

The  
Rockefeller Foundation  
Annual Report, 1954

THE ROCKEFELLER  
FOUNDATION

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**THE ROCKEFELLER FOUNDATION**  
**Trustees, Officers, and Committees**

# The Rockefeller Foundation

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*April 1954 - April 1955*

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<sup>1</sup> Beginning July 1, 1955. <sup>2</sup>To June 30, 1955.



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 1954, together with detailed reports of the Treasurer of the Foundation and of the Directors for the Divisions of Medicine and Public Health, Natural Sciences and Agriculture, Social Sciences, and Humanities for the period January 1, 1954 to December 31, 1954.

Respectfully yours,  
Dean Rusk  
*President*



**The  
President's Review  
1954**



## Introduction

It is customary for the president of The Rockefeller Foundation to give the public, in addition to the Annual Report, a broad review of the year's work. The Report describes in considerable detail what the Foundation does and accounts publicly for the custody and use of the funds entrusted to it. The president, in his review, comments upon the underlying policies which lead the Foundation to work in some directions and not in others, expresses some of the hopes implicit in the use of its funds, and calls attention to significant changes of emphasis which seem required by the shifting scenes of circumstance. Since the basic policies set by the Trustees of the Foundation show continuity over periods of years, the president's review does not burden the reader with a repetitious annual statement of the continuing philosophy of Foundation action. As a running commentary, this present review should be read as a sequel to the review for 1953.

In addition, the Foundation issues quarterly reports which provide brief descriptions of actions taken during the preceding three months. These three publications are the Foundation's response to the obligation which it feels that it has to make its activities known to anyone who is interested. The obligation derives from the Foundation's concept of good policy for a public trust and not from any present legal obligation. Its funds were placed in trust by Mr. John D. Rockefeller for a public purpose, under laws and public policies which encouraged such a use of private resources. This

commitment to a public purpose led the Trustees to the conclusion in 1913 that the public should know how the Foundation's funds were being spent. In more recent years the income tax exemption feature added to the reasons for making a full public disclosure. The Rockefeller Foundation has informed the Congress that it would support legislation requiring full public reporting on the activities of tax-exempt foundations. It did so because it supports the legitimate use of private resources for public purposes and believes that full disclosure is an important guarantee that the privileges accorded to philanthropy will not be abused.

## Summary of Appropriations in 1954

The Rockefeller Foundation made appropriations in 1954 amounting to \$19,107,665. Of this amount, \$5,102,796 was directed to work in medicine and public health; \$4,830,220 to the natural sciences and agriculture; \$3,041,530 to the social sciences; \$3,335,267 to the humanities; and \$818,000 to purposes not readily classifiable under the above headings. In addition, \$1,979,852 was appropriated for administration and for services rendered directly by the Foundation's own professional staff. Included in the above figures was \$1,025,000 for Rockefeller Foundation fellowships.

The unallocated capital funds of the Foundation had a market value of \$442,958,445 as of December 31, 1954.

A complete financial statement for the year 1954 appears in the Annual Report.

## The Development of Individual Capacity

Just over forty years ago, in the winter of 1914-15, four Chinese embarked upon advanced foreign training under the auspices of The Rockefeller Foundation. These men had been recommended to the Foundation by its China Medical Commission, then in China to survey the medical needs and opportunities in that vast country. Two years later, three promising young medical scientists in Brazil were awarded the first fellowships to be called Rockefeller Foundation fellowships. Along that trail have now come more than 7,000 others, from 92 different countries and territories, to study in more than 250 institutions of higher learning in at least 20 countries.

During 1954 The Rockefeller Foundation made 169 new fellowship appointments, and continued 165 fellowships awarded in previous years. Of the total of 334 fellows active during the year, 149 were studying in the fields of medicine and public health; 96 in the natural sciences and agriculture; 41 in the social sciences; and 48 in the humanities. The fellows came from 44 different countries, and from the World Health Organization.

In addition to fellowships, the Foundation aids individual training through travel grants and small grants in aid, where formal requirements for the fellowship are not present or this type of assistance is not suitable. Moreover, many other grants for specific research or scholarly undertakings include training features. The Foundation also uses to the fullest practicable extent its own operations in medicine and agriculture as a training ground for younger men.

Apart from grants and activities financed and ad-

ministered directly by the Foundation, substantial sums have been made available to scientific and professional bodies for the support of fellowship and scholarship programs. These include such groups as the National Research Council of the National Academy of Sciences, the Social Science Research Council, and the American Council of Learned Societies in the United States; the British Medical Research Council; and the Social Science Research Council and Humanities Research Council of Canada. Certain of these agencies administered 124 fellowships during 1954.

Fellowships offer little in dramatic interest to the general public; though the drama is there, it unfolds slowly, and on small and scattered stages. Yet no theme is more persistent in the published records of the Rockefeller boards than their concern for the younger scientist and scholar of unusual promise — and no investment seems, in retrospect, to have been more rewarding than the funds applied to their advancement.

If individual training looms large in the Foundation's program, it could not be otherwise. Collective terms like "mankind," "public health," "increased production," and "international understanding" encompass but often conceal real people. Improved medicine means, among other things, more and better trained doctors and nurses; research requires inquisitive minds brought to bear upon a problem; good government calls for honest and informed legislators and other public officials. The point need not be labored, but it serves as a reminder that the advancement of knowledge occurs through imaginative and skilled individuals, increased food production calls for men who know how to do something about it, and understanding across

national or cultural barriers comes through perceptive people.

These truisms take on more meaning with the realization that trained leadership in all aspects of human affairs is in short supply. The words so often spoken from commencement platforms, "there is plenty of room at the top," are trite, but they were never more true. A frequent subject of inquiry to the Foundation is the matter of locating or training qualified leadership for worth-while undertakings. The keen rivalry among scientific and learned professions for a larger "share" of the best students of high school and college reflects the shortage where the best are needed. Nor is the need likely to diminish. The increasingly complex structure of our national and international society, our growing dependence upon advanced technology for our daily living, and the rapid extension of human knowledge in many directions call for a sustained training effort.

Typically, the Rockefeller Foundation Fellow lives in a foreign country, although since 1914 more than 1,250 have come from the United States. He has completed his formal training and the usual advanced degrees. He is employed in a university, research institute, or in a post of government. He is usually called to the attention of an officer of the Foundation by the institution where he is at work; direct applications are not encouraged. Frequently, the officer learns about him while visiting the institution in question. This allows a prompt interview, for a personal interview by an officer is required. In this informal talk, the officer gets a feel of the potential fellow's intellectual quality and personality, learns what impels the candidate toward advanced study, and hears something of his hopes for the

future. If the prospect is highly promising and the institution is anxious for him to have this opportunity and will have a post for him on his return, the next question is whether available funds can meet his needs in competition with others similarly qualified.

If our typical fellow is clearly in line for a fellowship, his study plan is carefully considered with him and may be discussed with the institution where he hopes to work — usually with the scientist or scholar who would give him guidance. After appointment, he is assisted in his travel arrangements by the staff of the Foundation, for unfamiliar details can be disconcerting, to say the least. During his period of study, he may be visited by a representative of the Foundation, not to supervise but to encourage him and to facilitate his success. If he has not found what he was seeking, or if his own performance is discouraging to him and to his professors, adjustments can sometimes be made to give him a better result. If he fills all expectations and needs more time than originally planned, an extension of the fellowship is frequently arranged. In some cases, he is encouraged to bring his family with him and, in all cases, to learn something of the country in which his studies are pursued.

Upon his return home and the resumption of the post which is awaiting him, he is normally visited within a year or two by a Foundation officer, this time to get impressions of his experience as a fellow and any helpful suggestions which he might have for the Foundation itself in the handling of fellowships; this follow-up visit also serves to let the fellow know that the Foundation has a sympathetic interest in his future career. Occasionally, if the returning fellow finds that he needs a

piece of equipment, research materials or a few books to maintain the momentum of his professional advancement, such might be made available to him. Former fellows have found themselves among successful applicants for Foundation assistance to their research or scholarship under the Foundation's general program, but the fellowship itself confers no competitive advantage.

The pattern sketched above shows a considerable amount of attention to each fellow on the part of the Foundation, and this means administrative costs. It is felt, however, that the principal investment in the fellowship stipend and travel is more likely to be productive if careful selection, sympathetic assistance, and a measure of follow-up are a part of the program. The intention is not to keep the fellow on leading strings but to give him the support and the benefit of the Foundation's experience in opening up his opportunity for fullest use.

