PAYOUTS	G
Harvard University, Cambridge, Massachusetts Development of legal medicine (RF 52075)	\$7,161.06	\$.....	\$96.10
Development of the Department of Dermatology of the Harvard Medical School (RF 48039)	41,072.42	7,500.00
Research and teaching of complete family medical care (RF 54092)	197,808.57	35,387.06
Johns Hopkins University, Baltimore, Maryland School of Hygiene and Public Health For developmental purposes (RF 48037)	155,000.00	75,000.00
Salaries of temporary staff to replace regular staff assigned to the Institute of Hygiene of the University of the Philippines (RF 53068, 55175)	12,800.03
Massachusetts Institute of Technology, Boston For a biological and medical facility for a nuclear re- actor (RF 56047) (Joint Project with Biological and Medical Research)	250,000.00	125,000.00
National League for Nursing, Inc., New York For program of the National Nursing Accrediting Serv- ice (RF 54127)	20,707.00	10,074.44
New England Center Hospital, Boston, Massachusetts Postgraduate medical education in certain rural areas and towns in Massachusetts (RF 50100)	8,796.16

Simmons College, Boston, Massachusetts Toward establishment of a graduate course in public health nursing in cooperation with the Harvard School of Public Health (RF 53008)	3,772.67	2,559.29
Teachers College, Columbia University, New York Nursing education research, experimentation, and field service (RF 52103)	48,325.12	15,793.60
Unitarian Service Committee, Inc., Boston, Massachusetts For expenses of sending a team of American consultants to Japan to stimulate the teaching of modern anesthesiology in Japanese medical schools (RF 56014)	18,000.00	15,000.00
University of Chicago, Illinois Department of Sociology, Study of integration of Negroes in medicine (RF 55124)	19,050.00	19,050.00
Vanderbilt University, Nashville, Tennessee For use by the Department of Pediatrics of the School of Medicine in the exchange of senior assistants (RF 53157)	2,000.00
Washington University, St. Louis, Missouri School of Medicine. Teaching of preventive medicine (RF 52111)	16,800.00	16,792.67
MEXICO			
National Institute of Cardiology, Mexico City Equipment (RF 52082)	1,419.18
Children's Hospital, Mexico City Toward development of a research and training program (RF 54180)	106,362.61	29,020.53

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
MEDICAL EDUCATION AND PUBLIC HEALTH -- <i>continued</i>			
<i>Professional Education -- <i>continued</i></i>			
WEST INDIES			
Jamaica			
University College of the West Indies			
Field training and research in Faculty of Medicine and			
research in Department of Chemistry (RF 55094)			
(Joint Project with Biological and Medical Research)	\$314,000.00	\$.....	\$107,400.00
Puerto Rico			
University of Puerto Rico, San Juan			
Development of the Medical School Library (RF			
54021)	5,000.00	5,000.00
SOUTH AMERICA			
Brazil			
Araraquara Rural Health Training Center (RF 53155)	5,516.00	4,499.48
Campaign for the Improvement of Higher Education			
Personnel (CAPES), Rio de Janeiro			
Support of program to train teachers for medical			
schools (RF 55139)	100,241.39	15,047.60
Paulista School of Medicine, São Paulo			
Toward its general development (RF 56052) (Joint			
Project with Biological and Medical Research)	105,000.00	23,906.93

Santa Casa de Misericordia, Rio de Janeiro Graduate training of physicians (RF 55114)	51,540.00	1,480.50
University of Brazil, Rio de Janeiro Toward general development of the Institute of Microbiology (RF 56140) (Joint Project with Biological and Medical Research)	63,000.00
University of Minas Gerais, Belo Horizonte Faculty of Medicine. General development (RF 55177) (Joint Project with Biological and Medical Research)	339,000.00	53,808.89
University of Recife General development of the Faculty of Medicine (RF 56051)	215,000.00	20,095.53
University of Rio Grande do Sul, Pôrto Alegre Faculty of Medicine. Development of teaching and research in anatomy and physiology (RF 56053) (Joint Project with Biological and Medical Research)	36,000.00	4,478.84
University of São Paulo Improving teaching facilities (RF 55053)	32,428.19	24,121.34
Development of the Faculty of Medicine at Ribeirão Preto (RF 55100)	230,873.00	130,983.45
Chile			
Catholic University of Chile, Santiago Faculty of Medicine. Preclinical teaching and research (RF 55052)	111,750.66	55,169.23
University of Chile, Santiago Faculty of Medicine. General development (RF 55064)	354,373.05	151,039.85

		APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
MEDICAL EDUCATION AND PUBLIC HEALTH— <i>continued</i>				
Professional Education — <i>continued</i>				
SOUTH AMERICA — <i>continued</i>				
Colombia				
National University of Colombia, Bogotá				
Faculty of Medicine. Equipment (RF 54044)	\$35,125.34	\$.....	\$11,404.75	
University of Valle, Cali				
Faculty of Medicine. Development of the Department of Preventive Medicine and Public Health and asso- ciated activities (RF 54179)	457,705.68	65,211.00	
School of Nursing (RF 55034)	37,064.40	1,141.64	
University of the Andes, Bogotá				
Development of a School of Premedical Studies (RF 56189)	570,000.00	
University of Antioquia, Medellín				
Development of a School of Library Science (RF 56080) (Joint project with Agriculture)	58,000.00	
Peru				
University of San Marcos, Lima				
Department of Pathological Physiology. Teaching and research (RF 55028)	70,076.65	55,002.26	
Faculty of Medicine. Survey of facilities and curricu- lum and of current medical education in Latin Amer- ica, the United States, and Europe (RF 56173)	12,000.00	
Uruguay				
University of the Republic, Montevideo				
Improvement of teaching facilities (RF 55054)	28,449.90	15,398.83	

EUROPE

Austria

University of Vienna

Local fellowships for training in child psychiatry (RF
52162)

1,037.64

Cr. 23.46

Belgium

University of Brussels

Support of the Department of Social Medicine (RF
52034)

11,374.56

Finland

State Medical Board of Finland, Helsinki

Support of the training program of the Uusimaa field
demonstration and teaching area (RF 54009)

6,711.75

6,452.50

University of Helsinki

Medical School. Research and teaching positions for
assistants in basic science institutes (RF 53054)

50,616.00

23,246.54

France

Association for the Mental Health of Children, Paris

Development of child mental health teaching and re-
search (RF 52158)

48,182.03

5,116.31

Germany

Health Authority of The Free Hanseatic City of Ham-
burg

Teaching program (RF 53147)

17,131.81

3,099.20

Technical Institute, Stuttgart

Education and research in sanitary engineering (RF
53094)

4,296.13

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	PRIOR YEARS	1956	1956 PAYMENTS
MEDICAL EDUCATION AND PUBLIC HEALTH — <i>continued</i>			
<i>Professional Education — <i>continued</i></i>			
EUROPE — <i>continued</i>			
Germany — <i>continued</i>			
University of Heidelberg			
School of Nursing. Teaching material and equipment and for travel of staff (RF 52123)	\$997.05	\$.....	\$.....
Physiological Institute			
Teaching and research (RF 52097)	90.99	83.94
Teaching program (RF 55084)	5,123.00	1,191.50
Great Britain			
Institution of Civil Engineers, London			
Bursaries for graduate training and research in public health engineering in universities in the United Kingdom (RF 54181)	42,010.50	9,094.07
Royal Technical College, Glasgow, Scotland			
Support of postgraduate training and research facilities (RF 54124)	77,714.15	22,328.98
University of Durham			
King's College, Newcastle upon Tyne. Toward pro- gram in public health engineering (RF 54104)	27,465.25	5,594.83
University of Edinburgh, Scotland			
Faculty of Medicine			
Teaching of family practice (RF 52140)	39,466.60
Nursing Teaching Unit (RF 55102)	90,000.00

University of London				
University College. Study of medical student selection (RF 52160)	15,119.21	6,289.03	
London School of Hygiene and Tropical Medicine. Establishment of a Department of Occupational Health (RF 55008)	45,000.00		
University of Oxford				
School of Medicine. Laboratory facilities and equip- ment (RF 55106)	38,872.50	27,843.75	
Italy				
University of Naples				
Education and research in sanitary engineering (RF 53095)	29,325.68	16,038.89	
Switzerland				
Le Bon Secours School of Nursing, Geneva				
Development of graduate and undergraduate nursing education programs (RF 52187)	6,798.46	3,501.75	
AFRICA				
South Africa				
University of Natal, Durban				
For the development of a department of family prac- tice (RF 54121)	127,200.00	16,705.35	
NEAR EAST				
Lebanon				
American University of Beirut				
For development and operation of its medical division (RF 53001)	200,000.00	100,000.00	

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
MEDICAL EDUCATION AND PUBLIC HEALTH — <i>continued</i>			
<i>Professional Education — <i>continued</i></i>			
<i>NEAR EAST — <i>continued</i></i>			
Turkey			
University of Ankara			
Department of Child Health. Purchase of equipment and supplies, and the provision of visiting teachers and specialists (RF 56011)	\$.....	\$100,000.00	\$30,915.59
<i>FAR EAST</i>			
India			
Christian Medical College, Ludhiana			
Department of Preventive Medicine. Promotion of preventive medicine teaching and investigation (RF 56117)	30,000.00	4,707.00
Christian Medical College, Vellore			
Department of Preventive and Social Medicine. Operation (RF 55115)	34,100.00	12,457.51
Staff development and salary increases, and a fluid research fund (RF 56099) (Joint Project with Biological and Medical Research)	252,100.00	22,290.06
Construction and equipment of an outpatient teaching building (RF 56100) (Joint Project with Biological and Medical Research)	115,300.00	20,910.00
Indian Council of Medical Research, New Delhi			
Fellowships (RF 53044)	70,720.33

Sawai Man Singh Medical College, Jaipur Research equipment (RF 53115)	585.39
Seth Gordhandas Sunderdas Medical College, Bombay Development of Departments of Medicine and Surgery, and Departments of Biochemistry and Pharmacology (RF 56104)	197,000.00
One-half the costs of constructing additional laboratory and office space for the College's teaching and re- search program (RF 56105)	76,300.00
State Medical College Hospital, Trivandrum Development of improved clinical teaching facilities in medicine and nursing (RF 55182)	35,000.00	6,106.50
University of Lucknow			
King George's Medical College Constructing and equipping a building to house in- terns and residents (RF 56101)	136,250.00
Development of medical library (RF 56103)	10,000.00	9,705.09
Domiciliary expenses involved in housing interns and residents (RF 56102)	163,500.00
Japan			
Institute of Public Health, Tokyo For equipment, teaching, and field training facilities (RF 53098)	8,305.65	7,771.77
Keio University, Tokyo School of Medicine. Construction of a building to house the Departments of Pathology, Bacteriology, and Forensic Medicine (RF 56069)	290,000.00	211,850.00

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
MEDICAL EDUCATION AND PUBLIC HEALTH — <i>continued</i>			
<i>Professional Education — <i>continued</i></i>			
<i>PAR EAST — <i>continued</i></i>			
Philippine Islands			
University of the Philippines, Manila			
To provide housing allowances and travel expenses for visiting staff of the Johns Hopkins School of Hygiene and Public Health (RF 53067, 55174)	\$15,065.18	\$.....	\$.....
<i>Fellowships and Grants in Aid</i>			
<i>FELLOWSHIPS</i>			
Administered by The Rockefeller Foundation			
Regular Program (RF 54162, 55130, 55189, 56202)	663,382.60	400,000.00	326,460.47
Special Program of Fellowships, Scholarships, and Training Awards in Asia, Latin America, the Middle East, and Africa (RF 56059, 56204)	250,000.00	40,113.16
<i>GRANTS IN AID</i>			
Allocations by The Rockefeller Foundation			
Regular Program (RF 54163, 55131, 55190, 56203)	418,019.33	250,000.00	250,666.35
Special Program in Asia, Latin America, the Middle East, and Africa (RF 56060, 56205)	200,000.00
<i>Field Service</i>			
<i>FIELD OFFICES</i>			
(RF 54161, 55132, 55167, 56184)			
Mexico, Mexico City, 1955-56	10,826.69	7,884.55

South America				
Brazil, Rio de Janeiro. 1955-1957	44,513.66	42,300.00	33,651.02	
Africa and Asia Minor				
Egypt, Cairo. 1955	50.03	
Near East				
Iraq, Baghdad. 1957	12,000.00	
Far East				
India, Delhi. 1955-1957	20,410.69	19,225.00	11,865.60	
Japan, Tokyo. 1955-1956	3,010.37	1,374.94	
Miscellaneous. 1955-1957	4,300.60	5,000.00	390.15	
FIELD STAFF				
1955-1957. Salary, travel, and other expenses (RF 54164, 54167, 55167, 56045, 56184)	314,099.16	289,100.00	246,071.66	
CONTINGENT				
(RF 55167, 56184)	10,000.00	
<i>General</i>				
California Department of Public Health, Sacramento				
Toward support of a chronic disease epidemiology center (RF 54152)	100,100.00	
Development of teaching materials for the Malaria Institute of India, Delhi (RF 56041)	6,000.00	649.59	
Harvard University, Boston, Massachusetts				
Field study of population problems in India (RF 56002)	163,280.00	39,670.00	

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
MEDICAL EDUCATION AND PUBLIC HEALTH — <i>continued</i>			
<i>General — continued</i>			
Nagoya National University, Japan Support of an interdisciplinary research project on the relationship between Japanese cultural patterns and personality (RF 56057)	\$.....	\$60,000.00	\$16,000.00
New York University—Bellevue Medical Center, New York Institute of Physical Medicine and Rehabilitation. For training a core group of rehabilitation personnel for the Burmese government (RF 56056)	30,000.00	30,000.00
TOTALS — MEDICAL EDUCATION AND PUBLIC HEALTH	\$5,720,205.18	\$4,730,305.00	\$2,970,460.16

BIOLOGICAL AND MEDICAL RESEARCH*Experimental Biology and Medicine***UNITED STATES**

Amherst College, Massachusetts Research in biology (RF 51110)	\$1,500.00	\$.....	\$1,500.00
Outright grant for research in biology (RF 56110)	100,000.00	100,000.00
California Institute of Technology, Pasadena Research in chemical biology (RF 48030, 53176)	986,065.48	644,900.94
Child Research Center of Michigan, Detroit Genetics of sickle cell anemia and allied disorders (RF 54185)	44,000.00	18,473.94

Child Research Council of Denver, Colorado Studies in child growth and development (RF 51154, 56008)	12,500.00	85,000.00	25,000.00
Columbia University, New York Enzyme research (RF 55029)	28,000.00	6,644.33
Research in immunochemistry (RF 54113)	2,000.00	Cr. 2,397.69
Research in genetics (RF 54063)	25,713.62	20,919.98
Research in marine biology (RF 54087)	38,100.00	21,950.00
Research in biochemistry (RF 52104)	51,734.19	51,355.77
Cornell University, Ithaca, New York Research in biochemistry (RF 53178)	130,747.06	11,042.12
Medical College, New York. Costs of a statistical re- search group (RF 56015)	50,000.00	3,333.33
Dartmouth College, Hanover, New Hampshire Research in cellular biology (RF 55074)	37,500.00
Gordon Research Conferences of the American Association for the Advancement of Science Expenses of foreign scientists at conferences (RF 54132)	20,003.00	8,895.03
Harvard University, Cambridge, Massachusetts Research in the Medical School on problems of tissue structure (RF 51052)	21,992.05	15,624.67
Research in enzyme chemistry (RF 50020)	37.86	Cr. 10.24
Research on the biochemistry of vision (RF 52068, 56121)	.04	25,000.00	5,105.17
Research on physiological aspects of the development of behavior patterns at the Laboratory of Social Relations (RF 51179)	9,846.97	3,531.59
Field study of population problems in India (RF 53173)	4,734.24	4,734.24

BIOLOGICAL AND MEDICAL RESEARCH — *continued**Experimental Biology and Medicine — continued*UNITED STATES — *continued*

Haskins Laboratories, New York Research in microbiology (RF 55006)	\$40,000.00	\$.....	\$20,105.41
Indiana University, Bloomington Research in genetics (RF 51051)	4,531.33
Outright grant toward a program in genetics (RF 56068)	350,000.00	350,000.00
Johns Hopkins University, Baltimore, Maryland Outright grant toward support of a program of research in genetics, cytology, and evolution (RF 56113)	100,000.00	100,000.00
Biochemical research (RF 53022)	46,014.97	22,999.87
Research in the field of protein biochemistry (RF 56096)	6,000.00	6,000.00
Marine Biological Laboratory, Woods Hole, Massachusetts General budget (RF 54099)	70,000.00	30,000.00
Massachusetts General Hospital, Boston Research in enzyme chemistry (RF 52003)	31,925.01	11,502.99
Massachusetts Institute of Technology, Cambridge Research in the physical chemistry of protein solutions (RF 52157)	12,401.51	12,401.51
National Research Council, Washington, D. C. Committee for Research in Problems of Sex (RF 54036)	53,375.60	25,000.00
Research on protein-rich foods for the improvement of nutrition, particularly of growing children in the food- deficient countries (RF 56055)	250,000.00
New England Medical Center, Boston, Massachusetts Research in endocrinology (RF 50076)	16,000.00	14,244.11

New York Botanical Garden, New York Research in basic plant biochemistry (RF 54066)	24,500.00	10,500.00
New York University, New York Research in enzyme chemistry (RF 54150)	40,112.50	7,378.26
Interdepartmental project on the rehabilitation of neurological patients (RF 51169)	8,945.49	4,752.00
Polytechnic Institute of Brooklyn, New York Research on protein structure (RF 53063, 55103)	130,000.00	32,500.00
Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine Studies of genetic factors of intelligence and emotional variation in mammals (RF 56012)	50,000.00	50,000.00
Stanford University, Palo Alto, California Biochemical research (RF 51076)	6,842.10
State University of Iowa, Iowa City Research in genetics (RF 56089)	16,000.00	8,500.00
University of California, Berkeley Research on the biochemistry of marine microorganisms (RF 52059)	6,289.28
Research in photosynthesis (RF 54001)	6,800.00	5,925.00
Research in the Virus Laboratory (RF 54095) (Joint Project with Medical Education and Public Health)	153,297.48	19,977.77
White Mountain Research Station. General support (RF 55036)	8,000.00	2,500.00
University of Chicago, Illinois Research in experimental ecology (RF 53015, 56017)	230.70	10,500.00	3,702.50
Support of a program of advanced training in applied statistics (RF 51087, 56029) (Joint Project with Social Sciences)	6,458.21	50,000.00	6,359.80

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
BIOLOGICAL AND MEDICAL RESEARCH -- <i>continued</i>			
<i>Experimental Biology and Medicine — <i>continued</i></i>			
UNITED STATES — <i>continued</i>			
University of Colorado, Boulder School of Medicine. Research in biophysics (RF 56013)	\$.....	\$85,000.00	\$11,000.00
University of Illinois, Urbana Program of research and advanced training in microbiology in the Department of Bacteriology (RF 53096)	21,058.00	5,461.00
University of Miami, Florida Support of research in marine biology (RF 53089)	26,439.79	26,439.79
University of Minnesota, Minneapolis Salary of a physiologist in the Department of Physiology (RF 54106)	10,250.00	10,250.00
University of Oregon Medical School, Portland For work in constitutional medicine (RF 51004)	32,812.50
University of Pennsylvania, Philadelphia Research in zoology (RF 53053)	88,738.98	13,655.51
University of Texas, Austin Research in genetics (RF 54045)	60,319.64	21,999.10
University of Utah, Salt Lake City Research in enzyme chemistry (RF 52090)	6,956.92	6,892.25
University of Washington, Seattle Research in the physical biochemistry of proteins (RF 53062)	72,436.93	12,172.04

University of Wisconsin, Madison				
Research in biochemistry (RF 51171)	5,820.55	5,033.20	
Research in genetics (RF 53108)	9,875.38	3,400.00	
Research in metabolism of plant tissues (RF 51009)	94.11	94.11	
Research in enzyme chemistry (RF 52064)	12.75	
Toward development in the Medical School of a program in medical genetics (RF 56088)	25,000.00	
Washington University, St. Louis, Missouri				
Research in enzyme chemistry (RF 54149)	34,064.00	9,383.36	
Wayne University, Detroit, Michigan				
Research on natural plant products (RF 54023)	9,960.53	
Yale University, New Haven, Connecticut				
Biochemical research (RF 51168)	27,134.61	11,122.83	
Research in the physical chemistry of proteins (RF 52029)	38,334.52	5,000.00	
Yerkes Laboratories of Primate Biology, Orange Park, Florida				
General support (RF 55077)	40,000.00	9,906.44	
CANADA				
McGill University, Montreal				
Maintenance of Department of Psychiatry (RF 54043)	17,514.37	8,598.05	
Research in biochemistry (RF 56119)	56,650.00	10,368.75	
Research on physiological basis of behavior (RF 54058)	41,603.03	6,508.13	
University of Saskatchewan, Saskatoon				
Studies of schizophrenia (RF 54100)	49,496.89	40,695.59	