What do the fellowships produce? Here one must be careful. A former colleague remarked that if the Foundation should follow the same careful selection procedure and, instead of awarding a fellowship, should tattoo a mark on the man selected, he would rise to a high level of attainment without the fellowship. There is some truth in the remark, but when it was relayed to a distinguished American scientist, himself a former fellow, he replied, "Perhaps, but I'm glad that I got a fellowship and not a tattoo mark!"

The fellowship is, of course, only a one- or two-year episode in the life of a man who has already shown unusual capabilities, and his future success is attributable to his own performance. But in most cases the fellow-

ship comes at a crucial phase in a man's development, when he needs the extra stimulation and assistance to move him beyond the limits of his formal training. It gives him a chance, often for the first time, to join and appreciate that international society of science and scholarship which, since medieval times, has disregarded the local frontier to match ideas and produce the intellectual ferment out of which so much new knowledge has come.

The principal legacy of a sustained fellowship program is not necessarily its brilliant stars — although there is satisfaction from a Nobel prize — but the considerable group of able men who hold positions of leadership in science and letters who might have had their horizons broadened and their aspirations lifted by the associations formed in their fellowship experience. The Foundation has been encouraged both by the roles which are being played by former fellows and by the fact that comparatively few are lost to the fields for which they were trained. A recent review was made of the present activities of men receiving fellowships in a sample year, and 1939 was selected. The report on this group, as of 1954, shows the following:

**ROCKEFELLER FOUNDATION FELLOWS  
15 YEARS LATER**

Total fellowships awarded in 1939	190
Active in the fields for which they were trained:	
As presidents, deans, and professors in educational institutions	76
As administrators and research workers in governmental units	45
As administrators, doctors, nurses, and research workers in private hospitals and privately controlled non-profit institutions	29
In business and industry	7
In private practice	8
Active in closely related fields	8
Out of Field	5
Unknown	2
In Iron Curtain Countries	4
Deceased	6
	190

**A Growing Role in Agricultural Cooperation**

Two types of activity make up the Foundation's agricultural program: the direct operations conducted by its own professional staff and the grants it makes to other institutions for research and training. Both are discussed in more detail in the Annual Report. This section summarizes the efforts of the Foundation, in collaboration with others, to extend improvements in agricultural production over wider areas. It is the role of a single foundation which is here reported; international cooperation in agriculture is expanding rapidly through the efforts of governments, international or-

ganizations, and other foundations and private groups. In scale, The Rockefeller Foundation's contribution is modest, but it has some interesting features.

#### THE BEGINNING IN MEXICO

Although other Rockefeller boards, particularly the General Education Board and the International Education Board, had given considerable attention to agriculture in the United States, The Rockefeller Foundation's interest was incidental until it was stimulated by the opportunity presented in Mexico in the years 1941-43. The first step was a decision by the Trustees to entertain proposals if the situation seemed promising. The second was a careful reconnaissance. In 1941, an advisory group of three eminent agricultural scientists spent several months in Mexico, on behalf of the Foundation, to study the needs and the possibilities for constructive action. These men were Dr. E. C. Stakman of Minnesota, Dr. Richard Bradfield of Cornell, and Dr. Paul C. Mangelsdorf of Harvard, all of whom have continued to be associated with the Foundation's agricultural program. Their report on Mexico strongly recommended Foundation action and outlined possible first steps.

The visit of the advisory group was followed, in early 1943, by an urgent request from the Government of Mexico that the Foundation join with it in a cooperative program of agricultural research and development in that country, with an emphasis upon its basic food crops, corn, wheat, and beans. The Foundation's interest was pursued under the direction of Dr. Warren Weaver, then Director of the Division of Natural

Sciences. An agreement with Mexico soon followed, under which an Office of Special Studies was organized as an integral part of the Ministry of Agriculture with Dr. J. George Harrar, of the Foundation, as its Director. This seemingly unusual relationship, adapted from similar arrangements used by the Foundation in its public health work, operated smoothly and with a minimum of complication from the very beginning. The official responsibilities of the Ministry and of the Government of Mexico have been fully respected by the representatives of the Foundation, and the latter's status as a nonpolitical and disinterested philanthropy has been understood and appreciated by our Mexican colleagues. Cooperation on details has been greatly simplified by the deep commitment of both parties to the agreement and to the common purpose behind it, namely, the improvement of the production of the basic food crops and of the nutritional level of the Mexican people.

For the first three or four years, little happened to attract public attention. Dr. Harrar and the first few colleagues to join him were busy laying solid foundations. They had to learn the country intimately if they were to understand its agricultural problems; they had to make friends with its people and perfect their use of its language. They had to locate the institutions and individuals who might be able to play an important role in the new development. Some of the institutions were given financial help, some of the individuals opportunities for advanced training in the United States. With their Mexican associates, the staff began to collect and classify native varieties of the basic food crops, and the search for improved varieties began. By gradual stages the program took shape; more Foundation staff were

assigned, more Mexican personnel and financial support were made available; experiment stations were improved and new ones came into being; the range of the research effort expanded; agricultural schools were strengthened; intensive training programs became a part of the work in Mexico itself, and fellowships sent Mexican graduates away for further study. As improved varieties came out of the research stations, the Ministry arranged for their multiplication and distribution. Interest within the agricultural community, particularly among the leadership, began to grow and field demonstrations tempted the participation of the smaller farmers. Increased yields began to be felt on a national scale.

By 1954 the program had developed considerable momentum; with the Foundation concentrating largely on the scientific side, the President and Minister of Agriculture had launched an emergency extension effort to spread its results even more widely. The primary interest and larger contribution became Mexican, although professional technical direction continued to be supplied by the Foundation staff, now under the local direction of Dr. Edwin J. Wellhausen. Mexican agricultural scientists, trained in part in the joint program, began to provide leadership in the agriculture schools and to fill key posts in government service.

The primary aim of the Mexican program has been to contribute directly to the increased production of Mexican food crops through improved plant varieties and agronomic practices, as well as to establish agricultural science as a strong profession in that country. In the background has been the hope that progress in Mexico could be transplanted elsewhere; in a sense, the

Mexican program has served as a base for further effort. It is a training center for both Mexican and North American personnel; it is a unique center for certain types of research; and it gave the Foundation invaluable experience in working closely with a ministry of agriculture toward a common goal.

#### THE COLOMBIAN PROGRAM

By the late 40's, the Foundation began to consider how it might make its experience in Mexico available elsewhere, and requests began to arrive to establish cooperative programs in other countries. Colombia seemed to offer an excellent opportunity. Again, action was preceded by a careful reconnaissance and responded to the expression of a lively interest on the part of the Government of Colombia. Again, an agreement was reached which established an Office of Special Research in the Ministry of Agriculture under the direction of Dr. Lewis M. Roberts, who was moved from the program in Mexico.

The details of progress in the Colombian effort are to be found in the Annual Report. It is of interest here to note that the experience in Mexico enabled the Colombian program to move more rapidly and with a smaller Foundation staff than would otherwise have been possible. The Foundation's agricultural scientists, technically trained in the United States, learned in Mexico how to work with the scientists and authorities of another country for the improvement of food production. Some of these were moved to Colombia to build upon their earlier experience in a new situation. Colombia itself had a cadre of competent agricultural experts,

some of whom had received advanced training in the United States under Foundation fellowships and others of whom had worked with the program in Mexico. Agricultural schools and experiment stations in Colombia showed a strong potential and were in position to make good use of opportunities for advanced training. The Ministry of Agriculture recognized the need for and the possibilities of a joint venture and extended warm cooperation. Scientific problems could be tackled in cooperation with the Mexican program and with full utilization of the advances made in the earlier experience. In 1954, the Mexican program required some sixteen professional staff furnished by the Foundation; the Colombian program used ten, but it is not unlikely that the Colombian effort will show a comparable impact upon the nation's economy despite the smaller investment by the Foundation. It remains to be said that Colombia itself has matched the Foundation's support many times over through buildings, experiment stations, Colombian personnel, and other contributions.

#### THE CHILEAN PROGRAM

In 1954 the Foundation decided to extend its operating program into one more country, this time in response to an urgent invitation from the Government of Chile. Here methods followed the patterns set in Mexico and Colombia, and Dr. Joseph A. Rupert was drawn from the Colombian staff to direct the joint effort in Chile. For reasons discussed above, it is contemplated that the Chilean program will require fewer Foundation staff than were used in Mexico or Colombia, and its scientific work will be closely associated with the older programs.

## THE CENTRAL AMERICAN CORN IMPROVEMENT PROJECT

As the Mexican and Colombian programs began to show significant results, interest mounted elsewhere. The governments of Central America had followed the two programs closely and had encouraged the training of some of their own agricultural scientists in Mexico and Colombia. Since corn is a major item in the diet of Central America, the Governments of Honduras, El Salvador, Nicaragua, Costa Rica, and Panama asked for Foundation assistance in obtaining for their countries the benefits of the advances being scored in the other programs. The result is a cooperative program among the several Ministries of Agriculture in developing improved varieties, exchanging information, and increasing seed production and distribution facilities. Toward this effort the Foundation contributes modest financial support and the technical advice of its own staff. It does not have permanent staff representation in the program, but provides maximum technical and scientific cooperation.

### THE TRAINING OF PERSONNEL

A serious limiting factor in the improvement of Latin American agriculture is the comparative shortage of highly trained agricultural scientists. The Foundation has attempted, therefore, to use the facilities of its cooperative programs to provide training opportunities. The operating programs accept candidates for training from other countries; for example, 27 graduates of agricultural colleges in other countries of Latin America came to Mexico in 1954 for study and research,

bringing the total for that program to well over 350. The Colombian program is similarly used. Selected graduates of the operating programs are awarded fellowships and scholarships for advanced training in the United States; in 1954 there were 16 Mexican agricultural scientists engaged in such training. Local professional staff assigned by the Ministries to the operating programs receive excellent training and experience; there results a steady flow of qualified leadership into the agricultural schools, extension services, other governmental assignments, and private employment.

#### PUBLICATIONS, LIBRARY SERVICES, AND SCIENTIFIC EXCHANGE

The research results obtained by the Foundation's agricultural staff and their Latin American colleagues are reported in articles in a variety of publications and made widely available in both Spanish and English. These are collected periodically for binding in single volumes for a selected distribution. In 1954 some 20 such articles and bulletins appeared on the basis of findings in the Mexican and Colombian programs.

In addition, the Foundation has encouraged the development of more adequate library facilities. An excellent working library is an important part of the Mexican program, and a similar collection is being assembled in Colombia. Dr. Dorothy Parker, the Foundation's librarian in Mexico, travels extensively in Central and South America to assist local libraries with her advice and experience.

Published articles and libraries assist the maintenance of communication with scientific effort in other

countries, but special attention is given to the necessity for keeping abreast of the latest advances in knowledge or techniques. The Foundation frequently invites specialists to spend time in Mexico or Colombia to review its work in a particular field and to make suggestions for its improvement. These temporary scientific consultants are an important link to work elsewhere, particularly in the United States. In the same direction, members of the Foundation's staff are encouraged to keep in touch with their respective professional societies and to attend their meetings.

#### FOREIGN VISITORS AND TRAVELS BY FOUNDATION STAFF

The Mexican and Colombian programs have stimulated increasing interest both in Latin America and in countries outside the western hemisphere. The result is a steady flow of foreign visitors interested both in the scientific aspects and in the techniques for translating scientific advance into more general practice. Although it is not always convenient for busy staff to receive visitors and spend the time required to acquaint them with the work in progress, an effort is made to do so in order to give the programs a wider impact. The variety of environmental conditions present in Mexico and Colombia means that significant advances there might have important implications in quite another part of the world where roughly similar conditions obtain.

Agricultural scientists from the Foundation's staff make occasional visits to other countries to study and consult about local problems. During 1954, for example, Dr. Edwin J. Wellhausen of the Mexican pro-

gram and Dr. Ulysses J. Grant of the Colombian program visited India to survey corn production in that country and make recommendations to Indian authorities for its improvement.

#### INTERNATIONAL SCIENTIFIC COOPERATION

In addition to the exchange of scientific information, the Foundation participates in a number of international efforts to achieve specific scientific purposes of a more tangible sort. For example, the National Research Council of the National Academy of Sciences sponsors an international project for the preservation of the indigenous corns of the western hemisphere, a project known as the Corn Germ Plasm Bank. The wider the use of a limited number of improved varieties and hybrids of corn, the greater is the danger of a permanent loss of the genetic stock which has been maintained by the great diversity of local varieties on which man has depended. Although many of these local varieties have little interest for commercial purposes because of low yield, susceptibility to attack, or other disadvantageous characteristics, they may have important genetic components which will be of the greatest value to the corn breeders of the future. If this genetic bank is to be preserved, a systematic effort is required to do so. The germ plasm preservation activity of the Mexican program was combined with the National Research Council's project in 1950, and the Colombian program provides a cooperating center for the Andean region of South America. More than 8,600 varieties and sub-varieties of corn are now stored in this international bank; work continues on collection and classification

and on improved methods for preservation without the burden of frequent planting and reproduction.

Similarly, an international cooperative effort has developed in relation to wheat stem rust investigation. Wheat breeders are engaged in a running battle with wheat stem rust, new races of which seem to appear as fast as man finds varieties of wheat resistant to the old. The rapid availability, on a world-wide basis, of information on the resistance of new varieties and on the appearance of new rusts would be an important weapon in this fight. In 1950 the U. S. Department of Agriculture guided the establishment of ten uniform international nurseries in North and South America. Dr. Norman Borlaug in Mexico and Dr. Joseph Rupert in Colombia cooperated with this program. Similar nurseries now exist in Australia, India, South Africa, Kenya, Italy, and Spain.

Again, Dr. John Niederhauser of the Foundation's Mexican program has cooperated with an international effort to deal with the late blight of potatoes. Working with the Late Blight Committee of the American Potato Association and the U. S. Department of Agriculture, he has established in the Valley of Toluca a field testing service for potatoes in which some 3,600 seedlings from Scotland, Germany, Holland, Canada, and the United States have been tested, along with those upon which he is working in Mexico. He reports that the highly virulent late blight of the Toluca Valley destroyed 94 per cent of the seedlings tested for foreign growers, but that promising material has been selected from the surviving portion.

In addition to participating in formal interchange projects, both the Mexican and the Colombian pro-

grams make seed and other program materials available to individual scientists and research organizations. During 1954 more than 180 inquiries were received from 55 different countries, and more than 6,000 samples of wheat, corn, and other seeds were shipped abroad.

#### RICE — A NEW VENTURE

During 1954 the Trustees of The Rockefeller Foundation decided to include rice research among its agricultural interests. The large role which rice plays in feeding such a high proportion of the human race and man's comparative ignorance about its basic scientific characteristics and its ultimate possibilities were the factors primarily responsible for the decision. The Foundation was fortunate in being able to obtain the temporary services of Dr. Richard Bradfield of Cornell to make a thorough reconnaissance of the rice situation in the East and to recommend such practical steps as he thinks the Foundation might take. Together with Dr. Robert Chandler, a regular officer of the Foundation, he has been in the Far East since February, 1955.

#### Nongovernmental Technical Assistance

The Rockefeller Foundation has been engaged, since 1913, in a number of activities which share common elements with what has come to be called technical assistance. In its attempt to "promote the well-being of mankind throughout the world," the Foundation has sought opportunities to advance fundamental knowledge about man's natural and social environment, to support the discovery and dissemina-

tion of improved techniques for applying existing knowledge to his most urgent needs, and to assist in the training of leadership both in the search for new knowledge and in its practical application. Although its principal effort has been made in such fields as medicine, public health, and agriculture, the Foundation has assisted work in other parts of the spectrum of technical assistance, such as education, public administration, political economy, and intercultural understanding. It has been attentive to needs in the United States itself, still an underdeveloped country, as well as in countries and territories in all parts of the world. Among the latter, it has found itself in touch with a variety of cultures, at different stages of political, economic, or social development, and with a great diversity of climatic and natural environments.

Recent years have seen a sharp increase in funds and personnel committed to technical assistance through governmental, international, and private agencies. This has been accompanied by considerable experimentation and a search for methods which are sufficiently flexible to meet a wide variety of local needs and potentialities. It has been suggested that it would be helpful for The Rockefeller Foundation to record some of its own experience as a contribution to the discussion of techniques in technical assistance. Certain steps have been taken in that direction, although there is already much material in the extensive publications of the Foundation and of the General Education Board. See, for example, Mr. Raymond B. Fosdick's book, *The Story of The Rockefeller Foundation*. Pending the completion of more systematic accounts, there may be some current interest in a few observations about some of the lessons

which the Foundation thinks it has learned through trial and error over a period of four decades. The president of the Foundation was invited to comment briefly on this experience before the Subcommittee on Technical Assistance Programs of the Senate Foreign Relations Committee on March 2, 1955, and what follows reflects his remarks on that occasion.