BIOLOGICAL AND MEDICAL RESEARCH — *continued*
*Experimental Biology and Medicine — *continued**

MEXICO

National University of Mexico, Mexico City
 Institute of Chemistry. Equipment and supplies (RF
 52189, 55002)

APPROPRIATIONS	1956	PAYMENTS
PRIOR YEARS	1956	1956

\$13,461.61	\$.....	\$11,043.87
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SOUTH AMERICA**Brazil**

University of Brazil, Rio de Janeiro
 Research in Institute of Biophysics (RF 52012, 55018)
 Research expenses in the Center of Genetics Research,
 Faculty of Philosophy (RF 53122)

University of São Paulo
 Faculty of Medicine
 Work with radioactive isotopes in the Radiochemistry Laboratory (RF 50146)
 Research expenses in the Isotope Laboratory (RF 55192)
 Research in the Laboratory of Histology and Embryology (RF 53119)
 Research expenses at Ribeirão Preto (RF 53145)
 Research in Drosophila population genetics in the Department of General Biology (RF 56090)
 Research in the Laboratory for Cell Physiology (RF 55068)

6,013.34	4,420.86
3,928.54	2,294.78
90.48	77.07
12,000.00	7,168.30
439.49	50.43
14,218.97	8,556.89
.....	21,000.00
33,352.64	8,008.56

International cooperative research on population genetics (RF 55004)	4,902.05	1,150.45
Chile			
University of Chile, Santiago			
School of Medicine			
Research equipment and supplies for investigations in biophysics in the Department of Medical Physics (RF 56157)	10,000.00
Research in experimental cytology and genetics in the Juan Noe Institute of Biology (RF 53016, 56150)	359.99	20,000.00	4,108.94
Uruguay			
Ministry of Public Health, Montevideo			
Equipment and expenses of the Research Institute of Biological Sciences (RF 49008, 52011)	36,459.46	9,809.97
EUROPE			
Austria			
University of Graz			
Research on the structure of proteins and fats (RF 56098)	15,000.00	624.30
Belgium			
University of Brussels			
Research in neurophysiology (RF 50088, 55126)	31,950.46	6,000.31
University of Louvain			
Research in biochemistry (RF 54154)	4,150.56	4,083.76
Denmark			
Carlsberg Foundation, Copenhagen			
Research in biochemistry (RF 51157, 56139)	4,832.05	90,000.00	12,238.15

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
BIOLOGICAL AND MEDICAL RESEARCH — <i>continued</i>			
<i>Experimental Biology and Medicine — <i>continued</i></i>			
EUROPE — <i>continued</i>			
Denmark — <i>continued</i>			
University of Aarhus			
Research in biochemistry (RF 52148)	\$3,394.91	\$.....	\$2,182.50
University of Copenhagen			
Research on the biological uses of isotopes (RF 51158)	1,500.00	1,500.00
Research in physiology in the Institute of Neurophysiology (RF 52133, 56040)	1,260.96	14,000.00	2,463.45
Research in the genetics of mental defect (RF 54105)	10,016.59	2,788.42
Finland			
University of Helsinki			
Research in biophysics and cytochemistry at the Institute of Forensic Medicine (RF 56039)	19,500.00	19,293.01
France			
National Center for Scientific Research, Paris			
Research in physiological genetics at the Laboratory of Physiological Genetics at Gif (RF 56162)	61,000.00
Collège de France, Paris			
Equipment for an experimental monkey station in Algeria (RF 49001)	1,057.14	721.88
Research in biochemistry (RF 53154)	961.16	Cr. 159.49
Pasteur Institute, Paris			
Research in microbial chemistry (RF 54126)	22,208.48	7,708.51

University of Aix-Marseilles				
Research in biochemistry at the Institute of Biological Chemistry (RF 56038)	25,000.00	814.02	
Equipment for research in neurophysiology (RF 54010)	4,736.15	645.73	
University of Paris				
Research in biochemistry in the Laboratory of Biological Chemistry (RF 51187, 55042, 56163)	6,028.18	25,000.00	7,097.07	
Research in the Laboratory of Physical Chemistry (RF 53140)	4,344.31	1,500.00	
Germany				
Philip University, Marburg				
Research in biochemistry (RF 55098)	2,175.00	2,175.00	
University of Munich				
Research in experimental zoology (RF 55032)	15,000.00	7,500.00	
Great Britain				
Marine Biological Association of the United Kingdom, Plymouth				
Development and continuation of special projects in marine biology and oceanography (RF 54122)	18,750.00	7,480.00	
Queen's University of Belfast, Northern Ireland				
Equipment for the Department of Chemistry (RF 55015, 55044)	1,277.14	221.17	
Royal Institution of Great Britain, London				
Toward expenses of research on the structure of proteins (RF 54136, 55118)	40,389.33	16,188.69	
Society for Experimental Biology, London				
Expenses of American delegates to annual conferences on biological subjects (RF 52043)	3,626.50	2,688.82	

BIOLOGICAL AND MEDICAL RESEARCH — *continued**Experimental Biology and Medicine — *continued****EUROPE — *continued*****Great Britain — *continued*****Strangeways Research Laboratory, Cambridge**

For the purchase of an electron microscope for research in experimental biology (RF 54128)

Tavistock Institute of Human Relations, London

General support (RF 52001)

University of Birmingham

Research in biochemistry (RF 54137)

Research in psychiatry and in the biochemistry and pharmacology of the nervous system (RF 53104)

Equipment for research in protein chemistry and metabolism (RF 55125)

University of Cambridge

Biophysical research (RF 55145)

Equipment for research in biochemistry (RF 53127)

Purchase of an ultracentrifuge for research on molecules (RF 55120)

Research in the Psychological Laboratory (RF 56082)

Research in X-ray crystallography (RF 55119)

Research on biologically important materials (RF 51112)

Research on biologically important molecules (RF 56141)

APPROPRIATIONS
PRIOR YEARS

1956

1956
PAYMENTS

\$20,558.38	\$.....	\$20,558.38
26,551.86	19,624.07
10,941.81	2,596.94
67,323.40	18,577.47
25,000.00	19,608.07
18,226.00	5,427.05
178.91	Cr. 41.99
25,000.00	17,900.56
.....	43,500.00	3,481.25
40,000.00	9,639.63
4,090.74	3,136.03
.....	87,000.00	9,047.19

University of Edinburgh, Scotland				
Department of Chemistry. Toward expenses of structural investigations in the field of natural high polymers (RF 54125)	31,568.16	16,660.37	
Department of Zoology. Research in biology (RF 55016)	2,359.40	699.22	
University of Glasgow, Scotland				
Toward expenses of conferences of European scientists interested in genetic problems (RF 54138)	7,500.00	
University of London				
Galton Laboratory				
Research in human genetics (RF 55078)	30,000.00	5,792.04	
Research on problems of human heredity (RF 50085)	256.80	138.33	
Imperial College of Science and Technology. Research on the organic chemistry of biologically important molecules (RF 52046)	5,091.91	3,581.09	
King's College				
Research in biophysics (RF 50065, 54130)	24,470.47	6,689.45	
Purchase of an electron microscope for research in biophysics (RF 54006, 54112)	9,458.11	8,803.67	
Research on structure of nucleic acid (RF 55009)	21,788.33	6,810.59	
London Hospital Medical College. Research in human biochemical genetics (RF 56146)	24,000.00	3,897.25	
London School of Hygiene and Tropical Medicine. Research on proteins and the biological value of tropical foodstuffs (RF 56116)	49,300.00	16,703.57	
Maudsley Hospital. Psychological effects of frontal-lobe operations in the Institute of Psychiatry (RF 53131)	4,604.68	3,068.79	19

BIOLOGICAL AND MEDICAL RESEARCH—*continued**Experimental Biology and Medicine—continued*EUROPE—*continued*Great Britain—*continued*

University College. Research in mammalian genetics in the Department of Eugenics, Biometry and Genetics (RF 53107)

St. Mary's Hospital Medical School. Equipment for research on protein metabolism and enzymology (RF 55133)

University of Oxford

Research in biochemistry (RF 55010)

Research on the chemistry of biologically important compounds (RF 56142)

Neurohistological research in the Department of Human Anatomy (RF 53105)

Chemical Crystallography Laboratory. Research in crystallography (RF 55134)

Victoria University of Manchester

Research on the chemistry of biologically important materials (RF 53132)

Welsh Regional Hospital Board, Cardiff

Support of the Neuropsychiatric Research Centre at Whitchurch Hospital, Cardiff, Wales (RF 53027)

Ireland

University College, Dublin

Research in biochemistry (RF 54027)

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
	\$13,271.72	\$.....	\$2,991.76
	13,000.00	10,286.08
	58,093.39	7,556.88
	45,000.00	2,090.63
	18,417.17	2,460.39
	9,000.00	4,198.76
	33,516.60
	12,258.83	4,433.80
	3,427.00	3,216.31

Italy

Superior Institute of Public Health, Rome				
Research on the biology of the housefly (RF 52144)	6,694.01
University of Ferrara				
Equipment for use in research in biochemistry (RF 56083)	40,000.00	8,815.36	
University of Naples				
Institute of Genetics. Research (RF 54072) (Joint Project with Medical Education and Public Health)	20,546.25	4,846.88	
Research in the genetics of microcythemia (RF 55150)	42,500.00	13,706.26	
University of Pavia				
Institute of Zoology. Research on the cytogenetics of anopheline mosquitoes (GA 5010, RF 54133)	15,342.66	6,510.00	
University of Pisa				
Support of teaching and research in the Department of Physiology (RF 54108)	17,726.34	2,841.72	
University of Rome				
Research in biochemistry (RF 56037)	30,000.00	1,935.00	
Zoological Station of Naples				
Relocating its library and reconverting to laboratory use (RF 56200)	85,000.00	

Netherlands

University of Amsterdam				
Support of the Psychosomatic Unit at the Wilhelmina Hospital (RF 51153)	12,416.96	5,087.56	
Research in experimental embryology at the Laboratory of Anatomy and Embryology (RF 53139)	4,235.83	

BIOLOGICAL AND MEDICAL RESEARCH—*continued****Experimental Biology and Medicine—continued*****EUROPE—*continued*****Netherlands—*continued*****University of Utrecht**

Support of teaching and research at the Institute of Clinical and Industrial Psychology (RF 54109)
 Research in biophysics and biochemistry (RF 49113)
 Equipment to be purchased for research in plant physiology (RF 56019)

	APPROPRIATIONS		1956 PAYMENTS
	PRIOR YEARS	1956	
University of Utrecht	\$5,611.34	\$.....	\$2,373.52
Clinical and Industrial Psychology (RF 54109)	185.93
Research in biophysics and biochemistry (RF 49113)	
Equipment to be purchased for research in plant physiology (RF 56019)		12,000.00	6,261.50

Norway**University of Oslo**

Institute of Respiratory Physiology. Research (RF 54007)
 Research in experimental biology in the Institute of Zoophysiology (RF 56018)
 Research in the epidemiology of mental disease (RF 54107)
 X-ray crystallography (RF 55041)

11,459.11	6,156.86
.....	15,000.00	6,000.00
7,390.00	4,917.50
8,262.70	2,262.05

Sweden**Karolinska Institute, Stockholm**

Anatomical Institute. Research in electron microscopy (RF 54134)
 Institute of Chemistry. Equipment and research (RF 55011)
 Department of Physical Cell Research. Equipment for biophysics research (RF 54153)

574.99
9,000.00	5,000.00
867.76	867.76

Institute for Cell Research. Research in biophysics (RF 54022)	9,000.00	9,000.00
Medical Nobel Institute. Department of Biochemistry. Research (RF 50017, 55012)	36,756.92	7,456.32
Research in brain physiology (RF 55061)	12,813.28	12,636.83
Research in physiology (RF 56145)	22,000.00
State Institute for Human Genetics, Uppsala Research in human genetics (RF 56027)	50,000.00	4,000.00
University of Lund Research in endocrinology (RF 53032, 55020)	3,808.98	3,287.80
University of Stockholm Research in biochemistry (RF 55135)	7,350.00	2,150.00
Research in radiobiology (RF 53036)	136.50
University of Uppsala Research in the Institute of Physical Chemistry (RF 53126)	21,019.61	3,144.38
Research in the Institute of Physiology (RF 55144)	22,000.00	5,000.00
Research in biochemistry (RF 52141, 55187)	75,214.97	30,297.58
Switzerland			
Federal Technical Institute, Zurich Research on the chemistry of physiologically important compounds (RF 55037)	9,000.00	4,500.00
University of Basel Research in organic chemistry (RF 54151)	852.80
University of Bern Theodor Kocher Institute. Equipment and assistance to foreign guests (RF 54075)	11,200.00	5,305.60

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
BIOLOGICAL AND MEDICAL RESEARCH — <i>continued</i>			
<i>Experimental Biology and Medicine — <i>continued</i></i>			
EUROPE — <i>continued</i>			
Switzerland — <i>continued</i>			
Institute of Botany. Special facilities for research on plant physiology (RF 56171)	\$.....	\$12,500.00	\$.....
University of Geneva			
Research in human genetics (RF 54017, 56154)	3,093.91	10,000.00	2,334.44
University of Zurich			
Psychiatric research (RF 50144)	2,076.99	1,562.42
AFRICA			
South Africa			
University of Pretoria			
Plant biochemistry (RF 55110)	7,500.00	4,560.19
MIDDLE EAST			
India			
Indian Cancer Research Centre, Bombay			
Operation of a laboratory for studies on human variation (RF 52192, 55108)	16,613.23	8,632.43
Indian Council of Medical Research, New Delhi			
Neurological research program (RF 56135)	88,200.00
Mysore State Department of Public Health			
Improvement of laboratory services. 1953-1954 (GA 52138)	415.50

Japan

Nagoya National University
 Research expenses of the Biological Institute (RF
 56201) 4,000.00

Virus Program**FIELD SERVICE**

Salary, travel, and other expenses. 1955-1957 (RF 54167, 55166, 56045, 56183)	343,681.76	377,000.00	298,255.85
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INVESTIGATION AND CONTROL**1955-1957 (RF 54165, 55166, 56183)****United States**

California	39,141.02	27,500.00	25,622.27
New York	246,789.12	220,000.00	227,027.94

Caribbean

Trinidad, Port-of-Spain	64,262.17	64,000.00	52,562.58
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South America

Brazil, Belém	60,552.26	57,000.00	23,630.13
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Africa

South Africa, Johannesburg	37,147.21	24,000.00	25,381.10
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Far East

India, Poona	88,601.66	61,250.00	64,458.29
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Unallocated

19,725.00	17,500.00	27.89
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BIOLOGICAL AND MEDICAL RESEARCH — *continued****Virus Program — continued*****UNITED STATES**

Cornell University, Ithaca, New York
Medical College, New York

Department of Public Health and Preventive Medicine.
Costs of renovating and equipping its laboratory for
virus research (RF 56035)

Johns Hopkins University, Baltimore, Maryland
Virus diseases (RF 55092)

Washington University, St. Louis, Missouri
Research in plant physiology and plant biochemistry (RF
54046, 56107)

APPROPRIATIONS	1956	1956
PRIOR YEARS	1956	PAYMENTS

\$.....	\$48,000.00	\$48,000.00
112,000.00	26,450.71
37,895.61	165,000.00	55,553.36

EUROPE**Great Britain**

Queen's University of Belfast, Northern Ireland
Department of Microbiology (RF 55065)

Italy

University of Perugia
Equipment for use in research on plant viruses (RF
56097) (Joint Project with Agriculture)

5,643.98	2,941.07
.....	15,000.00

FAR EAST**Malaya**

University of Malaya, Singapore
Research in virus diseases (RF 56075)

.....	73,800.00	6,576.38
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AUSTRALIA

Walter and Eliza Hall Institute of Medical Research, Melbourne	60,000.00	3,000.00
Research program (RF 56066)		

Fellowships and Grants in Aid**FELLOWSHIPS**

Administered by The Rockefeller Foundation			
Regular Program (RF 54162, 55130, 55189, 56202)	358,046.36	200,000.00	174,077.57

Special Program of Fellowships, Scholarships, and Training Awards in Asia, Latin America, the Middle East, and Africa (RF 56059, 56204)	200,000.00	13,157.81
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Ministry of Public Health, Montevideo, Uruguay

Training fellowships at the Research Institute of Biological Sciences (RF 56030) (Joint Project with Medical Education and Public Health)	39,000.00
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GRANTS IN AID**Allocations by The Rockefeller Foundation**

Regular Program (RF 54163, 55131, 55190, 56203)	545,163.19	300,000.00	276,954.70
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Special Program in Asia, Latin America, the Middle East, and Africa (RF 56060, 56205)	200,000.00	3,918.43
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General

Congress for Cultural Freedom, Paris, France			
Support of Science and Freedom Committee (RF 55022)	9,000.00	3,956.57

Conservation Foundation, New York			
Research and general administrative expenses (RF 53091)	15,312.74	15,000.00

BIOLOGICAL AND MEDICAL RESEARCH — *continued****General — continued***

Institute of Biology and Technological Research, Curitiba,
Brazil

Equipment for a new biological laboratory building (RF
52009)

National Academy of Sciences, Washington, D. C.

Toward the support of a study of the effects of atomic
radiation on living organisms (RF 55153, 56001)

National University of Mexico, Mexico City

Research expenses in certain science institutes (RF 56130)

National Research Council, Washington, D. C.

Division of Biology and Agriculture. Support of the ac-
tivities of the Committee on Educational Policies (RF
54059)

University of Brazil, Rio de Janeiro

Research Center of Brazilian Geography (RF 55109)

University of Copenhagen, Denmark

Toward the purchase of basic research equipment for the
new Institutes of Biology and of Experimental Medi-
cine and Surgery (RF 56048)

University of Rio Grande do Sul, Pôrto Alegre, Brazil

For research expenses in the Faculty of Philosophy (RF
53148)

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
Institute of Biology and Technological Research, Curitiba, Brazil	\$5,837.51	\$.....	\$.....
Equipment for a new biological laboratory building (RF 52009)			
National Academy of Sciences, Washington, D. C.	15,000.00	250,000.00	15,112.89
Toward the support of a study of the effects of atomic radiation on living organisms (RF 55153, 56001)			
National University of Mexico, Mexico City	176,000.00	47.21
Research expenses in certain science institutes (RF 56130)			
National Research Council, Washington, D. C.	20,985.77
Division of Biology and Agriculture. Support of the ac- tivities of the Committee on Educational Policies (RF 54059)			
University of Brazil, Rio de Janeiro	2,400.00	324.51
Research Center of Brazilian Geography (RF 55109)			
University of Copenhagen, Denmark	260,000.00	29,040.00
Toward the purchase of basic research equipment for the new Institutes of Biology and of Experimental Medi- cine and Surgery (RF 56048)			
University of Rio Grande do Sul, Pôrto Alegre, Brazil	23,648.86	17,413.04
For research expenses in the Faculty of Philosophy (RF 53148)			

University of São Paulo, Brazil
 Research expenses in the Faculty of Philosophy, Science
 and Letters (RF 53143)

12,006.45	6,830.70
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**TOTALS—BIOLOGICAL AND MEDICAL
 RESEARCH**

<u>\$5,976,468.59</u>	<u>\$5,012,200.00</u>	<u>\$3,901,782.56</u>
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AGRICULTURE

Operating Programs

CENTRAL AMERICA AND MEXICO

Central America

Establishment of a corn improvement project (RF 54172,
 55165, 56182)

\$70,933.49	\$46,350.00	\$51,076.71
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Mexico

Operating Program, 1954-1957 (RF 53166, 54168, 55090,
 55165, 56058, 56182)

266,495.42	186,950.00	190,273.67
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For basic poultry research and training centers (RF
 55165)

40,000.00	20,181.09
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Agricultural Research Centers

For establishment of centers in the States of Sonora
 and Vera Cruz (RF 54169)

100,055.56	52,304.49
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Research, demonstration, and extension program, State
 of Mexico (RF 54141)

23,647.11	8,889.98
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Mexican Ministry of Agriculture

Toward costs of an agricultural education and exten-
 sion service (RF 53045, 53167, 55165)

102,975.27	50,660.18
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	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS	330
AGRICULTURE — <i>continued</i>				
<i>Operating Programs — <i>continued</i></i>				
SOUTH AMERICA				
Chile				
<i>Operating Program. 1955-1957 (RF 54173, 55165, 56182)</i>	\$143,337.36	\$94,250.00	\$16,891.66	
<i>Toward greenhouse construction (RF 55165, 56182)</i>	25,000.00	25,000.00	
Colombia				
<i>Operating Program. 1954-1957 (RF 53168, 54170, 55165, 56045, 56182)</i>	194,816.08	156,750.00	104,946.32	
<i>Establishment of an animal husbandry research center (RF 55165)</i>	25,000.00	
Agricultural Research Centers				
<i>To strengthen centers at Medellin, Armero, Monteria, and Palmira (RF 54171)</i>	1,866.97	203.16	
El Rubi Experiment Station				
<i>Greenhouse and scientific equipment (RF 53169)</i>	1,586.69	17.24	
FAR EAST				
India				
<i>Operating Program. 1956 (RF 56058, 56182)</i>	262,700.00	13,381.43	
FIELD SERVICE				
Field Staff. 1955-1957				
<i>Salary, travel, and other expenses (RF 54167, 55165, 56045, 56182)</i>	627,265.89	683,500.00	550,148.03	
CONTINGENT (RF 55165, 56182)	500.00	10,000.00	