Although there are similarities, there are also significant differences between the activities of an endowed philanthropic fund and the assistance programs of governments or official international bodies. An endowed philanthropy, nongovernmental and nonpolitical in character, has special opportunities as well as limitations. Its funds are comparatively small, but it can commit them over a long period of time; independent of annual appropriations, it can plan its work with a fair measure of assurance. It can use funds with great flexibility to follow promising leads or to meet unexpected difficulties. It can risk failures in order to increase the chance of important successes. It need not show immediate and dramatic results as a prerequisite for continued support. It can accept and appreciate the value of a negative answer, reached by experimentation, as a contribution to knowledge or experience. A philanthropy can support its assistance with basic research, either by its own staff and laboratories or by grants to other institutions. It can offer long-term career opportunities to men who need time to combine professional expertise with an understanding knowledge of a foreign environment. Having no political role, it can enter sensitive areas with a minimum of political complication. It can elicit a high degree of cooperation because it is under no pressure to work in one place

rather than another and seeks no return beyond the advancement of the work to which it contributes.

Obviously, the special characteristics of a philanthropic fund may limit the applicability of its own experience to other types of technical assistance and, indeed, others may draw quite different conclusions from what they know and have seen of the Foundation's work. However, certain guiding principles have emerged which strongly influence the Foundation, and these are summarized below. They are, of course, subject to modification and exceptions in particular circumstances, and it must be said that the Foundation does not claim uniform success in following them.

(1) Technical assistance usually requires *time* if it is to have lasting beneficial results; it may require modest beginnings while the situation ripens into a larger opportunity. A willingness to persist for a considerable period is an important element in the initial decision to undertake a technical assistance task.

(2) Though time is required, it need not be wasted. A careful and realistic identification of bottlenecks will suggest how time can best be used. These bottlenecks are often not financial in character, but involve such factors as the training of leadership and the emergence of a genuine local interest in the objectives to be sought.

(3) Technical assistance can be effective only where there is a strong local desire to receive it and make use of it. A lack of interest is a more serious obstacle than active opposition, because it results in wasted effort.

(4) Technical assistance should be directed toward programs which are within the prospective capacity of an area or community to absorb and sustain, else it

produces a monument to frustrated hopes and expectations.

(5) Technical assistance makes great demands upon the personnel who are to give it; this means careful selection, stability of appointment, strong backing in the face of discouragement or disappointment, and time to enable such personnel to obtain a deep and sensitive knowledge of the local situation, including the local language. Further, "personnel" is people, with practical needs, health problems, and families to educate. They are called upon to work under unfamiliar and sometimes difficult conditions, usually a long way from home; they need both practical and more intangible forms of support.

(6) Plans for entering upon a technical assistance task should look forward to *eventual* withdrawal; this means the training of local personnel for the assumption of full responsibility, the enlistment of the local authorities and population in a serious and sympathetic support of the effort, and emphasis upon working with and not for those who are being assisted.

(7) Techniques familiar in a technically advanced country must frequently be adapted to the needs, capacities, and cultural background of the country receiving assistance. What may be efficient in one may prove to be inefficient in the other. Assistance starts from where people are and builds toward what they hope to achieve.

(8) The emphasis in technical assistance should be upon quality. Emulation spreads a good job rapidly and multiplies its quantitative impact. A poor job, even if attempted on a large scale, will almost certainly prove sterile.

(9) It is extremely difficult to advance through technical assistance on a narrow front. Health, education, and economic productivity, for example, tend to move together. Even though a single agency may attempt to assist with only a small part of the larger effort, it is most likely to succeed where advance is being made on the broad front.

(10) At crucial points, further advances in technical assistance will require fundamental research in the laboratory. The first "answer" to yellow fever proved to be wrong, and it became necessary to develop a vaccine to protect human beings from a disease which would almost inevitably persist in the natural environment; certain pests developed immunity to DDT; an agricultural program involves an endless battle between science and new varieties of pests and diseases.

(11) The emphasis upon the training of personnel for giving and receiving technical assistance suggests that colleges and universities can play a key role. Cooperative relationships between universities of the sending and receiving countries have opened up techniques of great promise.

(12) Both sides can learn through technical assistance; the cooperative effort pays dividends in the enrichment of the life and culture of both. Each has something of value to contribute, particularly where the relationship cuts across the great cultural frontiers.

(13) The relationship between giver and receiver is sensitive at best; technical assistance results in enduring good will where good will is allowed to develop as a spontaneous by-product of a partnership marked by joint effort and mutual respect.

## Centers of Program Interest in 1954

The president's review for 1953 discussed the choices which an organization like The Rockefeller Foundation must make in applying its comparatively limited funds to vast human needs, and commented that the fabric woven of these choices is what is known as program. The strategic use of flexible and limited funds is a primary element in the selection of fields of interest, but that broad statement contains many factors. Some needs seem more urgent than others; some seem stubborn and unyielding while others offer hope that progress can be made through new knowledge or new techniques for applying what is already known. A fertile idea opens up new possibilities, an unexpected discovery points to new paths through forbidden territory. The more flexible the funds, the more they can take into account what is being done with other resources and the more they can be used for the unnoticed but interesting opportunity. The ripeness of a situation is important; the existence of trained leadership to give and to receive assistance; the political, economic, and social environment within which the proposed enterprise is to move forward. Finally, a foundation and its staff know how to do some kinds of things better than others, can make sounder judgments about them, and can mobilize the assistance which a successful effort would require. In making the choices which constitute its program this Foundation seeks advice from leaders in many fields and in many countries and takes what it learns into account in its own deliberations. Having reached broad decisions about fields of interest, it then tries to

keep the public and the scientific and scholarly community informed through its publications as to what these are.

It has long been the policy of the Foundation not to make gifts or loans to individuals, not to finance patents or altruistic movements involving private profit, not to contribute to the building or maintenance of local hospitals, churches, schools, libraries, or welfare agencies, not to subsidize cures or inventions, nor to support campaigns to elect political candidates or to influence legislation.

With certain types of grants automatically excluded and broad lines of interest established, the Foundation still finds that it must decline many proposals which seem to be within its program. Even within program choices have to be made; these, too, are difficult and are likely to be more disappointing to the applicant who is turned away. Selections within program turn upon a judgment as to the importance of the objective sought, the likelihood that it can be reached by the methods and with the resources proposed, the prospective ability of the personnel involved to carry the task to its conclusion, the capacity of the institution itself to provide intellectual and material resources to support the venture, the judgment of leaders in the field as to its feasibility and urgency, the competitive ability to enlist support in preference to other proposals seeking the same funds, and other similar considerations. The Foundation is careful not to allow its declinations to be interpreted as a negative judgment on the merits of the proposal; its own estimate might be wrong and there are others who might be ready to

provide support. In any event, the Foundation finds itself declining many good proposals because its funds will not cover them all.

The summary statements which follow on the principal centers of Foundation interest follow the general pattern used last year. If one should compare these headings and the grants made under them for the two years, one would see that the grants under a particular category do not flow evenly from year to year. This is normal in the Foundation's experience. While an interest may be steady and continuing, attractive opportunities appear unevenly and needs arise sporadically. For example, no large grants were made in the population field in 1954, but a large grant was made to Princeton University in April 1955 for its Office of Population Research. The measure of the interest is not, therefore, to be found in the amounts provided or the numbers of grants made within any particular calendar year.

#### PROFESSIONAL MEDICAL EDUCATION

The Foundation's long interest in medicine continues to move toward strong support for professional education, with special attention to key institutions in countries which are struggling to bring their medical services up to the standards of modern scientific medicine. In many parts of the world, the most severe limitation upon improved medical care is the woefully inadequate numbers of trained doctors and nurses and the scarcity of facilities for high quality medical education. Although there are many fellowship opportunities, including those provided by The Rockefeller Foundation,

which can be used for medical training abroad and although many are studying abroad at their own expense, the number of doctors and nurses who can be trained outside their own countries is pitifully small in relation to the need. Good medical schools are needed in the locality, both to assist in training the medical personnel required and to bring the resources of scientific medicine specifically to bear upon the diseases and other health problems of the local environment.

During 1954 the Foundation gave substantial support to the Department of Preventive Medicine and Public Health at the University of Valle, Colombia; to the Children's Hospital and the National Institute of Cardiology in Mexico City; and to the Durban Medical School of the University of Natal, South Africa. Some-what smaller grants were made to the Uusimaa Field Demonstration and Teaching Unit in Finland, to the Faculty of Medicine of the National University of Colombia, and to the Medical School Library of the University of Puerto Rico. Seventeen small grants were made for a variety of purposes in India, and 47 others were distributed among 24 countries outside the United States. The largest grants made in the United States went to the Harvard Medical School and the Massachusetts General Hospital for a joint program of improved teaching in family care, and to the School of Medicine of Washington University for a Department of Dermatology.

Three grants were made during the year to institutions in the United Kingdom for the development of training in sanitary and environmental engineering: the Royal Technical College of Glasgow, King's College of the University of Durham, and the Institution of

Civil Engineers in London. Although sanitary engineering has been well developed in the United States, less attention has been given to it in Great Britain and it was felt that greater strength in that country might multiply, through technical assistance, into wider areas.

#### MEDICAL CARE

The review for 1953 made the following comment:

The past two decades have seen a remarkable growth in the demand for organizational and financial arrangements within which adequate medical service can be furnished to all major segments of the population. In the United States, where there is a traditional misgiving about vastly increased governmental responsibility in such matters, there has been a rapid development of medical and hospital insurance, industrial and union medical programs, prepayment plans, clinic and group practice, as well as significant increases in the roles of local, state, and federal governments. Where large resources are being committed to a great variety of arrangements looking toward improved medical care, the Foundation believes that its own limited funds can be used to best advantage in supporting well-selected studies aimed at developing information and ideas of general usefulness. . . . The possibility of Foundation support turns upon the promise of general benefit from the information or experience for which funds are requested; its limited funds can not be used for improving services on a local or community basis.

With this role in mind, the Foundation made a grant to the Department of Health of Puerto Rico in support of a joint study by the University of Puerto Rico and the Commonwealth Government of methods to coordinate its central and outlying health resources. An experienced officer of the Foundation, Dr. John B.

Grant, was assigned to Puerto Rico to assist with this study. If this study is able to throw light upon the more efficient use of medical specialists and of expensive equipment for the benefit of a larger segment of the population, and can discover the varieties of training needed to provide a balanced medical care program over a significant area, the implications for other areas are obvious.

Another grant was made to the Health Insurance Plan of Greater New York, the largest prepaid medical care program in the country, for a study of the statistical data which it has accumulated during the past eight years. A full understanding of the medical care problem revealed in this information will throw considerable light upon the needs and the sickness experience of a large portion of the people of our great metropolitan centers. In the rural field, the Foundation continued its support of a study of general medical practice in North Carolina under the Division of Health Affairs of the University of North Carolina.

#### MEDICAL RESEARCH AND THE VIRUS PROGRAM

The principal contribution which The Rockefeller Foundation is making to the investigation and control of specific diseases is its virus program. In the course of their long and successful campaign against jungle yellow fever, the medical staff of the Foundation isolated a number of viruses in South America and Africa which were little known, had apparently attacked human beings, and bore a resemblance to yellow fever, dengue, or certain types of encephalitis. With the yellow fever work virtually completed with the development of a

protective vaccine, the staff then turned to a broad study of insect-borne viruses capable of attacking man and animals throughout the world. The primary objective of the study is to determine the distribution, incidence, epidemiology, and clinical manifestations of these virus infections.

The central direction of the study is furnished by the Foundation's New York Laboratory, under the leadership of Dr. Max Theiler, a Nobel laureate of 1951. The study requires the assistance of widely distributed field stations, and by the end of 1954 these had reached five in number: at Poona, India, operated jointly with the Indian Medical Research Council; in Johannesburg, South Africa, in collaboration with the South African Institute for Medical Research; in Trinidad, in cooperation with the Government of Trinidad and the Colonial Medical Service; in Belém, Brazil, in association with the Servico Especiales de Saude Pública; and in Berkeley, California, in collaboration with the State Department of Health. To each of the field stations is assigned one or more Foundation staff, with additional members furnished by the cooperating institution.

A detailed account of the progress of this research is to be found in the Annual Report, and will interest the general reader as well as the specialist. It would be hazardous to predict the full range of benefits which might come from this intensive and comprehensive study. Certainly more knowledge about the approximately 30 insect-borne viruses now identified would be of great value to public health authorities in devising means for their prevention and control. The immunological relationships within classes of these viruses may

throw light upon the evolution of the virus and give fresh leads to the search for control measures. The study is already producing improved techniques in virus research, of general interest to others in the field. Should the human race be attacked by some of these viruses in the future, in unaccustomed virulence, the work now being done will be a useful bank of knowledge for that day.

Alongside the virus work being carried on by its own staff, the Foundation is prepared to consider support for fundamental virus research elsewhere. In 1954, for example, a grant of \$210,000 was made to the Virus Laboratory of the University of California, directed by Dr. Wendell M. Stanley. The emphasis in this laboratory is on the basic biochemistry and biophysics of infectious agents and the work is carried on as "pure" research without reference to practical application. Smaller grants were also made to the Israel Foundations Trustees of Jerusalem, the Walter and Eliza Hall Institute of Medical Research of Melbourne, the Institute of Public Health in Tokyo, and the West Africa Yellow Fever Service.

Outside the virus field, the Foundation continues to support medical research on a highly selective basis. Reference has already been made to the Department of Dermatology at Washington University; a renewal grant was made in 1954 to the Committee for Research in Problems of Sex of the National Research Council; the Child Research Center of Michigan received a grant to study the inheritance factor in sickle cell anemia. Studies in human genetics received support in a number of institutions.

An unusual proposal came to the Foundation dur-

ing 1954 from the Department of Public Health of California. It called attention to the fact that little is known about the factors in the environment which influence the occurrence of the major chronic diseases, such as heart disease, diabetes, and cancer. The Department of Public Health sought support for the establishment of a Chronic Disease Epidemiology Center whose task it would be to seek out the relation, say, between occupation and heart disease, between occupation and the incidence of cancer. A grant of \$150,000 was made for a five-year period in support of this proposal.

#### HUMAN BEHAVIOR

An understanding of the roots of human behavior is an interest which appears across the entire program of the Foundation. Man is biological, he is social and political, he is reflective and spiritual. While many grants have some bearing upon the behavior of man, the more direct approaches taken by the Foundation involve the medical sciences and sociology. Through the biological and medical sciences, support is given to studies of man's physical structure and processes in the hope that new light can be thrown upon his behavior. In 1954, for example, a grant was made to the Department of Psychiatry of the University of Saskatchewan to study the alterations in the biological structure which seem to be associated with schizophrenia. A grant was made to the Department of Psychology at McGill University to support research on the physiological basis of the psychological phenomena of learning, perception, memory, and emotional response. Another was made to the University of Aix-Marseilles for a study of

psycho-motor epilepsy and of the anatomy and physiology of the temporal lobe of the brain.

The principal grant made during 1954 along the sociological approach to human behavior was that to the Communications Research Program of Yale University to study the effectiveness of mass media in influencing behavior in various directions and the psychological mechanisms through which communications exert an influence. Smaller grants were made to the National Center for Scientific Research in Paris for a study of social stratification and mobility, to the University of Wisconsin for a study of talent loss in the United States, and to Cornell University for an analysis of research materials on psychological stress.

#### AGRICULTURE

In 1954 The Rockefeller Foundation maintained strong support for a variety of efforts to increase basic food production for the world's growing population. This interest does not turn upon a judgment as to how or when a "final" balance will be struck between population and natural resources. Whatever that answer is to be, there are short-run tasks which need attention. There are too many people without enough food to sustain reasonable health, but who have in their land and in their own hands the capacity to grow a more adequate diet. Labor and land are wasted upon poor varieties and inefficient farming practices. Selective breeding of new varieties for special local conditions is an infant science. The fight against pests and plant diseases has just begun. Man probably does not yet know the maximum possible yield of any one of his basic food crops.

Without embracing or denying Malthus, one can say that man has a long way to go before he can blame his hunger upon nature rather than upon himself.