THE ROCKEFELLER FOUNDATION

Grants to Institutions

CENTRAL AMERICA AND MEXICO

Central America

Costa Rica

Inter-American Institute of Agricultural Sciences, Turrialba	199.04
Development of library resources and a scientific communication program (RF 49077)			
Graduate studies in animal husbandry in Latin America (RF 56196)	58,500.00
Latin American Agricultural Information Center, Turrialba			
Establishment and support (RF 52109)	33,314.60	12,643.23
University of Costa Rica, San José			
Faculty of Agronomy. Teaching and research program in agriculture (RF 56148)	50,000.00

Honduras

Pan American Agricultural School, Tegucigalpa Scholarships (RF 54070)	15,599.00	6,827.00
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Mexico

Agricultural Education in Mexico

National College of Agriculture, Chapingo, State of Mexico			
To improve agricultural education in Mexico (RF 52108)	46,682.81	29,466.02
National University of Mexico, Mexico City			
Research in the School of Veterinary Medicine (RF 56131)	14,000.00

		APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
AGRICULTURE — continued				
<i>Grants to Institutions — continued</i>				
CENTRAL AMERICA AND MEXICO — continued				
<i>Mexico — continued</i>				
Technological Institute and School of Advanced Studies of Monterrey, Nuevo León				
To improve agricultural education in Mexico (RF 54140)	\$45,577.90	\$.....		\$23,134.77
SOUTH AMERICA				
Brazil				
Agronomy Institute of The South, Pelotas				
Research in cereal improvement (RF 55140)	60,000.00		2,530.00
Biology Institute of Bahia, Salvador				
Research on animal viruses (RF 56153)	12,500.00	
Gammon Institute, Lavras, Minas Gerais				
College of Agriculture. Teaching and laboratory fa- cilities and development of the college farm (RF 53110, 55148)	61,801.78		8,416.13
Institute of Agronomy, Campinas				
Purchase of greenhouses and an ultracentrifuge for plant virus research (RF 55141, 56126)	30,000.00	2,000.00		28,863.25
Rural University of the State of Minas Gerais, Viçosa				
Laboratory equipment and supplies for the School of Veterinary Medicine (RF 55149)	50,000.00		40,834.59

Equipment for the Department of Domestic Science and materials for the library of the School of Agriculture (RF 54011)	11,708.26	3,201.49
For support of teaching and research at the School of Agriculture and for development of the agricultural experiment station (RF 56050)	200,000.00
University of Rio Grande do Sul, Pôrto Alegre Equipment, supplies, and library materials for the School of Agronomy and Veterinary Medicine (RF 53149)	8,118.43	4,626.65
For the joint use of the School of Agronomy and Veterinary Medicine and the Division of Animal Production of the State Secretariat of Agriculture for a research program on forage crops (RF 56132)	75,000.00
University of São Paulo Support of research work in the Faculty of Veterinary Medicine (RF 53144, 54114)	6,666.63	4,417.59
Luiz de Queiroz College of Agriculture, Piracicaba Agricultural research programs (RF 55067)	81,688.20	55,123.29
Biological Institute, São Paulo Research expenses and travel (RF 50149)	647.81
Chile			
Bacteriological Institute of Chile, Santiago Studies on animal viruses (RF 52007, 55019)	7,972.76	5,981.97
Equipment and supplies for the Institute farm and animal colonies (RF 54013)	745.49	503.04
Catholic University of Chile, Santiago For the use of the Faculty of Agronomy for teaching, research equipment, and supplies (RF 56144)	68,000.00

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
AGRICULTURE -- continued			
<i>Grants to Institutions -- continued</i>			
SOUTH AMERICA -- continued			
Chile -- <i>continued</i>			
University of Chile, Santiago			
Equipment and supplemental salaries of key personnel for the new College of Agriculture, the Agricultural Experiment Station, and the Faculty of Veterinary Medicine (RF 56106)	\$.....	\$300,000.00	\$.....
Colombia			
Inter-American Society of Plant Breeders, Plant Pathol- ogists, and Entomologists			
Conference in 1955 and publication of its proceedings (RF 53007)	2,930.19	22.50
National University of Colombia			
Faculties of Agronomy at Palmira and Medellin			
Toward cost of student dormitory at each of these agricultural colleges (RF 50102)	2,416.84	1,827.15
Faculty of Agronomy, Palmira			
Teaching and research facilities, study trips of staff members, and to assist in bringing foreign pro- fessors to the faculty (RF 51085)	4,645.60	3,679.48
Peru			
National School of Agriculture, La Molina			
Cereal research (RF 55058)	28,766.63	26,314.96
Postgraduate instruction and research (RF 56165)	87,000.00

University of San Marcos, Lima Faculty of Veterinary Medicine. Equipment and supplies (RF 50150)	43,253.93
Uruguay University of the Republic, Montevideo Faculty of Veterinary Medicine. Equipment and supplies (RF 55003)	18,753.75	7,279.58
EUROPE			
Finland			
Biochemical Institute of the Foundation for Chemical Research, Helsinki Research on anti-fungal factors (RF 56087)	20,000.00	4,550.00
Great Britain			
Rowett Research Institute, Scotland Equipment for research on animal nutrition (RF 56123)	14,000.00
University of Aberdeen, Scotland Construction and equipment of a building for the Institute of Statistics (RF 56167) (Joint Project with Biological and Medical Research)	29,000.00
Sweden			
Royal Agricultural College of Sweden, Uppsala Infrared spectrophotometer (RF 55122)	25,000.00	24,230.28
University of Lund Institute of Genetics. Research in genetics and plant breeding (RF 52142, 55121)	33,100.60	13,500.00

AGRICULTURE — *continued**Grants to Institutions — *continued****FAR EAST****India**

		APPROPRIATIONS PRIOR YEARS	1956 APPROPRIATIONS	1956 PAYMENTS
Allahabad Agricultural Institute Agricultural research (RF 56095)	\$.....	\$10,000.00	\$4,130.00	
Balwant Rajput College, Agra Buildings and equipment at the new agricultural teaching and research center at Bichpuri (RF 56073)	70,000.00	30,000.00	
Outright grant for a program of student aid for the rural youth of India (RF 56074)	10,000.00	10,000.00	
Government of Uttar Pradesh Pilot development project at Etawah (RF 52053)	21,294.08	21,294.08	
Uttar Pradesh Government Horticultural Research Station, Saharanpur Library materials and laboratory equipment for research on horticultural fruits (RF 55183)	47,000.00	8,054.20	
Japan National Institute of Agricultural Sciences, Tokyo Laboratory equipment (RF 55185)	50,000.00	18,009.36	
Philippine Islands University of the Philippines College of Agriculture, Laguna Scholarship program for Indonesian high school graduates (RF 55172)	120,000.00	10,000.00	

Laboratory equipment and teaching materials (RF 55173)	40,000.00	4,170.69
Living accommodations for foreign students (RF 56195)	250,000.00
Thailand			
Kasetsart University, Bangkok			
Supplies, equipment, and library materials for the Department of Home Economics (RF 55184)	25,000.00	19,841.48
Equipment and supplies for a research and teaching program in agriculture (RF 56197)	50,000.00
SOUTH PACIFIC			
New Caledonia			
South Pacific Commission, Noumea			
Survey of infectious diseases of the Rhinoceros beetle (RF 55093)	47,000.00	24,500.00
UNITED STATES			
Alabama Polytechnic Institute, Auburn			
Training and research in the field of nematology (RF 54142)	25,000.00	18,013.00
Boyce Thompson Institute for Plant Research, Inc., Yonkers, New York			
For studies of the mechanisms of fungicide action (RF 56112)	105,000.00	17,150.00
California Institute of Technology, Pasadena			
Earhart Plant Research Laboratory			
Research on the water relations of plants (RF 53051)	3,848.40
Research on chemical climatology (RF 56160) (Joint Project with Biological and Medical Research)	111,900.00	11,190.00

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS	330
AGRICULTURE — continued				
<i>Grants to Institutions — continued</i>				
UNITED STATES — continued				
Connecticut Agricultural Experiment Station, New Haven Research in genetics (RF 54074)	\$15,916.64	\$.....	\$5,017.78	
Cornell University, Ithaca, New York Research in the Department of Agronomy of the New York State College of Agriculture (RF 53042)	41,591.94	24,998.16	
Harvard University, Boston, Massachusetts Graduate School of Public Administration. Research and advanced training of specialists in the field of water resources planning and development (RF 56025)	153,600.00	54,500.00	
Iowa State College, Ames Department of Zoology and Entomology. Basic studies of soil nematodes (RF 56120)	24,000.00	8,000.00	
Kansas State College, Manhattan Study of basic biochemical and physiological processes oc- curring in stored grain (RF 56084)	36,000.00	13,000.00	
Louisiana State University, Baton Rouge Center for training in research on rice (RF 55057)	97,500.00	16,050.07	
Ohio State University, Columbus Department of Agricultural Biochemistry. Research on the biochemistry of seed germination (RF 55128)	14,660.00	4,300.00	
Department of Botany and Plant Pathology. Research on the process of translocation in plants (RF 56152)	12,100.00	

THE ROCKEFELLER FOUNDATION

Purdue University, Lafayette, Indiana Research in genetics (RF 55080)	15,000.00	7,500.00
Purdue Research Foundation. Study of senescence in plants (RF 56122)	18,000.00	5,400.00
University of California, Berkeley Citrus Experiment Station, Riverside. Research on the mode of action of insecticides (RF 54111)	3,750.00	3,750.00
University of Florida, Gainesville Expenses of a counselor to Latin American students enrolled in agricultural courses (RF 52035)	1,482.58
Expansion and redirection of its Latin American student counseling service in agriculture (RF 56023)	15,000.00	7,500.00
University of Illinois, Urbana Research in experimental biology (RF 54037)	75,477.50	12,740.88
Research on the biochemistry of insects (RF 54038)	46,500.00	14,000.00
Program of research in entomology (RF 53070)	12,922.07	7,112.82
University of Minnesota, Minneapolis Research in the Departments of Plant Pathology and Botany, and of Plant Genetics and Agronomy (RF 53043, 56031)	2,136.11	60,000.00
University of North Carolina, Chapel Hill Research in mathematical and experimental genetics under the auspices of the Institute of Statistics (RF 52186)	68,000.00	34,000.00
University of Texas, Austin Research in the biochemistry and physiology of algae (RF 55007)	20,000.00	9,929.72

AGRICULTURE — continued*Grants to Institutions — continued***UNITED STATES — continued**

University of Wisconsin, Madison

Department of Plant Pathology. Fundamental studies
on plants and tissue cultures (RF 55151)

APPROPRIATIONS	1956
PRIOR YEARS	1956

1956	PAYMENTS
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\$48,000.00 \$.....

\$8,860.00

Virginia Polytechnic Institute, Blacksburg

Research program in veterinary physiology and animal
nutrition (RF 56124)

.....	15,000.00
.....	2,000.00

2,000.00

West Virginia University, Morgantown

Departments of Plant Pathology and Biochemistry. Re-
search on the physiology of fungi (RF 56085) (Joint
Project with Biological and Medical Research)

.....	18,000.00
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4,500.00

*Fellowships, Scholarships, and Grants in Aid***FELLOWSHIPS**

Administered by The Rockefeller Foundation

Regular Program (RF 54162, 55130, 55189, 56202)

422,313.08 300,000.00

261,806.93

Special Program of Fellowships, Scholarships, and Train-
ing Awards in Asia, Latin America, the Middle East,
and Africa (RF 56059, 56204)

.....	500,000.00
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82,974.23

SCHOLARSHIPSLatin American Scholarships (RF 54103, 55107, 55165,
56182)

206,180.58 150,000.00

74,914.33

GRANTS IN AID

Allocations by The Rockefeller Foundation Regular Program (RF 54163, 55131, 55190, 56203)	486,835.72	250,000.00	214,319.24
Special Program in Asia, Latin America, the Middle East, and Africa (RF 56060, 56205)	300,000.00	14,760.23

General

UNITED STATES

Boy Scouts of America, New Brunswick, New Jersey Program of conservation of natural resources (RF 55146)	45,000.00	10,000.00
Special publication costs of a thirteen-year review of the agricultural program of The Rockefeller Foundation (RF 56024)	15,000.00	4,665.66

SOUTH AMERICA

Brazil

Ministry of Agriculture, Rio de Janeiro National Agricultural Research Service. Research pro- gram in soils, genetics, and irrigation (RF 56094)	15,000.00
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WEST INDIES

Puerto Rico

Commonwealth of Puerto Rico Survey of the organization and administration of in- sular agricultural agencies (RF 56063)	85,000.00	77,072.39
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	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
AGRICULTURE — continued			
<i>Nonconventional Agriculture</i>			
UNITED STATES			
University of California, Berkeley Research in mass culture and physiology of algae (RF 55049)	\$25,000.00	\$.....	\$12,500.00
University of Maryland, College Park Algae research (RF 55072)	22,833.00
University of Wisconsin, Madison Research on the utilization of solar energy (RF 55048)	200,283.79	74,035.60
EUROPE			
Great Britain			
University of London Imperial College of Science and Technology. Research on the physical and chemical properties of water (RF 54057)	9,599.99	3,199.72
FAR EAST			
Japan			
Tokugawa Institute for Biological Research, Tokyo Mass cultivation of microorganisms for human food (RF 53174)	15,139.40	5,000.00
TOTALS—AGRICULTURE	<u>\$4,518,334.97</u>	<u>\$4,969,100.00</u>	<u>\$2,641,707.50</u>

SOCIAL SCIENCES

American Friends Service Committee, Philadelphia, Pennsylvania	\$.....	\$12,300.00	\$.....
Analytical study of economic and social development in southern Italy (RF 56151)	85,647.70	200,000.00	49,595.40
American Law Institute, Philadelphia, Pennsylvania	256,675.00	31,913.39
Preparation of a model criminal code with commentaries (RF 51213, 53066, 56190)	1,968.16
Brookings Institution, Washington, D. C.			
Preparation of a history of the Federal Reserve System (RF 54061)			
Research and education (RF 52185)			
Center for Latin American Monetary Studies, Mexico City			
Annual survey of monetary developments in Latin America (RF 56115)		36,300.00	12,100.00
Columbia University, New York			
East Asian Institute. Support (RF 55069)	95,000.00	39,401.91
Study of British-Soviet-American relations from 1940 to 1947 (RF 54145, 55086)	12,860.00	12,740.00
Department of Public Law and Government	6,000.00	6,000.00
Research in international law (RF 55030)			
Research in political theory and the theoretical aspects of international relations (RF 56128)		75,000.00
School of International Affairs. Research program on fundamental problems of international organization (RF 56005)		30,000.00	5,000.00
Cornell University, Ithaca, New York			
Development and testing of improved research methods for studies in underdeveloped areas (RF 53002)	6,193.24	6,112.17

SOCIAL SCIENCES — *continued*

	APPROPRIATIONS PRIOR YEARS	1956 PAYMENTS
Dartmouth College, Hanover, New Hampshire Pilot study of the relation of overseas transport to the development of underdeveloped areas (RF 53152)	\$93.31	\$.....
German Society for International Relations, Frankfurt Institute for European Politics and Economics. Preparation of an annual <i>Yearbook of World Politics</i> (RF 56034)	19,400.00 11,431.20
Duke University, Durham, North Carolina Studies of differences in state per capita incomes (RF 51072)	10,312.93 7,395.01
Research on the history of socio-economic thought (RF 54071)	26,400.00 5,840.50
Dutch Economic Institute, Rotterdam Research into basic problems of underdeveloped areas and training for technical assistance programs (RF 56006)	29,400.00
Fellowships Administered by The Rockefeller Foundation Regular Program (RF 51222, 52196, 53182, 54162, 55130, 55189, 56202)	331,956.33	175,000.00 126,713.81
Special Program of Fellowships, Scholarships, and Training Awards in Asia, Latin America, the Middle East, and Africa (RF 56059, 56204)	375,000.00 17,467.91
Australia-New Zealand Fellowship Committee, Melbourne Administrative expenses (RF 55155)	2,760.00 569.29
Canadian Social Science Research Council, Montreal For special fellowship assistance (RF 53087)	35,688.75 13,723.59

Social Science Research Council, New York (RF 53023, 53181, 55188)	690,000.00	156,457.00
Foreign Policy Association, New York Service Bureau on World Affairs. Study of the role of international institutions in world affairs (RF 56138)	60,000.00
Geneva Graduate Institute of International Studies, Switzer- land Training and research in international politics (RF 56028)	30,000.00	5,000.00
Gokhale Institute of Politics and Economics, Poona, India Economic and demographic research program (RF 51094)	5,863.09	2,269.09
General purposes (RF 55170)	150,000.00	150,000.00
Grants in Aid			
Allocations by The Rockefeller Foundation			
Regular Program (RF 52164, 53153, 53183, 54163, 55131, 55190, 56203)	488,581.77	350,000.00	311,578.60
Special Program in Asia, Latin America, the Middle East, and Africa (RF 56060, 56205)	300,000.00	8,890.87
Hague Academy of International Law, Netherlands For use by its Center for Study and Research in Inter- national Law and International Relations (RF 55138)	115,250.00	6,750.00
Harvard University, Cambridge, Massachusetts Research Center in Entrepreneurial History (RF 52081)	45,006.40	44,995.23
Research on profits and the functioning of the economy (RF 52063, 56108)	142.54	120,000.00	142.54
Laboratory of Social Relations Research on the structure and functioning of working committees (RF 53048)	2,947.85	Cr. 3,711.98

SOCIAL SCIENCES -- *continued*Harvard University — *continued*

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
Study of conflicts within occupational roles (RF 53049)	\$6,391.26	\$.....	\$6,391.26
Study of comparative values in five cultures (RF 51175)	33.49	30.52
Dean's Committee on Political Theory. Research on the interrelations of political theory and institutions (RF 56129)	50,000.00
Studies of state election statistics (RF 51082)	19,776.52	2,819.87
Program of economic research (RF 55176)	240,000.00	60,000.00
IFO-Institute for Economic Research, Munich, Germany Research program in economics (RF 56033)	24,500.00	13,392.08
Indian Council of World Affairs, Delhi Support of studies of Indian-United States relations in co-operation with the Council on Foreign Relations, New York (RF 54089)	10,892.51	10,594.55
Institute for Political Science, Berlin, Germany Study of the consolidation of the Nazi totalitarian system (RF 53113)	1,714.54
Institute of Applied Economics, Paris, France Research and analysis of national income and wealth (RF 54144)	10,959.37	5,731.25
International African Institute, London, England Field studies of the Fulani-speaking peoples of West Africa (RF 51034)	586.83

International Bank for Reconstruction and Development, Washington, D. C.			
Establishing and operating an Economic Development Institute (RF 54182, 56114)	46,875.00	50,000.00	45,448.50
Japan Sociological Society, Tokyo			
Study of social stratification and mobility in Japan (RF 55040)	2,600.00	2,600.00
Johns Hopkins University, Baltimore, Maryland			
Research guidance program by the Department of Political Economy (RF 54069)	20,100.00	5,602.80
London School of Economics and Political Science, England			
Fellowships and studentships in international relations (RF 55096)	53,152.17	6,101.63
Massachusetts Institute of Technology, Cambridge			
Study of noneconomic factors in economic development (RF 55180)	150,000.00	50,000.00
Exploring the potential uses of high-speed computing equipment in the solution of theoretical and applied problems in the social sciences (RF 56199)	98,400.00
Miami University, Oxford, Ohio			
Scripps Foundation for Research in Population Problems			
Research on fertility trends and future population growth in the United States (RF 56086)	40,000.00
Studies of population redistribution (RF 52028)	11,254.88
National Bureau of Economic Research, New York			
General programs and special programs of research in finance and fiscal policy (RF 49141, 50134)	400,000.00	250,000.00
Study of Soviet economic growth (RF 53125, 56118)	29,593.01	60,000.00	59,593.01

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS	348
SOCIAL SCIENCES—continued				
National Council of The Churches of Christ in the United States of America, New York				
Studies by its Department of The Church and Economic Life (RF 52054)	\$31,992.16	\$.....	\$31,991.97	
National Institute of Economic and Social Research of Great Britain, London				
Study of the economic experience of the United Kingdom (RF 54024)	36,228.90	20,542.56	
National Planning Association, Washington, D. C.				
Study of the economics of competitive coexistence (RF 56049)	109,250.00	44,000.00	
New York University, New York				
School of Law. Legal studies seminar in the Near East (RF 56078)	51,210.00	
Study of the effects of an orientation program for foreign students (RF 55154)	7,500.00	7,500.00	
Northwestern University, Evanston, Illinois				
Study of the structure and functioning of industrial markets (RF 54101)	46,744.92	8,683.58	
Polytechnic Institute, Paris, France				
Research and training program of the Econometric Laboratory (RF 53133)	7,780.20	4,555.48	
Princeton University, New Jersey				
Center of International Studies. Research in international relations (RF 56064)	40,000.00	

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Office of Population Research of the School of Public and International Affairs (RF 55050)	450,000.00
Study of the relationship between the disciplines of geography and political science in their bearing on the study of international politics (RF 54040)	13,200.00	7,590.65
Research on the origin of modern legal institutions, representative government, and social philosophy in the West (RF 54078)	6,389.45	2,129.81
Queen's University, Kingston, Canada			
Program of advanced training and research in fiscal, monetary, and economic policy (RF 53055)	19,657.37
Royal Institute of International Affairs, London, England			
Research on underdeveloped areas, on economic and political development, and on contemporary international relations (RF 56071)	145,000.00	28,621.80
Study of race relations in Central Africa (RF 54025)	12,429.52	4,126.31
Social Science Research Council, New York			
Preparation of a series of monographs based on the 1950 census (RF 52118)	5,000.00	5,000.00
Support of the <i>Current Digest of the Soviet Press</i> (RF 54067) (Joint Project with Humanities)	85,950.12	24,500.00
Grants in aid of research (RF 54039)	120,000.00	40,000.00
Program of inter-university summer seminars (RF 53175)	40,361.74	31,075.90
Study of <i>Economic Growth: The Problem and Its Setting</i> (RF 52105)	21,000.00	6,900.00

SOCIAL SCIENCES — *continued*

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
Stanford University, Palo Alto, California			
Food Research Institute			
Program of predoctoral training in agricultural economics research (RF 50086)	\$1,626.49	\$.....	\$1,626.49
Research internships in international agricultural economics (RF 56194)	96,000.00
Supreme Court of Japan, Tokyo			
Books for the library (RF 56016)	19,000.00	17,924.28
Tulane University of Louisiana, New Orleans			
Latin American legal studies and fellowships in law and social studies (RF 56191)	114,000.00
University College, London, England			
Department of Geography. Development of work in Latin American geography (RF 56067)	11,600.00	5,599.25
University of Basel, Switzerland			
Research and training in monetary and credit economics (RF 52060)	65,912.56	61,751.09
University of California, Berkeley			
Chancellor's Committee on Political Theory. Research in political theory and the theoretical aspects of international relations (RF 56127)	200,000.00
Institute of International Studies. Study of Marxism and the Far Eastern intellectual (RF 56091)	18,000.00	2,242.00
University of Cambridge, England			
Department of Applied Economics. Study of the social accounts of Cambridgeshire (RF 51177)	18,023.95	3,207.64
History of English criminal law (RF 51096)	2,973.44	1,741.02

University of Chicago, Illinois			
Toward the costs of the fourth volume of <i>History of Public Administration in the United States</i> (RF 52039)	6,961.92	1,082.75
Study of consumption and income distribution (RF 56111)	45,400.00	7,400.00
Toward the costs of establishing a Workshop in Money and Banking (RF 53179)	24,017.05	7,700.00
Research on low productivity in American agriculture (RF 51088)	1,263.19	Cr. 271.56
Research in the field of public finance (RF 54052)	26,500.00	9,553.38
Research in mathematical statistics (RF 53061)	116,540.00	7,032.10
Research on John Law's system of managed currency (RF 54086)	3,850.00	2,425.75
Field research under the Philippine Studies Program (RF 55116)	15,850.00	8,713.75
Study of the genesis and development of industrial civilization (RF 54117)	2,500.00	1,250.00
University of Durham, England			
Research and training program in Middle Eastern economic and cultural geography (RF 56072)	49,000.00	7,944.66
University of Genoa, Italy			
Research program of its Center of Economic and Econometric Research (RF 54047)	54,330.00	14,028.75
University of Heidelberg, Germany			
Research and teaching in political science (RF 55101)	29,659.30	5,000.00
University of Istanbul, Turkey			
Institute of Economic History. Research on economic and social history of the Ottoman Empire (RF 56161)	30,000.00

SOCIAL SCIENCES—*continued*

	PRIOR YEARS	APPROPRIATIONS 1956	1956 PAYMENTS
University of Michigan, Ann Arbor			
Program of methodological research in the field of human relations (RF 53093)	\$7,369.61	\$.....	\$7,369.00
Survey Research Center. Study of voting behavior in the 1956 presidential election (RF 55143)	71,000.00	39,000.00
University of Minnesota, Minneapolis			
Studies of social disorganization (RF 53112)	2,419.39	2,106.54
University of Missouri, Columbia			
Study of the rural church as a social institution in Missouri (RF 55137)	4,757.70	4,245.00
University of Notre Dame, South Bend, Indiana			
Research in international relations (RF 55025)	85,750.00	38,250.00
University of Oxford, England			
Nuffield College			
Completion of volume of Reflections on International Administration (RF 54085)	1,022.88	483.38
Program of research and training in African studies (RF 54048)	76,451.88	15,230.92
Additional research faculty in the social sciences (RF 56132)	75,618.59	5,616.25
University of Pennsylvania, Philadelphia			
Studies on redistribution of population and economic growth in the United States (RF 52106)	806.35	806.35
Studies in labor mobility (RF 54131)	82,000.00	29,730.58

University of the Philippines, Manila Institute of Public Administration. Research and training program (RF 55117)	68,000.00	34,000.00
University of Toronto, Canada Research on problems of Canadian development (RF 53086)	128,982.03	41,250.00
University of Vienna, Austria Study of the economic situation of Austrian peasants on small farms (RF 53084)	120.00	120.00
University of Wisconsin, Madison Study of tax administration in Wisconsin (RF 55001)	18,950.00	9,067.35
Research in the field of legal history (RF 53052)	57,716.88	5,697.95
Vanderbilt University, Nashville, Tennessee Institute of Research and Training in the Social Sciences. Research in agricultural economics and in the organization of industry (RF 52077, 56193)	25,575.16	150,000.00	24,921.03
Vassar College, Poughkeepsie, New York Foreign policy making in Ceylon (RF 55085)	5,000.00	5,000.00
Victoria University of Manchester, England Faculty of Economic and Social Studies. Research in economics and government and in social anthropology (RF 51097)	1,484.47
Yale University, New Haven, Connecticut Cowles Foundation for Research in Economics. Program of research on short-term economic forecasting (RF 56032)	34,000.00	11,000.00
Studies of communication and attitude change (RF 51174)	16,144.77	16,072.87
TOTALS—SOCIAL SCIENCES	\$5,376,688.64	\$3,247,760.00	\$2,269,817.63

HUMANITIES*Intercultural Understanding*

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
American University of Beirut, Lebanon Arab Studies Program (RF 54004, 56186)	\$116,489.25	\$216,000.00	\$66,065.11
Association for Asian Studies, Inc. Studies of Chinese thought (RF 56159)	57,400.00	306.00
For the work of its Committee on South Asia (RF 56172)	10,100.00	1,683.33
Austrian College Society, Vienna Institute for Current European Cultural Research. Re- search program (RF 52188)	10.00
Bibliothèque Nationale, Paris, France For completion of a union catalogue of the Slavic collec- tions in the libraries of Paris (RF 54077)	10,048.42	3,818.08
Columbia University, New York American Press Institute. Advanced study in the United States for leading foreign editors (RF 55099)	83,311.00	10,689.00
Cornell University, Ithaca, New York Southeast Asian studies (RF 50139) Study of the role of the arts in Indonesia (RF 54056)	22,946.50	22,946.50
Study of the cultural and literary history of Thailand (RF 55127)	5,692.69	5,692.69
Egyptian Society for Historical Studies, Cairo Study of the modernization of the Arab world (RF 55035)	10,973.00	7,104.27
German Association of American Studies, Marburg American studies program (RF 55079)	14,888.00	2,586.98
	21,541.22	1,252.17

Harvard University, Cambridge, Massachusetts Visiting Japanese scholars in the field of comparative religion (RF 56169)	13,500.00
Postdoctoral research fellowships in Middle Eastern studies (RF 56188)	205,000.00
Henry E. Huntington Library and Art Gallery, San Marino, California Program of regional studies (RF 50002)	58.68
International Institute for the Study of Religions in Japan, Tokyo Support of general program (RF 56170)	12,000.00
International Press Institute, Zurich, Switzerland Program of international conferences and exchanges of personnel (RF 55062)	67,500.00	31,000.00
International Youth Library, Munich, Germany Development of literature and libraries for children in Asia, Africa, and Latin America (RF 56143)	35,500.00
Kyoto University, Japan Kyoto University-Doshisha University Committee on American Studies. American studies at Kyoto (RF 54146, 55104)	47,268.83	14,336.63
Organization and reproduction of materials on the archaeology of Korea (RF 53082)	2,145.15	2,145.15
McGill University, Montreal, Canada Expenses of an Institute of Islamic Studies (RF 51108, 55169)	77,518.10	35,288.03
Modern Language Association of America, New York Inquiry into the role which foreign languages and literatures should play in American life (RF 52116, 54143)	90,000.00	46,668.68

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS	356
HUMANITIES — <i>continued</i>				
<i>Intercultural Understanding — <i>continued</i></i>				
<i>Modern Language Association — <i>continued</i></i>				
Preparation of materials for teaching modern languages at the college level (RF 56166)	\$.....	\$40,500.00	\$3,525.00	
Occidental College, Los Angeles, California				
Developing humanistic studies on the southwest area of the United States and on northern Mexico (RF 53021)	20,425.43	10,000.00	
Philadelphia Museum of Art, Pennsylvania				
For interpretive studies of the arts of India (RF 54119)	7,500.00	2,500.00	
Princeton University, New Jersey				
Development of Near Eastern studies (RF 52005) (Joint Project with Social Sciences)	20,000.00	10,000.00	
St. Antony's College, Oxford, England				
Toward development of a program of European studies (RF 54184)	99,218.59	20,213.09	
Salzburg Seminar in American Studies, Inc., Austria				
General budget (RF 55060)	100,000.00	12,500.00	
Sixth Section, Ecole Pratique des Hautes Etudes, Paris, France				
Development of Asiatic, Slavic, and Islamic studies (RF 55181)	60,000.00	29,407.80	
Stanford University, Palo Alto, California				
Expenses of a seminar for business managers of privately founded Japanese universities (RF 56164)	60,000.00	

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Tokyo University, Japan, and Stanford University, Palo Alto, California				
Seminars in American studies sponsored jointly (RF 51211, 56022) (Joint Project with Social Sciences)	33,608.24	7,000.00	33,608.24	
Toyo Bunko, Tokyo, Japan				
For research on modern China (RF 54120)	20,858.10	18,737.32	
Support of a seminar on modern China (RF 56147)	54,690.00	4,329.36	
University of Adelaide, Australia				
Program in American studies (RF 55147)	24,000.00	13,072.12	
University of Ankara, Turkey				
To enable its Faculty of Letters to appoint professors of American literature and American history (RF 53072, 56079)	9,470.40	30,000.00	7,040.00	
University of Cologne, Germany				
Program in American studies (RF 51037)	465.74	26.03	
University of Chicago, Illinois				
Program of interreligious studies (RF 56192)	140,000.00	
University of Delhi, India				
Research and training in modern Indian history (RF 55070)	17,709.28	7,650.22	
University of London, England				
School of Oriental and African Studies. Conference on historical writing on South Asia (RF 55071)	6,685.00	5,921.22	
University of Michigan, Ann Arbor				
Program of American studies in Kyoto, and Japanese studies in Ann Arbor (RF 54147, 55105)	84,000.00	26,671.95	
University of Munich, Germany				
Toward support of the American Institute (RF 54068)	23,293.06	5,712.28	

HUMANITIES—continued*Intercultural Understanding—continued*

University of Oxford, England

University College. Expenses of a conference and fellowships in American studies (RF 55021)

University of Rochester, New York

Program in Canadian history (RF 55027)

APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
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\$2,599.05 \$..... \$2,513.70

30,000.00 7,500.00

History

American Council of Learned Societies, Washington, D. C.

Preparation of the supplementary volumes of the *Dictionary of American Biography* (RF 53134)

American Historical Association, Washington, D. C.

Preparation of a new edition of the *Guide to Historical Literature* (RF 56136)

American University, Washington, D. C.

Preparation of a history of the city of Washington (RF 54062)

City College, New York

Development of materials for courses of study at the graduate level (RF 54002)

Colegio de México, Mexico City

Research and a training seminar on contemporary Mexican history (RF 55038)

Columbia University, New York

Preparation for publication of the writings of Alexander Hamilton (RF 54097)

16,416.66 10,236.71

..... 75,000.00 18,975.00

30,817.95 13,167.00

52,794.64 34,364.07

9,660.00 7,440.00

20,000.00 20,000.00

Commission on History of the Pan American Institute of Geography and History, Mexico City			
History of the Americas (RF 55039, 56125)	7,303.36	6,400.00	7,303.36
Indian Council of World Affairs, Delhi			
Preparation of a history of India's attainment of independence (RF 53069)	13,589.35	7,868.15
Institute for Contemporary History, Munich, Germany			
Research on recent German history (RF 56137)	26,000.00	4,060.46
Italian Institute of Historical Studies, Naples			
Library materials and fellowships (RF 55005)	49,500.00	4,600.00
Lehigh University, Bethlehem, Pennsylvania			
Research on the British Empire before the American Revolution (RF 55033)	14,000.00	7,000.00
McGill University, Montreal, Canada			
Biographical study (RF 55191)	17,850.00	17,169.80
National Institute of Economic and Social Research, London, England			
Editorial work on an edition of the complete works of Alexis de Tocqueville (RF 53136)	7,086.32	4,202.08
Royal Institute of International Affairs, London, England			
Travel preliminary to a revision of <i>A Study of History</i> (RF 53031)	10,448.07	8,312.51
St. Antony's College, Oxford, England			
Research on the history of the Reformation in Poland and Lithuania (RF 55156)	11,250.00	7,500.00
University of Chicago, Illinois			
Toward support of the Lafayette studies (RF 54098)	7,500.00	5,000.00
Committee on Human Development, Study of Kansas City, Missouri (RF 55075)	53,411.50	21,838.50

HUMANITIES—continued

History—continued

University of Chicago—continued

Preparation for publication of an edition of the writings of James Madison, to be undertaken jointly by the University of Chicago and the University of Virginia (RF 56065)

APPROPRIATIONS
PRIOR YEARS 1956

1956
PAYMENTS

360

\$.....	\$150,000.00	\$11,000.00
24,512.02	6,203.57
2,250.00	266.96
54,687.50
46,994.53	1,949.84
.....	10,800.00	1,736.00
8,700.00	3,613.58

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Philosophy

American Philosophical Association, Western Division, Gambier, Ohio

Program of individual grants for original philosophical work (RF 54054)

Exploring the possibilities of original work on political and social philosophy (RF 54055, 55158)

International Christian University, Tokyo, Japan

For a program of research and study in the philosophy of education (RF 54091)

Kyushu University, Fukuoka, Japan

For comparative studies in the philosophy of education (RF 54090)

Research on Chinese thought from the Sung to the Ming dynasties (RF 56155)

Somerville College, Oxford, England

Translation and editing of Ludwig Wittgenstein's manuscripts for publication (RF 55111)

Stanford University, Palo Alto, California To study developments in philosophy in Asia and Western Europe (RF 56021)	14,000.00	14,000.00
University of Chicago, Illinois Work in philosophy (RF 53029)	262.24	262.24
University of Geneva, Switzerland Research in philosophy, logic, and psychology (RF 55026)	57,916.80	22,408.80
University of Hawaii, Honolulu Toward expenses of continued publication of the quarterly, <i>Philosophy East and West</i> (RF 56092)	4,000.00	2,000.00
<i>Language, Logic and Symbolism</i>			
Deccan College Postgraduate and Research Institute, Poona, India For studies of the principal languages of India (RF 54088, 56061)	26,267.04	126,775.00	72,781.89
Harvard University, Cambridge, Massachusetts Preparation of a descriptive analysis of the contemporary Russian language (RF 55031)	19,750.00	8,880.43
Korean Language Society, Seoul To publish its six-volume dictionary of the Korean language (RF 56062)	36,400.00	30,789.47
<i>General Education</i>			
Haverford College, Pennsylvania Development of reading courses and a senior seminar (RF 53102)	11,877.76	2,437.22
Massachusetts Institute of Technology, Cambridge Experiment in the use of French as a language of instruction in basic humanities courses (RF 53078)	1,591.53

HUMANITIES — *continued****General Education — continued***

University of Colorado, Boulder

In support of its honors program in the College of Arts
and Sciences (RF 56081)

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
	\$.....	\$28,000.00	\$14,500.00
<i>Literature</i>			
Canada Foundation, Ottawa			
For fellowships in creative writing and criticism to be awarded to Canadians (RF 56076)	49,750.00	17,298.75
Foundation for Cultural Projects, Inc., New York			
For fellowships in creative writing and criticism to be awarded by the editors of the <i>Partisan Review</i> (RF 56009)	52,200.00	16,100.00
Hudson Review, Inc., New York			
For fellowships in creative writing and criticism to be awarded by the editors of <i>The Hudson Review</i> (RF 56010)	52,200.00	18,700.00
Kenyon College, Gambier, Ohio			
For fellowships in creative writing and criticism to be awarded by editors of <i>The Kenyon Review</i> (RF 55178)	52,200.00	32,000.00
Mexican-American Cultural Institute, Mexico City			
For work of the Mexican Writing Center (RF 54042)	78,000.00	18,500.00
Princeton University, New Jersey			
Support of seminars in criticism (RF 52056)	30,000.00	20,000.00
San Francisco State College, California			
Toward the development of its Poetry Center (RF 56020)	11,500.00	4,000.00

State University of Iowa, Iowa City For fellowships in creative writing (RF 53005)	2,711.98	224.43
University of the South, Sewanee, Tennessee For fellowships in creative writing and criticism to be awarded by the editors of <i>The Sewanee Review</i> (RF 55179)	52,200.00	20,000.00
<i>Drama</i>			
American Shakespeare Festival Theatre and Academy, Inc., Stratford, Connecticut Toward the cost of building, equipping, and operating a theatre and academy, primarily for the production of Shakespeare's plays and for the training of Shakespearean actors (RF 56003)	100,000.00	100,000.00
Philippine Normal College, Manila Toward support of a program in drama (RF 56093, 56156)	20,710.00	5,197.20
Union Theological Seminary, New York Development of an experimental program in religious drama (RF 55186)	55,000.00	20,007.32
University of Bristol, England Development of program in drama (RF 54094)	13,420.20	2,256.77
<i>Music</i>			
American Symphony Orchestra League, Inc., Charleston, West Virginia Workshops for conductors and music critics (RF 54093, 55095, 56198)	83,555.00	109,700.00	35,335.50

HUMANITIES — *continued****Music — continued***

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS	
Boston Symphony Orchestra, Massachusetts Tanglewood Revolving Scholarship Fund (RF 55056)	\$83,774.00	\$.....	\$.....	
City Center of Music and Drama, Inc., New York Creating new productions in opera and ballet (RF 53064)	2,632.44	Cr. 378.72	
Curtis Institute of Music, Philadelphia, Pennsylvania Analysis of the production problems of modern opera (RF 55157)	12,000.00	6,000.00	
Karamu House, Cleveland, Ohio Construction and equipping of a music building (RF 54041)	100,000.00	
Little Symphony Society of Berkeley, California Administrative and directing expenses (RF 55024)	12,000.00	6,500.00	
Louisville Philharmonic Society, Inc., Kentucky Composition, performance, and recording of new works by living composers (RF 53041, 55113)	37,500.00	37,500.00	
Metropolitan Opera Association, Inc., New York For the work of the Exploratory Committee for a Mu- sical Arts Center in New York City (RF 56004)	50,000.00	50,000.00	
Silliman University, Dumaguete, Philippine Islands Study, recording, arranging, and performance of Philip- pine music (RF 55136)	10,453.45	3,446.55	
Young Audiences Inc., New York Expansion of its program for organizing concerts by chamber music ensembles (RF 55142)	67,500.00	7,500.00	

Visual Arts

American Federation of Arts, New York Toward the expenses of a third international art film festival (RF 56168)	25,000.00	10,000.00
Art Society of Korea, Inc., Seoul For the encouragement of contemporary work in the arts (RF 56036)	15,120.00	6,000.00
Japan Society, Inc., New York To enable it to bring to the United States three Japanese print artists (RF 56134)	16,000.00	2,667.00
Massachusetts Institute of Technology, Cambridge Study of the aesthetic aspects of city planning (RF 54034)	45,296.32	33,208.78
Pratt Institute, New York Toward the establishment of a Graphic Arts Center (RF 56133)	50,000.00	11,000.00
University of Pennsylvania, Philadelphia For use by its School of Fine Arts in studies of the history of town and country development and of current trends in landscape design (RF 56109)	66,000.00
<i>Dance</i>			
Connecticut College, New London Expenses of its summer School and Festival of the Dance (RF 55023)	20,000.00	10,500.00
New York Public Library, New York Toward expenses of organizing its collection on the dance (RF 56026)	37,560.00	12,520.00
<i>General Purposes</i>			
American Library Association, Chicago, Illinois For maintenance of an office of overseas library development (RF 56054)	111,600.00	26,352.00