The Foundation's agricultural program is carried forward in two ways. First, it maintains a professional staff of agricultural scientists who work directly in research and development in Mexico, Colombia, Chile, and Central America. Special comments on this phase of the program and on techniques of international cooperation used by the staff are found on pages 12 to 27 of this review. A progress report on the impact of this work upon food production, particularly in Mexico and Colombia, will be found in the Annual Report.

The Foundation also makes grants to other institutions for agricultural research and training. Some of these go to institutions which are closely associated with the operating programs in Latin America. Others are made for research where results would be of general interest, and still others are made because of the Foundation's desire to contribute to agricultural development in the particular country. The range of the program is indicated by a grant to the University of Illinois for a study of protein production by animals; to the Rural University of the State of Minas Gerais, Brazil, toward the establishment of a curriculum in home economics for women; to the Alabama Polytechnic Institute for a study of nematodes; and to the Allahabad Agricultural Institute of India for additional equipment.

The term agriculture usually calls to mind the process of obtaining food from the land. Since the sea is also an important source of human food, and might become even more important, the Foundation has sup-

ported the study of marine resources. During 1954 it provided a million dollars for the Scripps Institution of Oceanography in California, and other sums to the Lamont Geological Observatory of Columbia University and to the Marine Biological Association of the United Kingdom.

Beyond the range of conventional agricultural methods are possibilities which depend upon a further harnessing of the physical environment in new forms. These include the augmentation of the supply of fresh water, the utilization of solar energy, and the production of protein through microorganisms. A grant in this direction was made to the Imperial College of Science and Technology of the University of London to assist studies on the physical and chemical properties of water, about which familiar substance, oddly enough, little seems to be known. Another example was the grant made to the University of California for research in photosynthesis. In the nature of these exploratory fields, grants are likely to be made on an opportunistic basis rather than according to carefully laid plans, for here is one of the places where new horizons are being explored.

#### BASIC RESEARCH IN THE LIFE SCIENCES

An endowed fund, such as The Rockefeller Foundation, is in a favored position to give attention to "pure" research and to the underlying intellectual capital upon which man draws from time to time to meet his practical needs. A foundation can express its regard for intellectual pursuits as an expression of one of man's most distinctive qualities and as an end in itself. It can

assist men of capacity to follow a new lead or wrestle with an unbearable curiosity without exacting practical returns.

Even so, a foundation instructed by its charter to promote the well-being of mankind throughout the world can not suppress the hope that ideas will in time emerge from the intellectual bank to confer benefits upon mankind and relieve him of some of his distress. The Foundation's interest in basic research in the life sciences is related to its interests in medicine and agriculture, even though in the broadest sense. Medical and agricultural needs do not determine the proposals in this field which get support; the objective is longer-range, the exploration of the farthest frontiers of knowledge.

The term "life sciences" as used by the Foundation may need a word of explanation. Dr. Warren Weaver, now Vice-President for Natural and Medical Sciences, has the following to say in his introduction to a section of the Annual Report: "Indeed the 'biological' program we have been following does not in the least represent an abandonment of the physical sciences as uninteresting or unworthy. It does represent a definite choice of purpose — to concentrate on increasing our knowledge of the living world, but using *all* of science to serve that end. Hence, biochemistry, biophysics, and even biomathematics are importantly represented among our biological interests." An examination of the grants made during the past twenty years, with their emphasis upon the life processes, fully reveals the breadth of the interest.

Although some aspects of the Foundation's program can be given a national or regional focus, basic scientific research is the concern of a genuinely interna-

tional community of thought, and proposals may appear from any quarter where free research and scholarship flourish. During 1954, for example, Foundation grants for basic research in the life sciences found their way into 21 countries abroad and into 13 of the states of the United States. Just where? Where men engaged upon imaginative and creative work happened to be located; the place names are comparatively unimportant.

The Annual Report will show a wide range of research supported by the Foundation in 1954. There is some variation in apparent emphasis from year to year, but it is in the nature of basic research that targets are targets of opportunity, not readily subjected to an overall systematic plan. During the year grants were made for studies in general biology, biochemistry, biophysics, and biomathematics. Some of the specific fields included genetics, enzyme chemistry, plant physiology and biochemistry, microbial chemistry, photosynthesis, and the chemistry of biologically important molecules.

#### POPULATION STUDIES

The so-called population problem is included in the Foundation's program for two reasons, one quite specific and the other more general. The specific interest is demography — the social science which attempts to count people accurately, to analyze the composition and changes in structure of populations, and to disclose trends in population growth from which important implications can be drawn for the middle-range future about a large number of social needs. If demographic information is important for those societies which use

highly centralized planning, it is even more so for a free enterprise system, and a federal system, where the important decisions are made by a multiplicity of local authorities and by millions of private citizens. The increased load upon the secondary and elementary school system, the coming "bulge" of students in American colleges and universities, and prospective demands for doctors, nurses, and hospitals are rooted in the birth rate and can be anticipated in advance of the actual need. The size and shape of a population are factors in planning capital investment, industrial production, and the provision of adequate raw materials and power. The shift in the structure of the population toward a higher percentage of older people foreshadows special problems in the health care and economic security of our older citizens, in opportunities for useful and rewarding part-time employment, and in facilities for the constructive use of leisure time. As the demographers refine their methods of analysis and achieve a deeper understanding of the motivations which influence population growth, the more useful they will become as advisers about the probable shape of future needs.

A more general reason for the Foundation's interest is the view that population provides a useful point of consultation among different disciplines which seem to be working on different aspects of a larger problem — the ecological relation of man to his natural environment and the political and economic action he takes to improve his position. The Foundation finds, in its own work, that concern about one aspect of man's needs — say, public health — ramifies quickly into something else — say, the urgency of increased food production. The doctor, the agricultural scientist, and the econo-

mist are working at parts of an inseparable whole, and a joint attention to population problems serves to remind each of the whole. The Foundation, almost by charter optimistic in its approach, is not content with the idea that population will be automatically adjusted to nature through starvation, epidemic, and war. It is prepared to support inquiries into the physiological and psychological aspects of reproduction, into the maximum capabilities for utilizing the natural environment to sustain human life, and the economic arrangements within which the yield of nature can be increased and distributed.

During 1954 the Foundation made few grants strictly classified under the heading of population studies, although a great many of its funds and activities were a contribution to the general problem — its agricultural program, for instance. A grant was made to the Survey Research Center of the University of Michigan for a study of the factors influencing fluctuations in fertility rates in the United States, a study being conducted jointly with the Scripps Foundation for Research in Population Problems at Miami University, Oxford, Ohio. Early in 1955 a substantial grant was made to Princeton University in continuing support of its Office of Population Research.

#### THE FUNCTIONING OF FREE SOCIETIES

A quarter century has passed since The Rockefeller Foundation began to provide funds for objective studies of the political and economic institutions of free societies. Underlying the program has been the idea that

man is so constituted as to prefer wise decisions to foolish ones, if he could know enough to be wise; that he would prefer to care for his own needs in cooperation with others rather than in conflict; and that he would prefer a large measure of freedom to restrictive coercion. Without advancing answers of its own to specific problems, the Foundation has supported studies by qualified scholars in colleges, universities, and independent research institutions in the expectation that more reliable knowledge would make wiser decisions possible for those whose responsibility it is to make them, whether public officials or private citizens.

An examination of political and economic matters must touch at points upon controversial issues. Within scientific and scholarly circles, controversy is an accepted tool for the refinement of knowledge, and the liveliest differences are welcomed as a part of the process of arriving at truth. The rest of us are quite happy to let the scientists quarrel about matters of which we know nothing; we enjoy the Shakespearean plays no less because of the disputes about their authorship. But political scientists and economists touch sensitive nerves if deeply entrenched ideas are exposed to scrutiny or vested interests feel threatened by change. The role of the scholar is not always understood and, it must be said, not always understood by the scholar himself. Nevertheless, scholarship has played an important part in the strengthening of free institutions, both by refreshing our memories about why and how they came into being and by disclosing the alternatives which men must face if they prefer not to be free.

The Foundation does not believe that it can ignore

the great social relationships of man if it is to contribute significantly to the well-being of mankind. The very existence of sharp controversy is often a clue to a question which needs careful and dispassionate study. Further, there is reason to believe that more adequate knowledge often serves to reduce controversy and point the way to a resolution of conflicting ideas and interests. The Foundation does not attempt to prescribe the results of scholarship aided by its grants, nor does it accept responsibility for them. If it were to bear that responsibility, it would need a power which it must be denied as a matter of fundamental public policy, namely, the power to monitor scholarship in a free society.