HUMANITIES—*continued****General Purposes—*continued******Fellowships**

Administered by The Rockefeller Foundation

Regular Program (RF 53182, 52197, 55130, 55189,
56202)Special Program of Fellowships, Scholarships, and
Training Awards in Asia, Latin America, the Middle
East, and Africa (RF 56059, 56204)**Grants in Aid**

Allocations by The Rockefeller Foundation

Regular Program (RF 48145, 50089, 50161, 51127,
53138, 53183, 54163 55131, 55190, 56203)Special Program in Asia, Latin America, the Middle
East, and Africa (RF 56060, 56205)

Humanities Research Council of Canada, Toronto

Support of activities in planning and development of
Canadian personnel (RF 55123)

Keio University, Tokyo, Japan

Toward support of the Japan Library School (RF 52107,
56149)

Pratt Institute, New York

Study of the relationship of art and government in twen-
tieth century democratic society (RF 56042)***Special Projects***Funds appropriated but not yet formally released (RF
56185)

	APPROPRIATIONS	1956	PAYMENTS	
	PRIOR YEARS	1956		
	\$375,084.21	\$200,000.00	\$210,499.81	
	365,000.00	37,117.06	
	599,508.57	350,000.00	301,666.21	
	360,000.00	38,723.72	
	52,500.00	24,484.14	
	6,509.81	60,000.00	6,509.81	
	2,200.00	2,200.00	
	2,500,000.00	

Earlier Interest

British Museum, London, England

To enable the Museum to offer to American libraries,
at a discount, subscriptions to the new edition of its
Catalogue of Printed Books (RF 29086, 30076)

43,660.86

Museum of Modern Art, New York

Toward the costs of the transfer of the most important
motion picture films to a more permanent stock (RF
54026)

20,000.00 20,000.00

National Diet Library, Tokyo, Japan

Establishment of a microfilm laboratory (RF 52156)

1,202.81 1,154.42

TOTALS—HUMANITIES

\$3,563,370.65 \$5,963,605.00 \$2,039,169.34

FORMER PROGRAM**MEDICINE AND PUBLIC HEALTH***Fellowships and Grants in Aid***FELLOWSHIPS**

Administered by The Rockefeller Foundation

Regular Program (RF 52194, 53182) \$69,300.44 \$..... \$14,920.47

Medical Library Association, New Haven, Connecticut
Fellowships (RF 54081)

13,550.00 8,202.00

Medical Research Council of Great Britain, London
Fellowships (RF 54003)

98,465.57 22,585.94

National Research Council, Washington, D. C.
Fellowships (RF 54035)

100,000.00

GRANTS IN AIDAllocations by The Rockefeller Foundation (RF 50090,
51159, 51224, 53106, 53183)

81,346.86 21,847.83

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
NATURAL SCIENCES AND AGRICULTURE			
<i>Fellowships and Grants in Aid</i>			
FELLOWSHIPS			
Administered by The Rockefeller Foundation Regular Program (RF 51221, 52195, 53182)	\$50,011.19	\$.....	\$38,301.52
National Research Council, Washington, D. C. Fellowships (RF 51150)	3,667.96
GRANTS IN AID			
Allocations by The Rockefeller Foundation (RF 48143, 49149, 50159, 51225, 52199, 53183)	157,232.46	68,411.94
TOTALS—FORMER PROGRAM	\$573,574.48	\$.....	\$174,269.70
GENERAL			
American Library Association, Chicago, Illinois Expenses of the director of the International Youth Library, Munich, Germany (RF 54019)	\$10,000.00	\$.....	\$10,000.00
Commonwealth Scientific and Industrial Research Organiza- tion, Canberra, Australia Toward construction of a radio telescope and associated equipment (RF 55171)	250,000.00	19,013.75
Conservation Foundation, New York General administrative expenses (RF 55066)	40,000.00	5,000.00

Emergency Aid for Hungary			
Aid in the arts and sciences for Hungarian refugees and aid to cooperating educational institutions (RF 56181, 56206)	1,200,000.00	147,404.00
Exchange Fund (RF 46123)	7,465.84
Fellowships			
Administered by The Rockefeller Foundation Regular Program. Unallocated (RF 56202)	100,000.00
Field Service			
Expenses. Unallocated funds (RF 54167)	5,500.00
Foundation Staff on Special Assignments Salary, travel, and other expenses. 1957 (RF 56178)	114,000.00
Grants in Aid			
Allocations by The Rockefeller Foundation (RF 53183, 55131, 55190, 56203)	167,014.26	100,000.00	104,707.25
History of the International Health Division For completion and publication (RF 52125)	16,747.77	399.73
Institute of International Education, New York International student exchange (RF 56046)	250,000.00	50,000.00
Institute of Judicial Administration, Inc., New York Toward its expenses (RF 52073)	55,114.59	55,025.31
International House of Japan, Inc., Tokyo Toward establishment and support of an international cultural center in Tokyo (RF 52183)	115,956.05	63,273.88
New York Community Trust, New York Operating expenses (RF 54123)	80,000.00	20,000.00

GENERAL — *continued***New York University, New York**

Joint auspices of New York University and the National Association of Science Writers. For a national survey of public attitudes toward the reporting of science news (RF 56070)

	APPROPRIATIONS PRIOR YEARS	1956	1956 PAYMENTS
New York University, New York			
Joint auspices of New York University and the National Association of Science Writers. For a national survey of public attitudes toward the reporting of science news (RF 56070)	\$.....	\$70,000.00	\$46,050.00
Robert College of Istanbul, Turkey	350,000.00
Training Turkish personnel (RF 56187)			
Temporary Indonesian Training Program			
Temporary program of study and travel grants for Indonesians (RF 54183)	72,769.89	57,827.70
Union Theological Seminary, New York			
Establishment and support of a program of advanced religious studies (RF 54033)	400,000.00	88,360.79
TOTALS—GENERAL	\$1,220,568.40	\$2,184,000.00	\$667,062.41

ADMINISTRATION**Home Office**

1955 (RF 2824, 54159, 55045, 55046, 55088, 55152)	\$89,531.35	\$.....	\$47,784.56
1956 (RF 55161, 56043, 56044, 56045)	1,953,900.00	82,900.00	1,932,128.84
1957 (RF 56174)	2,133,200.00

Treasurer's Office

1955 (RF 54160, 55089)	18,248.24	15,281.15
1956 (RF 55162, 56045)	67,930.00	1,600.00	51,120.78
1957 (RF 56175)	72,335.00

Alterations and renovation of the New York offices (RF 55091, 55112, 56179)	82,849.78	138,000.00	81,166.38
Funding of annuity liability for retired employees (RF 56180)		1,500,000.00
Field Offices (RF 54161, 55132, 55160, 55163, 55164, 56176, 56177)			
Europe			
England, London			
1955	2,454.25	1,054.31
1956	9,500.00	7,000.19
1957	10,300.00
France, Paris			
1955	8,693.98	1,302.24
1956	28,490.28	21,108.03
1957	30,000.00
TOTALS—ADMINISTRATION	\$2,261,597.88	\$3,968,335.00	\$2,157,946.48
TOTALS	\$29,210,808.79	\$30,075,305.00	\$16,822,215.78
LESS:			
Unused balance of appropriations allowed to lapse	720,137.97
GRAND TOTALS	\$28,490,670.82	\$30,075,305.00	\$16,822,215.78

REFUNDS ON PRIOR YEAR CLOSED APPROPRIATIONS

Administration—New York Office	(RF 54139)	\$927.70
American Academy of Arts and Sciences	(RF 52020)	16.54
American Council on Education	(RF 54148)	5,851.73
American Philosophical Association	(RF 43029)	81.52
Association of Special Libraries and Information Bureaux	(RF 53011)	32.86
Economic Commission for Europe	(RF 52120)	150.54
Encyclopaedia of the Social Sciences	(RF 32114)	1,979.64
Fletcher School of Law and Diplomacy	(RF 53128)	400.93
Grants in Aid in the Social Sciences—1950	(RF 50109)	300.00
Harvard University	(RF 35086)	4,045.16
Harvard University	(RF 51071)	.21
Johns Hopkins University	(RF 55081)	129.90
Ministry of Education, Cairo, Egypt	(RF 53075)	652.14
New School for Social Research	(RF 54053)	680.20
Smith College	(RF 55083)	822.96
Stanford Research Institute	(RF 55076)	139.58
State Historical Society of Colorado	(RF 52099)	57.61
University of California	(RF 49139)	397.64
University of California	(RF 55017)	72.66
University of Delaware	(RF 52085)	2,329.77
University of Illinois	(RF 53130)	1,656.61
University of Vienna	(RF 53037)	3.40
University of Wisconsin	(RF 50047)	36.45
		<u>\$20,765.75</u>

**FINANCE COMMITTEE'S STATEMENT OF TRANSACTIONS RELATING TO INVESTED FUNDS
FOR THE YEAR ENDED DECEMBER 31, 1956**

PURCHASED

\$2,000,000	American Telephone & Telegraph Co. 3½% 34 yr. Deb. 7/1/90 @ 102.75	\$2,055,000.00
500,000	Dallas Power & Light Co. 4¼% 1st Mtge. 12/1/86 @ 101.848	504,240.00
1,000,000	Michigan Bell Telephone Co. 4¾% 35 yr. Deb. 12/1/91 @ 102.266	1,022,660.00
1,000,000	Public Service Electric & Gas Co. 4¾% 1st & Ref. Mtge. 11/1/86 @ 101.257	1,012,570.00
1,000,000	Scott Paper Co. 3% Conv. Deb. 3/1/71 @ 104.298125	1,042,981.25
2,250	shares American Telephone & Telegraph Co. Capital (Par \$100) @ \$100 plus the surrender of 22,500 rights	225,000.00
5,000	" Continental Insurance Co. Capital (Par \$5) @ \$51.74956	258,747.80
1,000	" Fireman's Fund Insurance Co. Capital (Par \$2.50) @ \$58.19533	58,195.33
1,500	" Hartford Fire Insurance Co. Capital (Par \$10) @ \$144.5357533	216,803.63
25,000	" Insurance Co. of North America Capital (Par \$5) @ \$96.4763352	2,411,908.38
52½	" International Business Machines Corp. Common (No par) @ \$404.135619	21,217.12
11,485	" Union Tank Car Co. Capital (No par) @ \$29. plus the surrender of 80,395 rights	359,115.39
		<hr/> <u>\$9,188,438.90</u>

REQUEST

CORPUS OF TRUST ESTABLISHED BY MR. JOHN D. ROCKEFELLER, SR.:

15,380	shares Standard Oil Co. of California Capital (No par) @ \$81.8200585	\$1,258,392.50
769	" Standard Oil Co. of California Capital (No par) received as a stock dividend on 15,380 shares of Capital (No par) owned of record 11/7/55	— 0 —
		<hr/> <u>\$1,258,392.50</u>

**FINANCE COMMITTEE'S STATEMENT OF TRANSACTIONS
RELATING TO INVESTED FUNDS — *continued***

OTHERWISE ACQUIRED

800	shares American Gas & Electric Co. Common (Par \$5) received as a stock dividend on 40,000 shares (Par \$5) owned of record 12/9/55	\$ — 0 —
20,400	" American Gas & Electric Co. Common (Par \$10) received in a stock split on 40,800 shares (Par \$5) owned of record 5/17/56	— 0 —
2,500	" American Telephone & Telegraph Co. Capital (Par \$100) received through conversion of \$250,000 American Telephone & Telegraph Co. 3 1/8% Conv. Deb. 10/13/67 plus cash payment of \$48.00 per share @ \$173.75	434,375.00
22,500	rights American Telephone & Telegraph Co. received on 22,500 shares of (Par \$100) owned of record 9/14/56	— 0 —
10,000	shares Continental Insurance Co. Capital (Par \$5) received in a stock split on 10,000 shares (Par \$10) owned of record 2/21/56	— 0 —
408	" Dow Chemical Co. Common (Par \$5) received as a stock dividend on 20,400 shares (Par \$5) owned of record 9/14/56	— 0 —
47 1/2	" International Business Machines Corp. Common (No par) received as a stock dividend on 1,900 shares (No par) owned of record 1/4/56	— 0 —
500	" International Business Machines Corp. Common (No par) received in a stock split on 2,000 shares (No par) owned of record 5/4/56	— 0 —
1,984 1/2	" International Paper Co. Common (Par \$7.50) received as a stock dividend on 66,150 shares (Par \$7.50) owned of record 11/23/56	— 0 —
612	" Monsanto Chemical Co. Common (Par \$2) received as a stock dividend on 30,600 shares (Par \$2) owned of record 11/23/56	— 0 —
300	" National Lead Co. Common (Par \$5) received as a stock dividend on 15,000 shares (Par \$5) owned of record 12/7/56	— 0 —
40,000	" Union Pacific Railroad Co. Common (Par \$10) received in a stock split on 10,000 shares (Par \$50) owned of record 6/29/56	— 0 —
100,000	rights Union Tank Car Co. received on 100,000 shares (No par) owned of record 6/22/56 @ .32403 per right	32,403.00

75,000	shares Socony Mobil Oil Co. Inc. Capital (Par \$15) received as a stock dividend on 300,000 shares (Par \$15) owned of record 5/7/56	— 0 —
100,000	shares Standard Oil Co. of California, Capital (Par \$6.25) received in a stock split on 100,000 shares (No par) owned of record 5/21/56	— 0 —
4,000,000	" Standard Oil Co. (New Jersey) Capital (Par \$7) received in a stock split on 2,000,000 shares (Par \$15) owned of record 2/10/56	— 0 —
15,384	" Standard Oil Co. (New Jersey) Capital (Par \$7) received as a stock divi- dend on 1,000,000 shares Standard Oil Co. (Indiana) Capital (Par \$25) of record 11/15/56. Taken into the books at the sales price @ \$58.455518 and the value credited to income	899,279.69 \$1,366,057.69 <u>\$11,812,889.09</u>

SOLD		TOTAL PROCEEDS	LEDGER VALUE
\$300,000	Bethlehem Steel Corp. 3½% Conv. Deb. 5/1/80 @ 123.73917	\$371,217.51	\$337,679.64
19,605	rights Union Tank Car Co. @ .32403	6,352.61	6,352.61
75,000	shares Socony Mobil Oil Co. Inc. Capital (Par \$15) @ \$56.2621184	4,219,658.88	1,980,902.92
149	" Standard Oil Co. of California Capital (No par) @ \$104.7537583	15,608.31	2,821.41
15,384	" Standard Oil Co. (New Jersey) Capital (Par \$7) @\$58.455518	899,279.69	899,279.69
		<u>\$5,512,117.00</u>	<u>\$3,227,036.27</u>

OTHERWISE DISPOSED OF

\$250,000	American Telephone & Telegraph Co. 3½% Conv. Deb. 10/13/67 surrendered upon conversion into 2,500 shares American Telephone & Telegraph Co. Capital (Par \$100) @ 125.75	\$314,375.00	\$314,375.00
22,500	rights American Telephone & Telegraph Co. surrendered upon subscription to 2,250 shares of Capital (Par \$100)	— 0 —	— 0 —

**FINANCE COMMITTEE'S STATEMENT OF TRANSACTIONS
RELATING TO INVESTED FUNDS—*concluded***

OTHERWISE DISPOSED OF — *continued*

80,395 rights Union Tank Car Co. surrendered upon subscription to 11,485 shares of Capital (No par) @ .32403	\$26,050.39	\$26,050.39
	<u>\$340,425.39</u>	<u>\$340,425.39</u>

LEDGER VALUE REDUCED

100,000 shares Union Tank Car Co. Capital (No par) by value of 100,000 rights @ .32403	\$32,403.00	\$32,403.00
	<u>\$9,425.29</u>	<u>\$9,425.29</u>

AMORTIZATION OF BOND PREMIUMS

	<u>\$5,894,370.68</u>	<u>\$3,609,289.95</u>
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RECONCILIATION

Ledger value of securities December 31, 1955	\$196,524,595.70
Purchased	\$9,188,438.90
Corpus of Trust established by Mr. John D. Rockefeller, Sr.	1,258,392.50
Otherwise acquired	<u>1,366,057.69</u>
	<u>11,812,889.09</u>
	<u>\$208,337,484.79</u>
Sold	\$3,227,036.27
Otherwise disposed of	340,425.39
Ledger value reduced	32,403.00
Amortization of bond premiums	<u>9,425.29</u>
	<u>3,609,289.95</u>
Ledger value of securities, December 31, 1956	<u>\$204,728,194.84</u>

SCHEDULE OF SECURITIES ON DECEMBER 31, 1956

BONDS	PAR	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
American Telephone & Telegraph Co. 34 yr. Deb. 3½% due July 1, 1990	\$2,000,000	102.75	\$2,055,000.00	95.25	\$1,905,000.00
Dallas Power & Light Co. 4¾% 1st Mtge. December 1, 1988	500,000	101.848	504,240.00	102.00	510,000.00
International Bank for Reconstruction and Development 3½%, October 15, 1971	1,000,000	98.00	980,000.00	93.00	930,000.00
Michigan Bell Telephone Co. 4¾% 35 yr. Deb. December 1, 1991	1,000,000	102.266	1,022,660.00	102.75	1,027,500.00
Public Service Electric & Gas Company 4¾% 1st & Ref. Mtge. November 1, 1986	1,000,000	101.26	1,012,570.00	101.25	1,012,500.00
Scott Paper Company Conv. Deb. 3% March 1, 1971	1,000,000	104.187	1,041,871.67	95.00	950,000.00

United States of America Treasury Bonds:

INT.	DUE	PAR	PRICE	LEDGER VALUE	MARKET VALUE
2½% — June 15, 1958		5,000,000	100.00	5,000,000.00	98.09375
2½% — Dec. 15, 1958		1,000,000	100.00	1,000,000.00	97.9375
2½% — Sept. 15, 1956-59		11,000,000	99.330	10,926,250.00	96.5625

SCHEDULE OF SECURITIES — *continued*

THE ROCKEFELLER FOUNDATION

BONDS — <i>continued</i>	LEDGER VALUE			MARKET VALUE	
	PAR	PRICE	TOTAL	PRICE	TOTAL
2 3/4% — Sept. 15, 1961	\$1,920,000	100.00	\$1,920,000.00	96.125	\$1,845,600.00
2 1/2% — Nov. 15, 1961	9,000,000	100.048	9,004,359.90	94.625	8,516,250.00
2 1/2% — Aug. 15, 1963	11,000,000	99.460	10,940,554.94	93.4375	10,278,125.00
2 1/2% — June 15, 1962-67	11,200,000	98.739	11,058,762.94	90.5	10,136,000.00
2 1/2% — Dec. 15, 1964-69	12,000,000	96.305	11,556,562.50	88.5625	10,627,500.00
2 1/2% — June 15, 1967-72	9,000,000	98.941	8,904,650.50	87.6875	7,891,875.00
United States of America 2% Treasury Notes due August 15, 1957	4,400,000	99.244	4,366,750.00	99.125	4,361,500.00
United States of America 2 1/8% Treasury Notes Series "A" due June 15, 1958	2,000,000	100.111	2,002,212.41	98.8125	1,976,250.00
United States of America 1 1/8% Treasury Notes due February 15, 1959	8,000,000	100.160	8,012,836.25	96.34375	7,707,500.00
United States of America 1 1/2% Treasury Notes due April 1, 1960	5,000,000	95.688	4,784,375.00	93.625	4,681,250.00
United States of America 2 1/2% Savings Bonds Series "G" due October 1, 1962	1,000,000	100.00	1,000,000.00	95.50	955,000.00
			<u>\$97,093,656.11</u>		<u>\$91,817,787.50</u>

STOCKS	SHARES	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
American Gas & Electric Co. (Par \$10)	61,200	\$17.567	\$1,075,084.95	\$37.25	\$2,279,700.00
American Telephone & Telegraph Co. Cap. (Par \$100)	24,750	134.976	3,340,668.24	171.375	4,241,531.25
Canadian Industries Limited (No par)	45,000	22.071	993,199.32	19.25	866,250.00
Christiana Securities Co. (Par \$100)	200	5,568.00	1,113,600.00	13,400.00	2,680,000.00
Consolidated Natural Gas Co. Cap. (Par \$10)	300,000	16.189	4,856,806.82	41.25	12,375,000.00
Continental Insurance Co. Cap. (Par \$5)	25,000	36.588	914,713.17	46.00	1,150,000.00
Continental Oil Co. Cap. (Par \$5)	150,000	14.46	2,169,117.65	126.50	18,975,000.00
Corning Glass Works (Par \$5)	12,500	35.593	444,917.79	69.75	871,875.00
Crown Zellerbach Corporation (Par \$5)	22,500	26.274	591,167.64	53.25	1,198,125.00
Dow Chemical Co. (Par \$5)	20,808	23.016	478,909.80	67.125	1,396,737.00
Fireman's Fund Insurance Co. Cap. (Par \$2.50)	25,000	52.540	1,313,499.89	50.00	1,250,000.00
First National Bank of Chicago (Par \$100)	6,700	174.611	1,169,895.85	305.00	2,043,500.00
Freeport Sulphur Co. (Par \$10)	30,000	74.396	2,231,877.90	94.50	2,835,000.00
General Electric Co. (Par \$5)	60,000	19.674	1,180,424.14	60.25	3,615,000.00
Goodrich, B. F. Co. (Par \$10)	50,000	36.798	1,839,893.41	73.75	3,687,500.00
Hartford Fire Insurance Co. Cap. (Par \$10)	25,000	87.141	2,178,527.78	133.00	3,325,000.00
Inland Steel Co. (No par)	10,000	74.95	749,507.83	98.25	982,500.00
Insurance Company of North America Cap. (Par \$5)	25,000	96.476	2,411,908.38	95.00	2,375,000.00

SCHEDULE OF SECURITIES — *concluded*

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THE ROCKEFELLER FOUNDATION

STOCKS — <i>concluded</i>	SHARES	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
International Business Machines Corp. (No par)	2,500	\$220.102	\$550,255.83	\$540.00	\$1,350,000.00
International Nickel Co. of Canada Ltd. (No par)	55,000	41.636	2,289,969.82	105.75	5,816,250.00
International Paper Co. (Par \$7.50)	68,134½	34.744	2,367,288.41	105.00	7,154,122.50
Kennecott Copper Corporation (No par)	30,000	58.539	1,756,180.37	127.625	3,828,750.00
Monsanto Chemical Co. (Par \$2)	31,212	24.712	771,318.65	36.50	1,139,238.00
National Lead Co. (Par \$5)	15,300	48.811	746,805.13	110.50	1,690,650.00
The Ohio Oil Co. (No par)	200,000	17.292	3,458,394.00	41.625	8,325,000.00
Peoples Gas Light & Coke Co. (Par \$100)	7,700	122.412	942,573.46	166.00	1,278,200.00
Phelps Dodge Corporation Cap. (Par \$12.50)	70,000	26.358	1,845,087.74	63.125	4,418,750.00
Socony Mobil Oil Co. Inc. Cap. (Par \$15)	300,000	26.412	7,923,611.69	55.00	16,500,000.00
Standard Oil Co. of California Cap. (Par \$6.25)	200,000	9.468	1,893,562.39	49.25	9,850,000.00
Standard Oil Co. (Indiana) Cap. (Par \$25)	1,000,000	14.185	14,184,717.71	62.125	62,125,000.00
Standard Oil Co. (New Jersey) Cap. (Par \$7)	6,000,000	5.126	30,756,473.47	58.75	352,500,000.00
Travelers Insurance Co. Cap. (Par \$5)	25,000	34.255	856,385.00	68.00	1,700,000.00
Union Carbide & Carbon Corporation (No par)	20,000	85.790	1,715,807.93	115.75	2,315,000.00

Union Pacific R. R. Co. (Par \$10)	50,000	21.513	1,075,659.68	30.25	1,512,500.00
Union Tank Car Co. Cap. (No par)	111,485	5.931	661,314.05	29.00	3,233,065.00
United Fruit Co. Cap. (No par)	20,000	56.699	1,133,989.79	44.375	887,500.00
United States Steel Corporation (Par \$16-2/3)	20,000	41.115	822,293.22	73.50	1,470,000.00
Westinghouse Electric Corporation (Par \$12.50)	20,000	61.227	1,224,541.52	57.50	1,150,000.00
Weyerhaeuser Timber Co. Cap. (Par \$7.50)	120,000	13.3716	<u>1,604,588.31</u>	36.50	<u>4,380,000.00</u>
			<u>\$107,634,538.73</u>		<u>\$558,771,743.75</u>

SUMMARY

	LEDGER VALUE	MARKET VALUE
Bonds	\$97,093,656.11	\$91,817,787.50
Stocks	107,634,538.73	558,771,743.75
	<u>\$204,728,194.84</u>	<u>\$650,589,531.25</u>

GEOGRAPHICAL DISTRIBUTION OF GRANTS, 1956

	<i>Amount \$ page</i>
UNITED STATES	
ALASKA	
UNIVERSITY OF ALASKA	
Alaska Agricultural Experiment Station: forage crops diseases; research	1,700 179
ARIZONA	
UNIVERSITY OF ARIZONA	
Geochronology research center: establishment	10,000 256
CALIFORNIA	
CALIFORNIA INSTITUTE OF TECHNOLOGY	
Earhart Plant Research Laboratory: chemical climatology; research	111,900 164
COLLEGE OF MEDICAL EVANGELISTS	
Comprehensive medicine: R. T. Walden; travel	1,175 99
DEPARTMENT OF PUBLIC HEALTH	
Viriology: J. Neff; travel	725 153
MILLS COLLEGE	
Foreign student program: Professor and Mrs. D. P. Rotunda; travel	3,600 257
SAN FRANCISCO STATE COLLEGE	
Poetry Center: development	11,500 240
SAN JOSE STATE COLLEGE	
English language instruction: P. Roberts; study	5,000 249

	<i>Amount \$</i>	<i>page</i>
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STANFORD UNIVERSITY

Food Research Institute: research internships	96,000	199
Hoover Institute and Library: conference	4,000	227
Japanese art: Y. Yashiro; travel and study	5,000	241
Japanese poetry: R. H. Brower and E. R. Miner; study	2,985	241
Law: N. Ukai; visiting professorship	2,500	204
Philosophy: J. D. Goheen; travel and study	14,000	231
Seminar on university administration: support	60,000	245

UNIVERSITY OF CALIFORNIA*Berkeley:*

Conference on leadership and political institutions in India: support	10,000	210
Extension Division: medical care administration; support	6,000	101
Foreign student program:		
A. Blaisdell and Mrs. Blaisdell; travel	6,100	256
Hindi language instruction: J. J. Gumperz; development	6,500	227
Horticulture: C. A. Schroeder; travel	1,270	177
Institute of International Studies:		
R. A. Scalapino; research	18,000	215
Neurophysiology of Yoga:		
M. A. Wenger; travel and research	10,000	114
Political science:		
J. P. Harris; travel and study	2,100	210
Research	200,000	212
N. N. Wood; travel and study	3,000	215
Soil science: C. C. Delwiche; travel	4,200	177
Urban planning: F. Violich; study	3,210	204

Davis:

Bacteriology: R. E. Hungate; travel	4,000	177
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Los Angeles:

English language instruction: study	6,000	249
Philosophy: A. Kaplan; travel and study	9,800	231
Political science:		
J. S. Coleman; travel and research	8,850	211
T. P. Jenkin; research	4,500	215
F. H. Sherwood; travel and research	5,417	215

VIRUS STUDIES

VIRUS STUDIES	27,500	143
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COLORADO**CHILD RESEARCH COUNCIL OF DENVER**

Child growth and development: research	85,000	110
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UNIVERSITY OF COLORADO

Biophysics: research	85,000	138
Honors program: support	28,000	247

UNIVERSITY OF DENVER

Political science: E. R. Platig; study	2,850	212
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CONNECTICUT	
AMERICAN SHAKESPEARE FESTIVAL THEATRE AND ACADEMY, INC.	
Building and equipment expenses	100,000 234
YALE UNIVERSITY	
Literary criticism: R. Wellek; travel and research	2,500 240
Political science: W. Sharp; travel and research	9,500 211
Russian history and language: R. T. Fisher, Jr.; study	5,500 232
Short-term economic forecasting: research	34,000 193
Studies in field of color: J. Albers; preparation for publication	6,000 240
DISTRICT OF COLUMBIA	
AMERICAN COUNCIL OF LEARNED SOCIETIES	
Summer Study Aids in Linguistics: support	10,000 248
AMERICAN HISTORICAL ASSOCIATION	
<i>Guide to Historical Literature</i> : preparation of new edition	75,000 230
AMERICAN PERSONNEL AND GUIDANCE ASSOCIATION, INC.	
Liaison with Japanese Vocational Guidance Association: support	2,750 249
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT	
Economic Development Institute: support	50,000 200
LIBRARY OF CONGRESS	
Manual on archive management: M. Carrera S.; translation	2,500 249
Planning a new form of the <i>Union List of Serials</i> : expenses	6,000 249
NATIONAL ACADEMY OF SCIENCES	
Effects of atomic radiation: study	250,000 153
NATIONAL EDUCATION ASSOCIATION	
Workshop for education editors: expenses of American delegation	10,000 256
NATIONAL GALLERY OF ART	
Exhibition of Korean treasures: preparation	10,000 240
NATIONAL PLANNING ASSOCIATION	
Economics of competitive coexistence: study	109,250 198
NATIONAL RESEARCH COUNCIL	
Nutrition: research	250,000 154
PAN AMERICAN SANITARY BUREAU	
Institute of Nutrition of Central America and Panama: research expenses	10,000 174

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SMITHSONIAN INSTITUTION		
Entomology: J. J. Murayama; research	1,200	179
FLORIDA		
FLORIDA STATE UNIVERSITY		
Oceanographic Institute: A. W. Nordskog; visiting professorship	5,000	176
UNIVERSITY OF FLORIDA		
Latin American student counseling service: support	15,000	173
GEORGIA		
EMORY UNIVERSITY		
Biochemistry: research equipment	10,000	135
HAWAII		
HONOLULU ACADEMY OF ARTS		
Museum development: R. P. Griffing, Jr.; travel	1,200	243
UNIVERSITY OF HAWAII		
Chinese literature: L. P. H. Chong; travel and study <i>Philosophy East and West</i> : publication	4,000 4,000	227 232
ILLINOIS		
AMERICAN LIBRARY ASSOCIATION		
Office of overseas library development: establishment and support	111,600	244
UNIVERSITY OF CHICAGO		
Applied statistics: support of training program	50,000	157
Economics:		
Research	45,400	192
T. W. Schultz; research	5,000	203
Experimental ecology: research	10,500	114
International relations: M. Wight; teaching and research	3,575	211
Interreligious studies:		
R. P. Beaver; travel	4,250	227
Support of program	140,000	221
Islamic thought: M. G. S. Hodgson; travel	3,725	227
James Madison papers: preparation for publication	150,000	229
Marital adjustment: E. W. Burgess; study	4,500	195
Microbiology: W. H. Taliaferro; travel	2,800	96
Political science:		
H. Arendt; research	2,250	216
C. M. Hardin; travel and research	8,410	203
UNIVERSITY OF ILLINOIS		
Agricultural economics: P. Foster; travel and study	3,000	177

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INDIANA	
INDIANA UNIVERSITY	
Enzyme chemistry: H. R. Mahler; research	1,200 138
Genetics: research	350,000 116
PURDUE UNIVERSITY	
Senescence in plants: research	18,000 172
IOWA	
IOWA STATE COLLEGE	
Nematology: research	24,000 172
STATE UNIVERSITY OF IOWA	
Genetics: research	16,000 126
KANSAS	
KANSAS STATE COLLEGE	
Plant biochemistry and physiology: research	36,000 171
KENTUCKY	
UNIVERSITY OF KENTUCKY	
Nutrition of plant-feeding mites: research	5,000 176
LOUISIANA	
LOUISIANA STATE UNIVERSITY	
Jurisprudence: E. Voegelin; research	1,860 216
TULANE UNIVERSITY OF LOUISIANA	
Higher education: Dr. and Mrs. R. C. Harris; travel	6,000 256
Latin American legal studies: support	114,000 197
Medical education: C. G. Grulée, Jr.; travel	2,000 96
Pediatrics: R. V. Platou; travel	2,500 96
MAINE	
ROSCOE B. JACKSON MEMORIAL LABORATORY	
Genetics: research	50,000 110
UNIVERSITY OF MAINE	
Helminthology: G. E. Gates; research	6,500 176
MARYLAND	
JOHNS HOPKINS UNIVERSITY	
Genetics, cytology, and evolution: research	100,000 120
Labor and management problems:	
Lim T. B.; visiting lectureship	4,250 204
Protein biochemistry: E. V. McCollum; research	6,000 136
The <i>Risala</i> of Shafi'i: M. Khadduri; translation	8,250 226

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MASSACHUSETTS		
AMHERST COLLEGE		
Biology: research	100,000	120
BINGHAM ASSOCIATES FUND		
Bingham Associates Program: evaluation	10,000	101
BOSTON UNIVERSITY		
School of Medicine and College of Liberal Arts: curriculum study	50,000	89
HARVARD UNIVERSITY		
Biochemistry of vision: G. Wald; research	25,000	112
Comparative religion: expenses of visiting scholars	13,500	226
Conference on The Little Magazine in America: support	3,500	242
Economics: research	120,000	206
Harvard University Press: T. J. Wilson; travel	3,750	226
International relations: B. W. Jackson; visiting lectureship	5,000	211
Laboratory of Social Relations: research	4,000	114
Medical School:		
G. P. Berry; travel	410	96
Dr. and Mrs. C. A. Janeway; travel	3,500	95
A. S. Nadas; travel	1,200	95
Middle Eastern studies: research fellowships	205,000	220
Philosophy: R. Demos; travel and study	2,200	226
Plant physiology: faculty exchange program	1,300	128
Political theory: research	50,000	212
Population problems in India: field study	163,280	103
Public health: E. P. Rice; travel	3,125	95
Seminar on political ideology: support	7,100	215
Seminar on water resources: support	153,600	186
Socialist movements: A. B. Ulam; research	3,800	215
Soviet foreign trade: H. J. Berman; field study	10,000	203
MASSACHUSETTS INSTITUTE OF TECHNOLOGY		
Computation Center: research	98,400	191
Conference of American scientists: support	5,000	257
Nuclear energy: expansion of research facilities	250,000	84
MOUNT HOLYOKE COLLEGE		
Philosophy and political science: G. V. Tovey; research	5,300	216
RADCLIFFE COLLEGE AND THE MASSACHUSETTS GENERAL HOSPITAL		
Nursing program: study	9,000	91
STAR ISLAND CORPORATION		
Conference on Religion in an Age of Science: expenses of participants	2,000	257
UNITARIAN SERVICE COMMITTEE, INC.		
Instruction in anesthesiology: expenses of American consultants in Japan	18,000	90

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MICHIGAN	
ASSOCIATION FOR ASIAN STUDIES, INC.	
Chinese thought: studies	
Committee on South Asia: support	57,400 223
UNIVERSITY OF MICHIGAN	
Drama: Y. Yamamoto; travel and study	3,150 228
Philosophy: W. Frankena; travel and study	6,000 232
Population studies: L. B. Slobodkin; research	4,200 114
WAYNE UNIVERSITY	
Jurisprudence: S. I. Shuman; research	4,000 216
Nursing: E. P. Keresey; travel	2,150 97
MINNESOTA	
UNIVERSITY OF MINNESOTA	
Wheat and its pathogens: research	60,000 168
MISSOURI	
WASHINGTON UNIVERSITY	
Medical education: R. J. Glaser; travel	2,075 97
Mediterranean anemia: research	5,800 136
Political science: R. Macridis; research	8,025 211
Protein synthesis: M. Cohn; travel	1,000 136
Virology: research	165,000 140
NEW HAMPSHIRE	
DARTMOUTH COLLEGE	
Diplomacy: R. W. Sterling; travel and research	5,850 211
NEW JERSEY	
INSTITUTE FOR ADVANCED STUDY	
Soviet-German relations:	
G. Freund and G. F. Kennan; research	2,300 212
PRINCETON UNIVERSITY	
Biography of General Hideki Tojo:	
R. Butow; preparation	2,800 232
Center of International Studies: research	40,000 208
History of economic thought: J. Viner; research	2,230 196
NEW YORK	
AMERICAN FEDERATION OF ARTS	
International art film festival: support	25,000 239
AMERICAN MUSEUM OF NATURAL HISTORY	
Mammalian behavior development: study	6,100 114

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AMERICAN NATIONAL THEATRE AND ACADEMY		
Hungarian refugee program: administrative expenses	9,150	240
AMERICAN NURSES FOUNDATION, INC.		
Field services for visiting nurses: support	8,600	91
DR. L. BAUMGARTNER AND DR. N. ELIAS		
Public health organization in India: travel	1,000	257
BOYCE THOMPSON INSTITUTE FOR PLANT RESEARCH, INC.		
Mechanisms of fungicide action: research	105,000	165
A. CHUJOY		
Dance: study of support	1,150	243
CITY COLLEGE OF NEW YORK		
Political and social philosophy: H. M. Magid; study	7,500	215
W. CLIFFORD		
Literature: travel	5,200	241
COLGATE UNIVERSITY		
Role of humanities in general education program: study	5,500	249
COLUMBIA UNIVERSITY		
Industrial society: J. B. Brebner; research	7,000	232
International organization: research	30,000	209
Music: H. Cowell and Mrs. Cowell; travel	9,600	240
Political historiography: L. Benson; study	7,500	195
Political science: research	75,000	212
School of Public Health and Administrative Medicine:		
E. G. Clark; travel	1,050	99
R. W. Williams; travel	1,000	99
CORNELL UNIVERSITY		
International relations: I. N. Djajadiningrat; study	1,000	204
Political science: J. B. Rawls; study	7,000	215
Statistical research group: expenses	50,000	156
Virology: research facilities	48,000	143
FOREIGN POLICY ASSOCIATION		
International relations: grants for teachers	60,000	207
FOUNDATION FOR CULTURAL PROJECTS, INC.		
Fellowships in creative writing and criticism	52,200	235
FUND FOR ASIA, INC.		
Discussion program on cultural relations between Southeast Asia and the United States: support	3,360	228
HOBART AND WILLIAM SMITH COLLEGES		
American constitutionalism: M. O. Smith; research	5,500	216

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HUDSON REVIEW, INC.		
Fellowships in creative writing and criticism	52,200	235
INSTITUTE OF INTERNATIONAL EDUCATION		
International student exchange program: support	250,000	254
INTERNATIONAL GRAPHIC ARTS SOCIETY		
Print lending program: support	3,500	242
Purchase and shipment of prints to Asian art centers	1,200	242
JAPAN SOCIETY, INC.		
<i>Economic Problems of Free Japan:</i>		
J. B. Cohen; preparation of new edition	2,800	204
Japanese print artists; travel	16,000	239
LEAGUE OF COMPOSERS-INTERNATIONAL SOCIETY FOR CONTEMPORARY MUSIC, U. S. SECTION, INC.		
Programming of contemporary music: discussion program	1,900	243
MEDICAL SOCIETY OF THE COUNTY OF KINGS AND ACADEMY OF MEDICINE OF BROOKLYN		
Library development	10,000	105
METROPOLITAN OPERA ASSOCIATION, INC.		
Exploratory Committee for a Musical Arts Center in New York City: support	50,000	237
MODERN LANGUAGE ASSOCIATION OF AMERICA		
Foreign language textbooks: preparation	40,500	225
NATIONAL BUREAU OF ECONOMIC RESEARCH		
Soviet economic growth: research	60,000	207
NATIONAL FOUNDATION FOR JUNIOR MUSEUMS, INC.		
Two Year Development Program: support	10,000	256
NEW SCHOOL FOR SOCIAL RESEARCH		
Political justice: O. Kirchheimer; travel and research	9,000	215
NEW YORK PUBLIC LIBRARY		
Dance collection: organization	37,560	238
NEW YORK UNIVERSITY		
Arid zone life in antiquity: P. Mayerson; study	9,750	232
New York University—Bellevue Medical Center:		
C. Marker; travel	1,650	128
Rehabilitation; training program	30,000	90
Public attitude toward science writing: survey	70,000	255
Legal seminar in Lebanon: expenses	9,160	203
United Nations voting: research	3,275	212

GEOGRAPHICAL DISTRIBUTION OF GRANTS 391

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PHELPS-STOKES FUND		
Roster of Negro talent: study	9,500	256
PRATT INSTITUTE		
Graphic Arts Center: establishment and support	50,000	238
Relationship of art and government: H. Lehmann-Haupt; study	2,200	242
ROCKEFELLER FOUNDATION HUNGARIAN REFUGEE RELIEF PROGRAM	1,200,000	251
D. SANDS		
Drama instruction: travel	3,000	242
UNION THEOLOGICAL SEMINARY		
Religion, morality, and politics: W. L. Miller; research	5,000	216
UNION UNIVERSITY		
Albany Medical College: postgraduate medical education; support of experimental radio program	90,000	86
UNITED BOARD FOR CHRISTIAN HIGHER EDUCATION IN ASIA		
Books and publications for the Indonesian Christian University	2,000	250
UNIVERSITY OF THE STATE OF NEW YORK, DEPARTMENT OF EDUCATION		
Inter-institutional cooperation among colleges and universities of the State: exploratory study	9,800	256
VIRUS RESEARCH PROGRAM	220,000	143
WORLD UNIVERSITY SERVICE		
Hungarian Refugee Student Program: administrative expenses	10,000	256
YESHIVA UNIVERSITY		
Medicine: C. C. Hunt; travel	400	216
NORTH CAROLINA		
DUKE UNIVERSITY		
Medicine: W. D. Forbus; travel	4,200	94
UNIVERSITY OF NORTH CAROLINA		
History: F. H. Weaver; study	5,250	257
Political science: F. G. Gil; travel and research	5,625	211
OHIO		
KENYON COLLEGE		
Political science: R. English; travel and research	6,290	216