During 1954, significant grants were made to the Brookings Institution of Washington for general support for its research program and for a comprehensive history of the Federal Reserve System, to the University of Pennsylvania for studies in labor mobility, to Northwestern University for a study of industrial markets. Outside the United States, grants were made to the National Institute of Economic and Social Research, London, for an examination of the British post-war economy and to the Center of Economic and Econometric Research of the University of Genoa for studies of the Italian national income. Other grants abroad are reported in the Annual Report. Of special interest is a grant to the International Bank for Reconstruction and Development toward the expenses of an economic development institute, the primary purpose of which it is to provide advanced training in the financial aspects of economic development for leaders drawn from the lesser industrialized countries.

During the year, the Foundation continued to seek ways and means for supporting an increased interest in political and legal philosophy among younger scholars. Although individual grants were modest, 19 awards were made during the year. A special grant went to Harvard University's Law School for the expenses of a convocation on constitutional government, to convene on September 24, 1955, on the 200th anniversary of the birth of Chief Justice John Marshall.

#### INTERNATIONAL RELATIONS

The Foundation puts the improvement of international relations in the front rank of its major interests, despite the limited role which an independent philanthropy can play in the midst of powerful and turbulent forces. It has been sensitive to the fact that its own activities abroad are, in a sense, a practical exercise in international cooperation and has sought more effective ways in which men might work together toward acknowledged common objectives even though separated politically by national frontiers. It cooperates with other organizations which are spinning the infinity of threads which bind men together, such as the specialized agencies of the United Nations and their regional bodies.

As in many other fields, the Foundation respects the part which scholarship can play and believes that its investments in that direction can yield high returns. International relations is a moody business and the moods are vast, complex, and often irrational. Those engaged in the day-to-day conduct of foreign relations would be among the first to agree that more knowledge

and more facts might help to bring man's emotional reactions under rational control. Whether that approach can provide a full answer to the great questions of war and peace can be doubted; but if it can help, the effort is worth while in a hydrogen age.

The Foundation tries to enlist the resources of scholarship by the support of a few strong centers of study in international relations; by encouraging those who are seeking a workable theory of international politics; by bringing scholars, "practitioners" in foreign policy formulation, and business and community leaders into closer and more frequent contact; by supporting studies of past events or episodes which might throw light upon today's problems; by providing funds for studies of emerging issues on the mid-horizon ahead; by strong support for intercultural studies (see below); and by assistance in the training of younger men who might afford leadership in a field now weak at the top.

During 1954 a large number of grants were made in the international relations field, not all of which are so classified in the Annual Report. Some of the more noteworthy would include grants to Columbia University for its Russian Institute and its East Asian studies; to the Social Science Research Council for the *Current Digest of the Soviet Press*; to the Indian Council of World Affairs for a study of Indian-United States relations in association with the Council on Foreign Relations, of New York; to Princeton University for an examination of the contribution which geography can make to the study of international relations; and to Nuffield College, Oxford, and the Royal Institute of International Affairs, London, for African studies. Closely related are the grants already

mentioned for a comprehensive study of the British postwar economy and for the training of financial leadership in the less developed countries by the International Bank for Reconstruction and Development. A substantial number of smaller grants were made for the advancement of individual scholars and for research on specific questions of interest to the field of foreign policy.

#### INTERCULTURAL UNDERSTANDING

As the United States moves from a long period of comparative isolation into an inescapable involvement with peoples and problems in all parts of the world, high priority attaches to a better understanding of other cultures by the American people and a better understanding of America abroad. Further, the emergence of newly independent nations in Asia, the Middle East, and Africa has shifted the channels of communication away from those to which we were accustomed in the period of great colonial empires. The matter of language, for example, assumes a new urgency. It can no longer be taken for granted that one or another of the western languages will sustain the burden of communication between east and west; the west must accept its share of responsibility for maintaining contact by giving more attention to the languages of the non-western world. Similarly in the field of ideas, different cultures and judgments of value are now coming into direct contact with each other and call for reciprocal efforts to appreciate and reconcile. In a sense, national frontiers are becoming less important and less dangerous but the great cultural frontiers continue;

these can become dangerous if, through a failure of understanding, they become the frontiers of conflict between rival ideas and aspirations and the source of emotional hostility toward the outsider.

In 1954 the principal grants in support of the studies of other cultures in the United States went to Princeton for Near Eastern studies; to Cornell for its Southeast Asia program; to Columbia for its Russian Institute and East Asian studies. Grants toward American studies abroad went to the University of Munich; Kyoto University, Doshisha University, and the University of Michigan; the University of Cambridge; and smaller grants to other institutions in Italy, Sardinia, the Netherlands, Turkey, Japan, and Hawaii. Intercultural studies not involving the United States were supported by grants to St. Antony's College, Oxford, for European studies; to the Toyo Bunko of Japan for work in recent Chinese history; to the Universities of Toronto and British Columbia for Slavic studies, among others.

#### THE ARTS, LITERATURE, HISTORY, AND PHILOSOPHY

As stated in the review for 1953, one of the most important interests of the Foundation has to do with the intellectual, aesthetic, and moral values which give meaning to man's struggle with his natural environment and his efforts to work out tolerable relations with his fellows on the social and political plane. Here it would be difficult to define the limits of program with precision, partly because the Foundation is feeling its way in new directions. Opportunities are, potentially, large in number although most are small in

financial requirements; an effort is made to select those which have unusual significance beyond the range of the immediate activity for which support is sought. There is a trend in Foundation grants toward contemporary and world history and creative work in the arts and literature, but rigid lines have not been established.

Among the larger grants in the arts were those made to the Mexican-American Cultural Institute's creative writing project; to the American Symphony Orchestra League for workshops for conductors and music critics; to Karamu House, Cleveland, for its music building; to the Massachusetts Institute of Technology for city planning, with strong emphasis upon the aesthetic form of the metropolitan center; and to the drama program of the University of Bristol. Two significant grants were made in support of the Stratford Shakespearean Festival of Canada and to the recently projected American Shakespeare Festival Theatre and Academy of Stratford, Connecticut. These two grants were based upon the belief that there is room for a strong Shakespeare theatre in the United States and Canada and that these can have a helpful influence upon the development of the theatre and the art of acting in both countries.

A somewhat unusual grant was that made to Union Theological Seminary toward a program of advanced religious studies on an interdenominational and interfaith basis. The Foundation has recognized the importance of moral and spiritual values to the well-being of mankind and of the role which religion plays in formulating and maintaining these values. By and large, it has made its own contribution indirectly, as a lay organization, rather than by more direct approaches.

Grants made in 1948 and 1952 supported a series of studies by the Department of the Church and Economic Life of the National Council of Churches on the role of the church in economic life. The essential idea underlying the grant to Union Theological Seminary was that it would be useful to bring a selected group of younger religious leaders together in a great university center to explore the relationship between religious values and the major political and economic issues of the current world scene.

#### OTHER INTERESTS

The preceding summary of the main centers of program interest does not encompass every grant made by the Foundation during 1954. The purpose of the summary is to provide the general public with information about the main lines of Foundation activity, to invite those who share its interests to discuss their proposals with us, and to indicate to others that their proposals, however deserving of support, might not come within the reach of the Foundation's funds. A careful reading of the Annual Report will show a number of grants which are not easily classified under the headings used above, and many which could fall under two or more such headings. The review aims at general information; the Annual Report gives the details and will be helpful to those who have a special interest in mind.

#### OUT-OF-PROGRAM GRANTS

Discussions of program within The Rockefeller Foundation, involving both Trustees and officers,

usually end with the reminder 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 grants when a unique and highly promising development is presented, where there is little likelihood of support from other sources, and where a basic contribution to knowledge of far-reaching importance is in prospect. It is obviously impossible to say in advance what such grants might be; for reasons already given, the Foundation must ordinarily adhere to certain fields. The unusual item must not only be unique, for almost all proposals have unique features, but must also be too good to be refused.

## Organizational Information

### MEETINGS

During 1954 regular meetings of the full Board of Trustees were held on April 7 and on November 30-December 1. Six meetings of the Executive Committee of the Trustees were held to take actions within the general policies approved by the Board.

The information on organizational matters which follows takes into account certain decisions made by the Board at its meeting on April 6, 1955, and indicates the assignment of responsibilities as of the date of publication of this report.