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MIAMI UNIVERSITY		
Scripps Foundation for Research in Population Problems: research	40,000	193
OHIO STATE UNIVERSITY		
History and political science: H. V. Jaffa; research	7,360	215
Insect sounds: research	6,500	173
Translocation in plants: research	12,100	173
WESTERN RESERVE UNIVERSITY		
Physiology: W. F. H. M. Mommaerts; travel and study	1,850	115
OKLAHOMA		
UNIVERSITY OF OKLAHOMA		
Industrial medicine: J. S. Felton; travel	2,300	97
Literature: E. E. Noth; travel	2,400	242
S. Lottinville; study	732	229
OREGON		
PORLAND JUNIOR SYMPHONY ORCHESTRA ASSOCIATION		
Commissioning of orchestral compositions	10,000	240
PENNSYLVANIA		
AMERICAN FRIENDS SERVICE COMMITTEE		
Economic and social development: F. G. Friedmann; study	12,300	203
AMERICAN LAW INSTITUTE		
Model criminal code: completion	200,000	214
BRYN MAWR COLLEGE		
Japanese painting: E. D. Psaty; study	500	243
CARNEGIE INSTITUTE OF TECHNOLOGY		
Public school program for contemporary art: support	10,000	240
UNIVERSITY OF PENNSYLVANIA		
History of town and country planning: study	66,000	236
Indian civilization: study	7,500	227
Mayan ruins in Guatemala: excavation and restoration	10,000	256
UNIVERSITY OF PITTSBURGH		
Medicine: I. A. Mirsky; travel	2,675	137
PUERTO RICO		
BUREAU OF THE BUDGET		
Organization and administration of agricultural agencies: survey	85,000	187

GEOGRAPHICAL DISTRIBUTION OF GRANTS 393

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DEPARTMENT OF HEALTH		
Regionalization of medical and public health facilities: development	155,950	100
UNIVERSITY OF PUERTO RICO		
Comprehensive medicine: C. A. Romero; travel	925	93
R. M. Royo; travel	925	93
Visits by senior personnel to the United States	5,000	93
RHODE ISLAND		
BROWN UNIVERSITY		
English language instruction: W. F. Twaddell; study	7,800	248
TENNESSEE		
UNIVERSITY OF CHATTANOOGA		
Higher education: D. A. Lockmiller; travel	2,000	257
VANDERBILT UNIVERSITY		
Social sciences: research	150,000	196
VIRGINIA		
VIRGINIA POLYTECHNIC INSTITUTE		
Veterinary science: research	15,000	173
WASHINGTON		
STATE COLLEGE OF WASHINGTON		
Veterinary science: E. S. E. Hafez; study	9,000	175
WEST VIRGINIA		
AMERICAN SYMPHONY ORCHESTRA LEAGUE, INC.		
Workshops for conductors and music critics: support	109,700	233
WEST VIRGINIA UNIVERSITY		
Physiology of fungi: research	18,000	173
Plant pathology: M. E. Gallegly; travel and research	1,650	173
WISCONSIN		
AMERICAN PHYTOPATHOLOGICAL SOCIETY		
Plant pathology symposia: support	9,000	175
LAWRENCE COLLEGE		
Drama: F. T. Cloak; travel	6,900	240

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UNIVERSITY OF WISCONSIN		
Drama: J. Landau; temporary appointment to Wisconsin Idea Theatre	1,000	243
Medical School: curriculum study	20,000	90
Philosophy: W. F. Goodwin; travel and study	2,750	232
Program in medical genetics: development	25,000	124
NORTH AMERICA		
CANADA		
CANADA FOUNDATION, OTTAWA		
Fellowships in creative writing and criticism	49,750	235
LAVAL UNIVERSITY, QUEBEC		
French-Canadian folklore: L. Lacourcière; study	6,000	232
MCGILL UNIVERSITY, MONTREAL		
Biochemistry: research	56,650	131
Human genetics: research	6,180	127
Political science: K. B. Callard; travel	3,300	211
UNIVERSITY OF SASKATCHEWAN, SASKATOON		
Medical education: travel by teaching staff	3,000	96
UNIVERSITY OF TORONTO		
Phosphatides: research	9,000	136
MEXICO		
AGRICULTURAL OPERATING PROGRAM	174,650	182
CENTER OF LATIN AMERICAN MONETARY STUDIES, MEXICO CITY		
Monetary developments in Latin America: annual survey	36,300	201
CHILDREN'S HOSPITAL, MEXICO CITY		
Radiology: J. Kumate R.; travel and study	2,450	97
MEXICAN INSTITUTE OF NATURAL RENEWABLE RESOURCES, MEXICO CITY		
Arid lands: research	10,000	174
MINISTRY OF AGRICULTURE, MEXICO CITY		
Department of Agricultural Extension:		
M. Arosemena D.; travel	2,000	178
A. Lerma A.; travel	1,600	178
Federal Extension Service: J. Loredo; travel	1,150	179
Seed Multiplication Department: F. Castilla C.; travel	1,700	178
NATIONAL ARCHIVES, MEXICO CITY		
History: J. I. R. Mañé; research	400	233

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NATIONAL UNIVERSITY OF MEXICO, MEXICO CITY		
Comparative literature: M. Quijano T.; study	3,000	242
Institute of Chemistry:		
J. L. Mateos; travel	2,000	137
O. H. Wheeler; research	2,500	137
International Symposium on Algebraic Topology: expenses of participants	2,600	158
School of Medicine:		
R. Perez T.; travel	1,000	98
L. Torregrosa F.; travel	1,359	98
J. M. Torroella y O.; travel	1,359	98
School of Veterinary Medicine: research	14,000	118
Science institutes: research	176,000	118
PAN AMERICAN INSTITUTE OF GEOGRAPHY AND HISTORY, MEXICO CITY		
Commission on History: research	6,400	232
UNIVERSITY OF GUADALAJARA		
Physiology: J. Pisanty; travel	1,150	115
UNIVERSITY OF GUANAJUATO, LEÓN		
Department of Pharmacology: equipment and supplies	10,000	91
UNIVERSITY OF SAN LUIS POTOSÍ		
Department of Physiology: equipment	10,000	91
Medical education: R. Villarreal; travel	2,275	91
CENTRAL AND SOUTH AMERICA		
CORN IMPROVEMENT PROJECT	46,350	185
LATIN AMERICAN SCHOLARSHIPS TO ROCKEFELLER FOUNDATION AGRICULTURAL OPERATING ACTIVITIES	150,000	180
ARGENTINA		
PERGAMINO EXPERIMENT STATION		
Phytopathology: E. F. Godoy; travel	1,800	179
PLANT BREEDING INSTITUTE, CASTELAR		
Laboratory equipment	8,000	176
UNIVERSITY OF BUENOS AIRES		
Faculty of Agronomy and Veterinary Science:		
H. Gravenhorst; travel	1,000	176
Library development	5,000	176
UNIVERSITY OF CUYO, MENDOZA		
Medicine:		
J. C. Fasciolo; travel	2,800	115
J. R. E. Suarez; travel	2,800	115

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UNIVERSITY OF LA PLATA		
Higher education: J. L. Romero; travel	350	250
UNIVERSITY OF TUCUMÁN		
High altitude physiology: research	10,000	114
BOLIVIA		
UNIVERSITY OF SAN SIMÓN, COCHABAMBA		
Agriculture:		
Equipment and supplies	6,000	176
R. Herbas; travel	1,150	176
BRAZIL		
AGRONOMY INSTITUTE OF THE SOUTH, PELOTAS		
Soil science: R. E. Kalckmann; travel	3,850	177
BIOLOGY INSTITUTE OF BAHIA, SALVADOR		
Animal viruses: research	12,500	173
BRAZILIAN MEDICAL ASSOCIATION, SÃO PAULO		
Medical education: conference	7,500	91
BRAZILIAN NURSING ASSOCIATION, RIO DE JANEIRO		
Nursing: H. G. Dourado; travel	1,600	98
FACULTY OF MEDICINE AND SURGERY OF PARÁ, BELÉM		
Parasitology: O. R. da Costa; travel	960	99
INSTITUTE OF BIOLOGY AND TECHNOLOGICAL RESEARCH, CURITIBA		
Cytology: H. S. G. Medina; travel and study	4,700	127
Entomology: research, equipment, and supplies	10,000	174
Enzyme chemistry: B. R. Kupper; travel and study	3,630	137
MEDICAL EDUCATION AND PUBLIC HEALTH FIELD SERVICES	42,300	101
MINISTRY OF AGRICULTURE, RIO DE JANEIRO		
National Service of Agronomic Research: research	15,000	173
PAULISTA SCHOOL OF MEDICINE, SÃO PAULO		
General development	105,000	80
RURAL UNIVERSITY OF THE STATE OF MINAS GERAIS		
Agricultural teaching and research: development	200,000	163
Veterinary medicine: A. V. Machado; travel	2,800	178
SECRETARIAT OF AGRICULTURE, INDUSTRY, AND COMMERCE, STATE OF RIO GRANDE DO SUL		
Central Laboratory of Agricultural Technology: equipment	8,000	175

Amount \$ page

Department of Plant Production: equipment and supplies	4,000	175
Institute of Veterinary Investigations: equipment and supplies	10,000	174

SECRETARIAT OF AGRICULTURE, STATE OF SÃO PAULO

Institute of Agronomy:		
Library development	10,000	175
Research equipment	2,000	175
Institute of Biology: equipment and supplies	1,800	175

UNIVERSITY OF BAHIA, SALVADOR

Department of Physiology: equipment and supplies	10,000	91
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UNIVERSITY OF BRAZIL, RIO DE JANEIRO

Institute of Microbiology:		
General development	63,000	87
I. Suassuna; study	575	129
Cardiology: P. Ginefra; study	1,175	98
Research Center of Brazilian Geography: organization of special courses	10,000	157

UNIVERSITY OF PARANÁ, CURITIBA

Zoology: J. S. Moure; travel	4,150	114
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UNIVERSITY OF RECIFE

Faculty of Medicine: general development	215,000	80
Institute of Cardiology: Dr. and Mrs. Marsico; travel and salary supplement	6,000	91

UNIVERSITY OF RIO GRANDE DO SUL, PÔRTO ALEGRE

Anatomy and physiology: teaching and research	36,000	80
Animal husbandry: J. Grossman; travel	2,250	178
Forage crops: research	75,000	167
Institute of Biophysical Research: research and training	6,500	139

UNIVERSITY OF SÃO PAULO

Ribeirão Preto:

Medicine: J. O. de Almeida; travel and study	3,150	127
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São Paulo:

Drosophila population genetics: research	21,000	125
Faculty of Medicine:		
N. Curi; travel	1,625	98
C. da S. Lacaz; travel	3,000	127
General and animal physiology: P. Sawaya; travel	220	128
General biology: C. Pavan; travel	900	128

VIRUS RESEARCH PROGRAM, BELÉM

57,000 143

	Amount \$	page
CHILE		
AGRICULTURAL OPERATING PROGRAM	119,250	184
BACTERIOLOGICAL INSTITUTE OF CHILE, SANTIAGO		
Animal biology: E. Gallardo; travel	1,300	179
CATHOLIC UNIVERSITY OF CHILE, SANTIAGO		
Faculty of Agronomy: teaching and research equipment	68,000	168
Physiology: H. Croxatto; travel	450	99
EL SALVADOR HOSPITAL, SANTIAGO		
Cardiology: G. Dussaillant G.; travel	1,850	97
DR. D. SANTA CRUZ		
Music and music education: travel	1,200	243
UNIVERSITY OF CHILE, SANTIAGO		
Agriculture and veterinary medicine:		
Equipment and salary supplements	300,000	161
Dr. and Mrs. J. Gomez M.; travel	4,500	176
Biochemistry: J. Cabello R.; travel	2,575	96
Biophysics: research equipment and supplies	10,000	139
Cytology and genetics: research	20,000	126
Genetics: G. Hoecker; travel	515	126
UNIVERSITY OF CONCEPCIÓN		
Faculty of Agronomy: laboratory equipment and supplies	10,000	175
COLOMBIA		
AGRICULTURAL OPERATING PROGRAM	156,750	183
AGRICULTURAL, INDUSTRIAL, AND MINING CREDIT AGENCY OF COLOMBIA, BOGOTÁ		
P. Navas P.; travel	1,700	179
DEPARTMENTAL UNIVERSITY HOSPITAL, CALI		
Medical records section: organization	7,000	105
MINISTRY OF AGRICULTURE, BOGOTÁ		
Office of Special Studies: J. Sierra; travel	1,150	186
UNIVERSITY OF THE ANDES, BOGOTÁ		
School of Premedical Studies:		
General development	570,000	78
Preliminary planning	1,500	98
University administration: J. Restrepo H.; travel	1,600	98
UNIVERSITY OF ANTIOQUIA, MEDELLÍN		
Department of Obstetrics and Gynecology:		
J. Botero U.; travel	1,250	94
Equipment and supplies	4,000	94

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Epilepsy: research	6,500	114
Medical education:		
O. Duque; travel	1,575	94
G. Latorre R.; travel	2,250	94
School of Library Science: development	58,000	88
UNIVERSITY OF CALDAS, MANIZALES		
Faculty of Veterinary Medicine and Animal Husbandry: equipment	10,000	175
UNIVERSITY OF CARTAGENA		
Parasitology: teaching equipment	7,700	91
UNIVERSITY OF VALLE, CALI		
Microbiology: M. Gracian C.; travel	2,100	95
Pathology: H. C. McGill, Jr.; visiting professorship	4,000	94
Preventive medicine: S. Renjifo S.; travel	2,275	94
Psychiatry: C. A. León; travel	1,650	95
COSTA RICA		
INTER-AMERICAN INSTITUTE OF AGRICULTURAL SCIENCES, TURRIALBA		
Animal husbandry: graduate training program	58,500	169
UNIVERSITY OF COSTA RICA, SAN JOSÉ		
Faculty of Agronomy: equipment and supplies	50,000	171
ECUADOR		
CENTRAL UNIVERSITY, QUITO		
Bacteriology: equipment and supplies	10,000	173
INSTITUTE OF VETERINARY INVESTIGATIONS, GUAYAQUIL		
Equipment and supplies	7,500	176
LATECUNGA PRACTICAL SCHOOL OF AGRICULTURE		
Equipment and supplies	10,000	174
PRACTICAL SCHOOL OF AGRICULTURE, DUALE		
Equipment and supplies	10,000	174
JAMAICA		
UNIVERSITY COLLEGE OF THE WEST INDIES		
Obstetrics and gynecology:		
H. C. Dixon; visiting lectureship	5,500	92
Pathology: G. Bras; travel	400	92
Physiology: I. F. S. Mackay; travel	1,350	115
NICARAGUA		
NATIONAL SCHOOL OF AGRICULTURE AND LIVESTOCK, MANAGUA		
Equipment	10,000	174

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PERU	
NATIONAL SCHOOL OF AGRICULTURE, LIMA	
Corn breeding: A. Grobman; travel	2,200 178
Postgraduate instruction and research	87,000 166
UNIVERSITY OF SAN MARCOS, LIMA	
Faculty of Medicine:	
Cell metabolism: M. Villavicencio; research	10,000 136
Curriculum study	12,000 90
Internal medicine: C. Monge, Jr.; travel	1,500 90
Faculty of Veterinary Medicine: equipment	10,000 175
TRINIDAD	
REGIONAL VIRUS LABORATORY, PORT-OF-SPAIN	
A. E. Green: travel	1,450 153
VIRUS RESEARCH PROGRAM, PORT-OF-SPAIN	
	64,000 143
URUGUAY	
MINISTRY OF PUBLIC HEALTH, MONTEVIDEO	
Research Institute of Biological Sciences: fellowships	39,000 124
ORGANIZATION OF AMERICAN STATES, MONTEVIDEO	
Southern Zone Technical Cooperation Program:	
R. Peterson; travel	2,500 178
UNIVERSITY OF THE REPUBLIC, MONTEVIDEO	
Entomology: A. Silveira G.; research	6,000 176
EUROPE	
AUSTRIA	
UNIVERSITY OF GRAZ	
Protein and fat structure: research	15,000 139
UNIVERSITY OF VIENNA	
Pharmacological Institute: equipment	3,600 137
Sociology: L. Roscnmayr; research	4,000 196
BELGIUM	
UNIVERSITY OF LOUVAIN	
Radiotherapy: G. L. J. Van der Schueren; travel	565 99
DENMARK	
CARLSBERG FOUNDATION, COPENHAGEN	
Carlsberg Laboratory: biochemistry; research	90,000 129

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ROYAL ACADEMY OF FINE ARTS, COPENHAGEN		
Architecture: K. Fisker; travel	1,400	243
UNIVERSITY OF COPENHAGEN		
Institutes of Biology and of Experimental Medicine and Surgery: equipment	260,000	117
Institute of Neurophysiology: research	14,000	113
International Congress of Human Genetics: expenses	7,275	127
FINLAND		
FOUNDATION FOR CHEMICAL RESEARCH, HELSINKI		
Biochemical Institute: research	20,000	172
UNIVERSITY OF HELSINKI		
Institute of Forensic Medicine: research	19,500	139
FRANCE		
CONGRESS FOR CULTURAL FREEDOM, PARIS		
Study Group on Academic Freedom: expenses of participants	3,600	257
DR. A. MOLES		
Electronic music: travel	1,200	243
NATIONAL CENTER FOR SCIENTIFIC RESEARCH, PARIS		
Physiological genetics: research	61,000	122
PASTEUR INSTITUTE, PARIS		
Biochemistry: research equipment	8,500	136
UNIVERSITY OF AIX-MARSEILLES		
Biochemistry: Research A. Yoshida; research	25,000 1,600	134 138
UNIVERSITY OF PARIS		
Biochemistry: research	25,000	135
Biophysical chemistry: Professor and Mrs. R. Wurmsler; travel	750	140
GERMANY		
FREE UNIVERSITY OF BERLIN		
American studies: faculty exchange program	3,350	228
German literature: W. Killy; travel and study	5,100	241
Philosophy: conference	1,500	233
GERMAN INSTITUTE FOR ECONOMIC RESEARCH, BERLIN		
German economic policy: H. J. Dernburg; research	5,500	211

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GERMAN SOCIETY FOR INTERNATIONAL RELATIONS, FRANKFURT		
<i>Yearbook of World Politics: preparation</i>	19,400	210
INSTITUTE FOR CONTEMPORARY HISTORY, MUNICH		
Recent German history: research	26,000	230
INSTITUTE FOR ECONOMIC RESEARCH, MUNICH		
Economics: research	24,500	194
INTERNATIONAL YOUTH LIBRARY, MUNICH		
Special program for the development of literature and libraries for children in Asia, Africa, and Latin America: support	35,500	247
UNIVERSITY OF COLOGNE		
Latin American studies: library development	3,500	228
UNIVERSITY OF HAMBURG		
Near Eastern studies: B. Spuler; travel	3,000	228
UNIVERSITY OF HEIDELBERG		
Physiological Institute: research equipment	2,250	115
GREAT BRITAIN		
BRITISH SOCIOLOGICAL ASSOCIATION, LONDON		
Sociology: R. K. Merton; travel	1,000	196
CENTRAL OFFICE OF INFORMATION, LONDON		
Survey methods: L. Moss; travel	5,500	188
FLORENCE NIGHTINGALE INTERNATIONAL FOUNDATION, LONDON		
Planning of nursing studies: conference	10,000	90
ROTHAMSTED EXPERIMENTAL STATION, HARPENDEN		
Statistics: M. J. R. Healy; travel	2,275	158
ROWETT RESEARCH INSTITUTE, ABERDEEN		
Animal nutrition: research equipment	14,000	173
ROYAL CANCER HOSPITAL, LONDON		
Institute of Cancer Research: N. G. Trott; travel	1,800	97
ROYAL INSTITUTE OF INTERNATIONAL AFFAIRS, LONDON		
International studies: research	145,000	205
UNIVERSITY COLLEGE OF NORTH WALES, BANGOR		
American studies: A. H. Dodd; travel	1,000	228
UNIVERSITY OF ABERDEEN		
Forestry: S. D. Richardson; travel	1,125	179
	29,000	188

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UNIVERSITY OF BIRMINGHAM

American economic history: library development	650	196
Experimental pathology: P. G. H. Gell; travel	1,700	138

UNIVERSITY OF CAMBRIDGE

Biologically important molecules: research	87,000	130
Historiography: B. H. G. Wormald; study	3,500	232
Physics and astrophysics:		
C. B. Haselgrove; travel and study	2,500	257
Political theory: G. C. Morris; travel and research	1,570	216
Psychology: research	43,500	111
Virology: research equipment	10,000	152

UNIVERSITY OF DURHAM

Middle Eastern geography: research and training	49,000	200
Oriental studies: I. J. C. Foster; travel	2,500	228
Protein chemistry: research	10,000	135

UNIVERSITY OF EDINBURGH

Animal genetics: C. H. Waddington; travel	900	128
Clinical biochemistry: J. A. Owen; travel	850	137
Pharmacological Laboratory: research equipment	5,000	137

UNIVERSITY OF GLASGOW

Biochemistry: research equipment	5,000	136
Genetics: G. Pontecorvo; travel	1,750	128
Latin American studies: development	6,500	227

UNIVERSITY OF LEEDS

Child psychiatry; W. M. Burbury; travel	2,500	96
Education: W. R. Niblett; travel	2,500	257

UNIVERSITY OF LONDON

Animal genetics: H. Gruneberg; travel	1,000	128
Anthropology: C. von Furer-Haimendorf; travel	850	195
Educational and psychological measurement:		
P. E. Vernon; travel	1,550	195
Embryology: research	2,900	128
Entomology: H. W. Miles; travel	2,800	178
Enzyme chemistry: research	6,960	136
Human biochemical genetics: research	24,000	125
Indian history: H. Singh;		
preparation of source materials for publication	1,500	233
Latin American geography: development	11,600	203
Nutrition: research	49,300	154
Physiology: D. A. McDonald; travel	3,300	114
Sociology and demography:		
Professor and Mrs. D. V. Glass; travel	6,000	195
X-ray crystallography: R. E. Franklin; travel	2,375	152

UNIVERSITY OF OXFORD

Chemistry of biologically important compounds: research	45,000	132
Electron microscopy: R. Barer; travel	1,900	140

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Law library: development	10,000	211
Near Eastern studies: development	7,800	226
Surgery: P. R. Allison; travel	1,350	98
UNIVERSITY OF SHEFFIELD		
International Corresponding Club: expenses of a study group on preventive and social medicine	9,500	91
Microbiology: S. R. Elsden; travel	950	138
VICTORIA UNIVERSITY OF MANCHESTER		
Medicine: R. Platt; travel	1,800	98
Psychiatry: M. Platt; travel	1,800	97
IRELAND		
UNIVERSITY OF DUBLIN		
Economics: research	10,000	203
ITALY		
INTERNATIONAL UNION OF BIOLOGICAL SCIENCES, NAPLES		
Committee on Nomenclature and Symbolization: expenses of participants	3,000	128
UNIVERSITY OF BARI		
Histology and embryology: research	8,000	127
UNIVERSITY OF FERRARA		
Biochemistry: research	40,000	133
UNIVERSITY OF FLORENCE		
Plant physiology: research	9,000	127
UNIVERSITY OF MILAN		
Genetics: C. Barigozzi; travel	600	129
UNIVERSITY OF PADUA		
Chemistry of fats and proteins: research equipment	7,000	136
Organic chemistry: research	10,000	136
Virology: research	10,000	152
UNIVERSITY OF PARMA		
Plant physiology: research	3,500	127
UNIVERSITY OF PAVIA		
Genetics: G. E. Magni; travel	3,500	127
Housefly resistance to insecticides: research	1,500	127
UNIVERSITY OF PERUGIA		
Plant viruses: research equipment	15,000	152

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UNIVERSITY OF PISA		
Institute of English and American Literature: library development	3,750	228
UNIVERSITY OF ROME		
Biochemistry: research	30,000	133
Philosophy: translation	3,250	228
UNIVERSITY OF SIENA		
Neurophysiology: research equipment	3,500	114
ZOOLOGICAL STATION OF NAPLES		
Library building	85,000	121
NETHERLANDS		
DUTCH ECONOMIC INSTITUTE, ROTTERDAM		
Department of Balanced International Growth: research and training	29,400	202
UNIVERSITY OF GRÖNINGEN		
Protein research: equipment	900	138
UNIVERSITY OF Utrecht		
Plant physiology: research equipment	12,000	139
NORWAY		
UNIVERSITY OF OSLO		
Experimental biology: research	15,000	113
Norwegian national budget: P. J. Bjerve; research	2,500	212
SWEDEN		
KAROLINSKA INSTITUTE, STOCKHOLM		
Physiology: research	22,000	113
ROYAL VETERINARY COLLEGE, STOCKHOLM		
Animal physiology: research equipment	1,100	115
STATE INSTITUTE FOR HUMAN GENETICS, UPPSALA		
Human genetics: research	50,000	123
UNIVERSITY OF LUND		
Gynecology: L. P. Bengtsson; study	600	99
Second Symposium on Neurosecretion: expenses of participants	800	116
UNIVERSITY OF UPPSALA		
Biophysics: T. Teorell; travel	2,825	96
Experimental biology: research equipment	7,500	127
Statistics: H. Wold; travel and study	3,375	196

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SWITZERLAND	
EUROPEAN ASSOCIATION FOR AMERICAN STUDIES, ZURICH	
General support	6,000 227
FEDERAL TECHNICAL INSTITUTE, ZURICH	
Plant cytology: research equipment	3,500 140
M. FRISCH	
City planning: travel	1,000 243
GENEVA GRADUATE INSTITUTE OF INTERNATIONAL STUDIES	
International politics: research and training	30,000 209
UNIVERSITY OF BERN	
Plant physiology: research facilities	12,500 113
UNIVERSITY OF GENEVA	
Human genetics: research	10,000 126
Virology: research	9,500 152
UNIVERSITY OF LAUSANNE	
Histology and embryology: O. M. Bucher; travel	700 129
UNIVERSITY OF ZURICH	
Zoology and comparative anatomy: E. Hadorn; travel	750 129
AFRICA	
KENYA	
DEPARTMENT OF AGRICULTURE, NAIROBI	
Wheat improvement: H. C. Thorpe; travel	4,550 176
UGANDA	
EAST AFRICAN VIRUS RESEARCH INSTITUTE, ENTEBBE	
Virology: research equipment	10,000 152
UNION OF SOUTH AFRICA	
VIRUS RESEARCH PROGRAM, JOHANNESBURG	24,000 143
MIDDLE EAST	
IRAQ	
IRAQ DEVELOPMENT BOARD, BAGHDAD	
Developmental planning: A. J. Chalabi; travel	6,500 227
MEDICAL EDUCATION AND PUBLIC HEALTH FIELD SERVICES	12,000 101

GEOGRAPHICAL DISTRIBUTION OF GRANTS 407

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ROYAL FACULTY OF MEDICINE, BAGHDAD	
Medical education: S. Shawket; travel	550 99
Medical Research Institute: research	9,900 126
ISRAEL	
HADASSAH UNIVERSITY HOSPITAL, JERUSALEM	
Physiology: research equipment	5,000 114
LEBANON	
AMERICAN UNIVERSITY OF BEIRUT	
Arab Studies Program: support	216,000 219
School of Public Health: visiting professorships	5,300 92
FRENCH INSTITUTE OF ARCHAEOLOGY, BEIRUT	
Archaeology: J.-C. Gardin; travel	2,400 232
TURKEY	
H. FUREYA	
Ceramics: travel	3,800 242
NATIONAL CONSERVATORY OF ANKARA	
Drama: N. Sevin; travel	5,800 241
ROBERT COLLEGE, ISTANBUL	
Humanities: development of courses	10,000 226
Scholarships for future faculty members	350,000 252
UNIVERSITY OF ANKARA	
American studies: faculty appointments	30,000 225
Department of Child Health: development	100,000 85
Economic development: lecture series	4,500 204
UNIVERSITY OF ISTANBUL	
Economic development: lecture series	4,500 204
History:	
O. L. Barkan; research and writing	30,000 202
T. Z. Tunaya; research	7,500 227
Literature:	
F. Iz; study	1,800 242
B. Moran; travel and study	2,300 243
SOUTHERN ASIA	
INDIA	
AGRICULTURAL OPERATING PROGRAM	275,000 181
ALIGARH MUSLIM UNIVERSITY	
Law: H. Rahman; travel	1,050 212

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ALL INDIA RADIO, MADRAS			
Music: N. Menon; travel and study		3,900	242
ALLAHABAD AGRICULTURAL INSTITUTE			
Agricultural engineering:			
Professor C. M. Jacob; travel and study		4,000	173
Agricultural research: support		10,000	173
ANDHRA UNIVERSITY, WALTAIR			
Higher education: V. S. Krishna; travel		4,525	227
Linguistics: library development		1,000	250
ANNAMALAI UNIVERSITY, ANNAMALAINAGAR			
Linguistics: library development		1,000	250
BALWANT RAJPUT COLLEGE, AGRA			
Agriculture:			
Buildings and equipment		70,000	166
Extension organization: A. N. Bhatnagar; travel		4,000	177
Student aid program: support		10,000	166
CHRISTIAN MEDICAL COLLEGE, LUDHIANA			
Department of Preventive Medicine: support		30,000	75
CHRISTIAN MEDICAL COLLEGE, VELLORE			
Medical education:			
J. S. Carman; travel		2,550	96
Outpatient teaching building; construction		115,300	75
Staff development and salary supplements		252,100	75
DECCAN COLLEGE, POONA			
Indian languages: study		126,775	222
GOVERNMENT OF UTTAR PRADESH, LUCKNOW			
Sanitary engineering: R. D. Varma; travel		3,950	95
GUJARAT UNIVERSITY, AHMEDABAD			
Linguistics: library development		1,000	250
INDIAN CANCER RESEARCH CENTRE, BOMBAY			
Biochemistry: T. B. Panse; travel		3,950	137
Biophysics: research equipment		7,000	139
INDIAN COUNCIL OF MEDICAL RESEARCH, DELHI			
Neurology: research		88,200	109
INDIAN COUNCIL OF WORLD AFFAIRS, DELHI			
Collection of information concerning M. N. Roy		10,000	231
Library development		10,000	211
INSTITUTE OF AGRICULTURE, ANAND			
Library development		10,000	174

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LITERARY SOCIETY OF BENGAL, CALCUTTA		
Modern Bengal: S. Ray; study	1,575	232
MADRAS MEDICAL COLLEGE		
Department of Pediatrics: research equipment	2,500	96
MALARIA INSTITUTE OF INDIA, DELHI		
F. W. Knipe: equipment and supplies	6,000	103
MEDICAL COLLEGE, LUCKNOW		
Microbiology and serology: S. P. Gupta; travel	4,175	94
MEDICAL EDUCATION AND PUBLIC HEALTH FIELD SERVICES	19,225	101
R. K. NARAYAN		
Literature: travel	5,850	241
PASTEUR INSTITUTE, CONOOR		
Virology: A. Balasubramanian; travel	1,950	152
PLANNING RESEARCH AND ACTION INSTITUTE, LUCKNOW		
Agriculture: D. P. Singh; travel	4,000	177
ROBERTSON COLLEGE, JABALPUR		
Public administration: A. Avasthi; travel	875	205
SETH GORDHANDAS SUNDERDAS MEDICAL COLLEGE, BOMBAY		
Medical education:		
Equipment and supplies	197,000	75
Laboratory and office space; construction	76,300	75
S. G. Vengsarkar; travel	4,450	93
TOPIWALA NATIONAL MEDICAL COLLEGE, BOMBAY		
Medical education: L. Monteiro; travel	4,100	94
UNIVERSITY GRANTS COMMISSION, NEW DELHI		
Higher education: S. Mathai; travel	1,000	250
UNIVERSITY OF BARODA		
Sociology: M. N. Srinivas; travel, research, and writing	9,000	203
UNIVERSITY OF BOMBAY		
Fish marketing procedures in Southeast Asia: research	3,500	204
UNIVERSITY OF CALCUTTA		
Higher education: N. K. Sidhanta; travel	3,600	228
UNIVERSITY OF DELHI		
Urdu literature and Indian life:		
K. A. Faruqi; travel and study	4,050	241

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UNIVERSITY OF LUCKNOW	
King George's Medical College:	
Building construction	136,250 75
Expenses of housing interns and residents	163,500 75
Library development	10,000 75
Surgery; R. V. Singh; travel	4,350 93
Virology; research	10,000 152
UNIVERSITY OF MADRAS	
Biochemistry: P. S. Sarma; travel	2,675 137
Catalogus Catalogorum of Sanskrit texts: V. Raghavan; preparation	10,000 231
UNIVERSITY OF MYSORE	
Zoology: B. R. Seshachar; travel	1,675 128
VIRUS RESEARCH PROGRAM, POONA	61,250 143
INDONESIA	
AGRICULTURAL EXPERIMENT STATION, BOGOR	
Rice research: H. Siregar; travel	1,450 179
ART ACADEMY OF THE REPUBLIC OF INDONESIA, DJOGJAKARTA	
Art education: M. Koesoemaatmadja; travel and study	5,500 241
GADJAH MADA STATE UNIVERSITY, DJOGJAKARTA	
University administration: A. Afandi; travel and study	4,025 249
A. HAMID	
English language instruction: travel and study	1,375 250
HIGHER SCHOOL OF ISLAMIC STUDIES, "GARDEN OF LAW," BUKITTINGGI	
Library development	2,000 249
INDONESIAN NATIONAL THEATRE AND ACADEMY FOUNDATION, DJAKARTA	
Equipment and supplies	2,000 243
ISLAMIC UNIVERSITY OF NORTH SUMATRA, MEDAN	
Library development	2,000 249
MINISTRY OF EDUCATION, INSTRUCTION, AND CULTURE, DJAKARTA	
Education: The Jang Lok; travel and study	6,475 248
Provincial Library: development	6,000 249
PEMBANGUNAN FOUNDATION, DJAKARTA	
Publishing: Soedjatmoko M.; travel	1,300 250
UNIVERSITY OF INDONESIA, BANDUNG	
Art library: development	2,000 243

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MALAYA**UNIVERSITY OF MALAYA, SINGAPORE**

Art: teaching materials	2,000	243
International studies: library development	1,500	212
Medical education:		
T. A. L. Davies; travel	3,775	95
W. A. Nicholas; travel	3,450	95
Poetry and speech recordings	500	243
Virology: research	73,800	141

PAKISTAN**FORMAN CHRISTIAN COLLEGE, LAHORE**

Rural sociology: J. J. Mangalam; study	2,400	204
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GOVERNMENT INSTITUTE OF ARTS, DACCA

Art: Z. Abedin; travel	8,700	240
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PAKISTAN INSTITUTE OF INTERNATIONAL AFFAIRS, KARACHI

Library development	4,000	211
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UNIVERSITY OF DACCA

Language instruction: teaching materials	3,000	249
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UNIVERSITY OF THE PUNJAB, LAHORE

College of Animal Husbandry: equipment and supplies	9,750	175
College of Home and Social Science: library development	9,500	175

THAILAND**CHULALONGKORN HOSPITAL, BANGKOK**

Virology: Ambhan D.; travel	1,250	153
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KASETSART UNIVERSITY, BANGKOK

Agriculture: equipment and supplies	50,000	170
Library development	10,000	174
University administration: Prince M. C. Chakrabandhu and M. V. Chakrabandhu; travel	9,200	174

MINISTRY OF PUBLIC HEALTH, BANGKOK

University of Medical Sciences: equipment	10,000	91
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FAR EAST**AUSTRALIA****AUSTRALIAN NATIONAL UNIVERSITY, CANBERRA**

Physiology: R. Araldsson; appointment	800	115
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UNIVERSITY OF ADELAIDE

Biochemistry: P. M. Nossal; study	435	138
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UNIVERSITY OF MELBOURNE		
Medical education: J. G. Hayden; travel	1,000	97
Pediatrics: J. H. Colebatch; travel	2,200	97
UNIVERSITY OF SYDNEY		
Medical education: C. R. B. Blackburn; travel	4,500	93
WALTER AND ELIZA HALL INSTITUTE OF MEDICAL RESEARCH, MELBOURNE		
Virology: research	60,000	142
FIJI ISLANDS		
CENTRAL MEDICAL SCHOOL, SUVA		
Medical education: A. R. Edmonds; travel	5,350	92
JAPAN		
ATOMIC BOMB CASUALTY COMMISSION, HIROSHIMA		
Medicine: Dr. and Mrs. H. Maki; travel	8,050	91
FUKUSHIMA MEDICAL COLLEGE		
Uterine physiology: Taizo Suzuki; research	8,400	114
HIROSHIMA UNIVERSITY		
International relations: T. Horikawa; study	175	212
HOKKAIDO UNIVERSITY, SAPPORO		
Entomology: C. Watanabe; travel	4,200	177
Zoology: Dr. and Mrs. T. Tanaka; travel	1,250	128
INSTITUTE OF PUBLIC HEALTH, TOKYO		
Industrial and nuclear medicine: Takeo Suzuki; travel	4,700	93
INTERNATIONAL INSTITUTE FOR THE STUDY OF RELIGIONS IN JAPAN, TOKYO		
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KEIO UNIVERSITY, TOKYO		
Japan Library School: support	60,000	245
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Building construction	290,000	83
I. Mikata; travel	5,400	92
KOBE COLLEGE, NISHINOMIYA		
M. A. Cheek: visiting lectureship	1,050	250
KOBE UNIVERSITY		
Business administration: K. Tanaka; study	775	205

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KYUSHU UNIVERSITY, FUKUOKA

Chinese thought: research	10,800	231
Medical education: K. Kaida; travel	4,825	93
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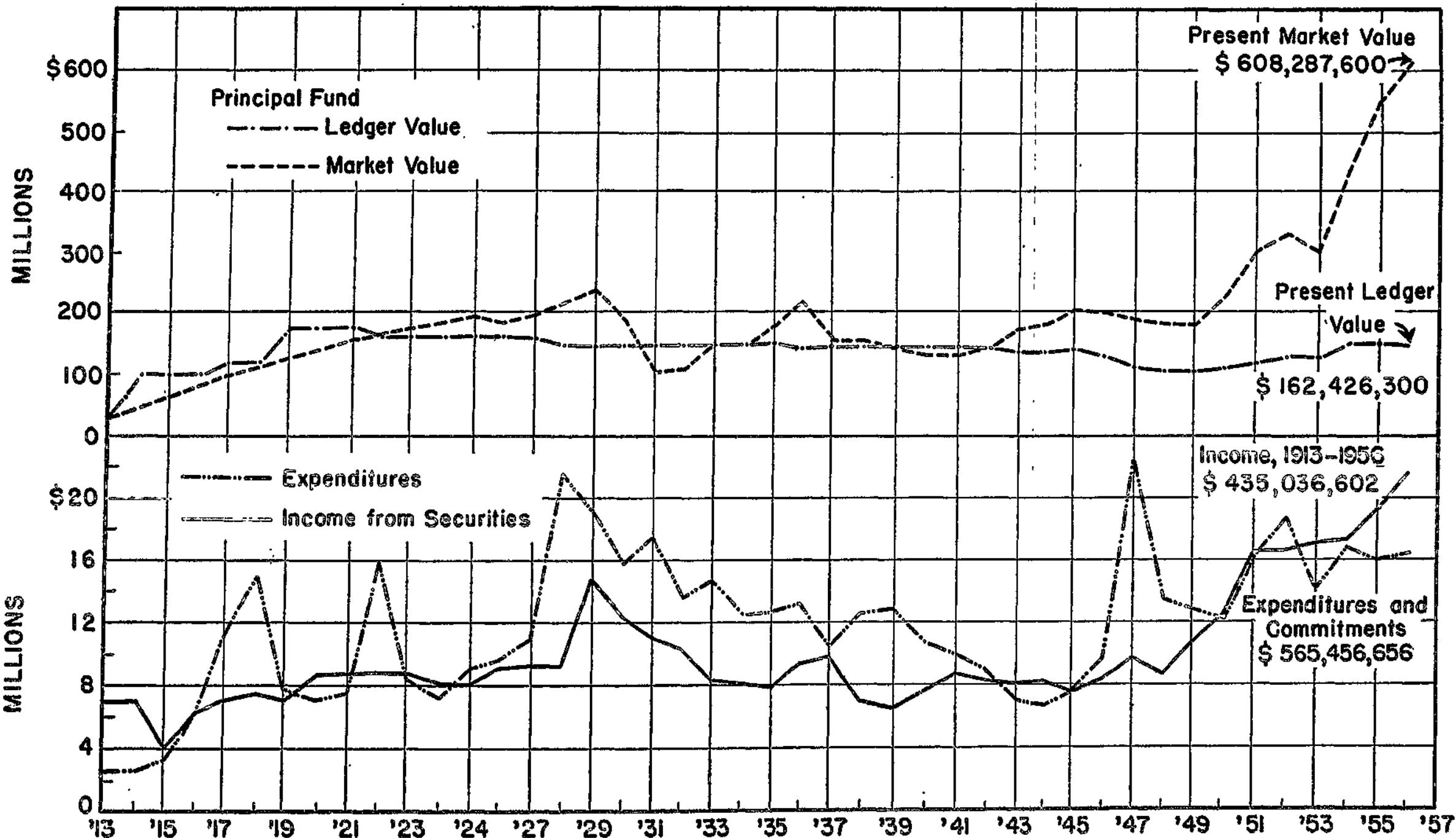
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THE ROCKEFELLER FOUNDATION, FINANCIAL SUMMARY, 1913-1956



NOTE. The rise in income beginning in 1939 and the increase in the market value of the Principal Fund beginning two years later must be interpreted, in part, in terms of rising wholesale and retail price levels during those and later years. The excess of expenditures over income in some years is accounted for by payments from Principal Fund.