### BOARD OF TRUSTEES

The Board of Trustees of The Rockefeller Founda-

tion elected two new members at their meeting on April 7, 1954. Mr. Chester Bowles, formerly Governor of Connecticut and United States Ambassador to India, was elected to succeed Dr. Karl T. Compton, who had retired on June 30, 1953. Mr. Bowles was also elected to the Executive Committee of the Board.

At the same meeting, Dr. W. Barry Wood, Jr., was elected to the vacancy created by the retirement of Dr. Herbert S. Gasser on June 30, 1954. A professor of internal medicine at the Washington University School of Medicine since 1942, Dr. Wood has recently been named Vice President of Johns Hopkins University and the Johns Hopkins Hospital.

On April 6, 1955, the Board of Trustees elected Dr. Ralph J. Bunche to succeed Dr. Harold W. Dodds, President of Princeton University, who retired from the Board on June 30, 1954. Mr. Bunche is Under Secretary General of the United Nations.

#### PRINCIPAL OFFICERS

The principal officers of The Rockefeller Foundation are its President, Vice-Presidents, Secretary, Treasurer, Comptroller, and Directors. Individually, these officers carry assigned responsibilities required by an efficient division of labor; collectively, they meet regularly to consider broad policies and specific appropriations for recommendation to the Trustees. In recognition of this collective responsibility for the development of program and of the growing interrelationships among the Foundation's many activities, the former Divisions have been eliminated as formal units and five Directors named with specific program respon-

sibilities. This and other actions taken by the Trustees result in the following assignments among the principal officers:

The President (Mr. Dean Rusk), the Secretary (Miss Flora M. Rhind), the Treasurer (Mr. Edward Robinson), and the Comptroller (Mr. H. Malcolm Gillette) continue with the duties implied by their titles substantially unchanged.

Dr. Alan Gregg, Vice-President since 1951, continues on special assignments both within the Foundation and in public service.

Dr. Lindsley F. Kimball, Vice-President since 1949, has been named Executive Vice-President and made responsible for the administration of the Foundation's activities.

Dr. Warren Weaver, former Director of the Division of Natural Sciences and Agriculture, has been elected Vice-President for Natural and Medical Sciences. He has broad responsibility for the development and supervision of the Foundation's program in the sciences, medicine, public health, and agriculture. A distinguished scientist and retiring president of the American Association for the Advancement of Science, Dr. Weaver's broadened role will greatly strengthen the leadership of the Foundation on that side and will serve to unify its scientific effort.

Dr. Norman S. Buchanan has been named as Director for Social Sciences, to take up his duties in July, 1955. Coming to the Foundation from his post as Professor of Economics at the University of California, Dr. Buchanan served the Foundation from 1947 to 1950 as Associate Director of the Division of Social Sciences with primary attention to program in Europe. More

recently he has been studying and writing about the problems of the economic development of underdeveloped countries.

Dr. John C. Bugher returns from a four-year leave of absence with the Atomic Energy Commission to serve as Director for Medical Education and Public Health. A staff member of the former International Health Division of The Rockefeller Foundation, Dr. Bugher played an important part in the campaign against yellow fever, with service in South America, Africa, and the Foundation's New York laboratory. While with the Atomic Energy Commission he directed its Division of Biology and Medicine.

Dr. Charles B. Fahs was elected Director for Humanities, with program responsibilities substantially those which he had as the Director of the former Division of Humanities.

Dr. J. George Harrar, former Deputy Director for Agriculture of the Division of Natural Sciences and Agriculture, was named Director for Agriculture. His duties include responsibility both for the fund-granting activities in that field and for the administration of the Foundation's agricultural field staff engaged in direct operations in Latin America.

Dr. Robert S. Morison, former Associate Director of the Division of Medicine and Public Health, becomes Director for Biological and Medical Research.

The Rockefeller Foundation suffered a severe loss in the retirement of Dr. Joseph H. Willits on June 30, 1954, and of Dr. Andrew J. Warren on March 31, 1955. Dr. Willits came to the Foundation in 1939 from the deanship of the Wharton School of Finance and Commerce at the University of Pennsylvania and served for

fifteen years as Director of the Division of Social Sciences. Dr. Warren was Director of the Division of Medicine and Public Health from 1951 to the date of his retirement. He joined the staff of the Foundation's International Health Division in 1920 and made notable contributions to the fight against yellow fever and to the development of improved public health services in many countries.

#### OTHER OFFICERS AND STAFF

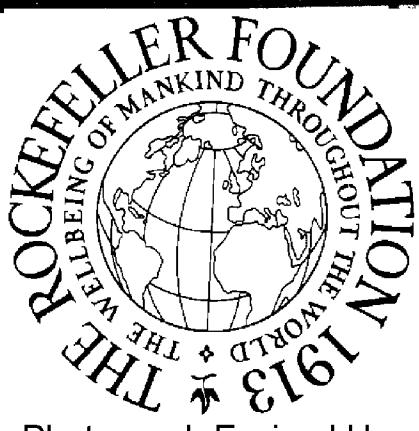
Mr. Robert Letort, who had been associated with the Foundation's Paris office since 1925, became Assistant Treasurer on May 15, 1954. His appointment made possible termination of the interim service in this capacity of Miss Janet M. Paine, Assistant Secretary, who had been appointed Assistant Treasurer in December, 1953, following the death of Mr. Edward Emerson.

Dr. Hugh H. Smith retired as Associate Director of the Division of Medicine and Public Health on August 31, 1954. Miss Elizabeth W. Brackett, Assistant Director of the Division, resigned on July 31. Dr. John M. Weir, a member of the Division's field staff, was appointed Assistant Director on May 21. Dr. Henry P. Carr of the field staff retired on December 31, 1954. Members of the Division's field staff who resigned during 1954 were Dr. John A. Logan and Dr. C. Brooke Worth.

Professor Richard Bradfield of Cornell University, Professor J. Norman Efferson, director of the Agricultural Experiment Station of Louisiana State University, Professor Will Martin Myers, head of the Department of Agronomy and Plant Genetics at the



## **Illustrations**



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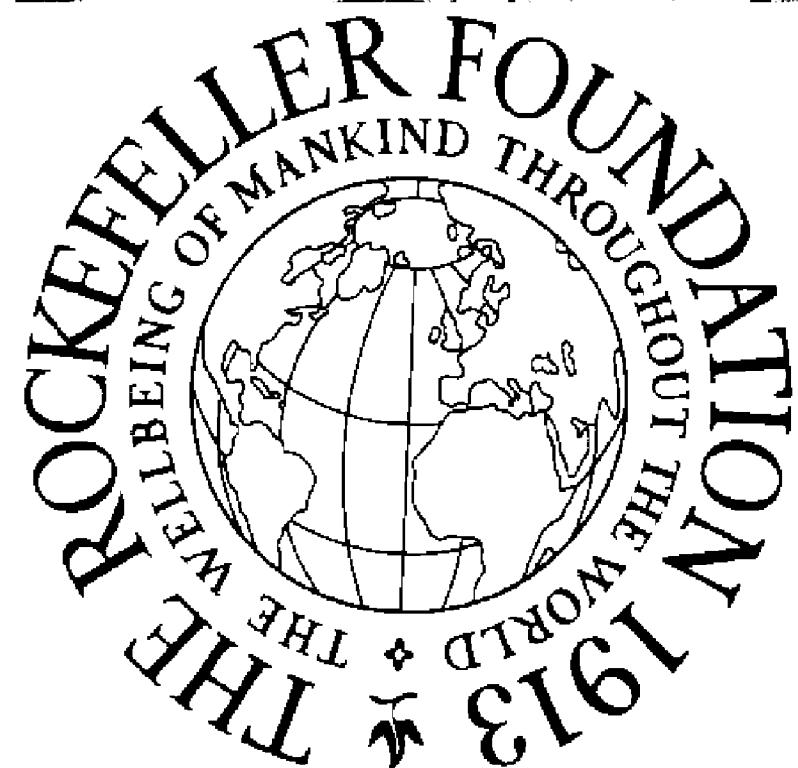
DR. JOSEPH H. WILLITS  
Director of the Division  
of Social Sciences, The  
Rockefeller Foundation,  
retired.



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DR. ANDREW J. WARREN  
Director of the Division  
of Medicine and Public  
Health, The Rockefeller  
Foundation, retired.

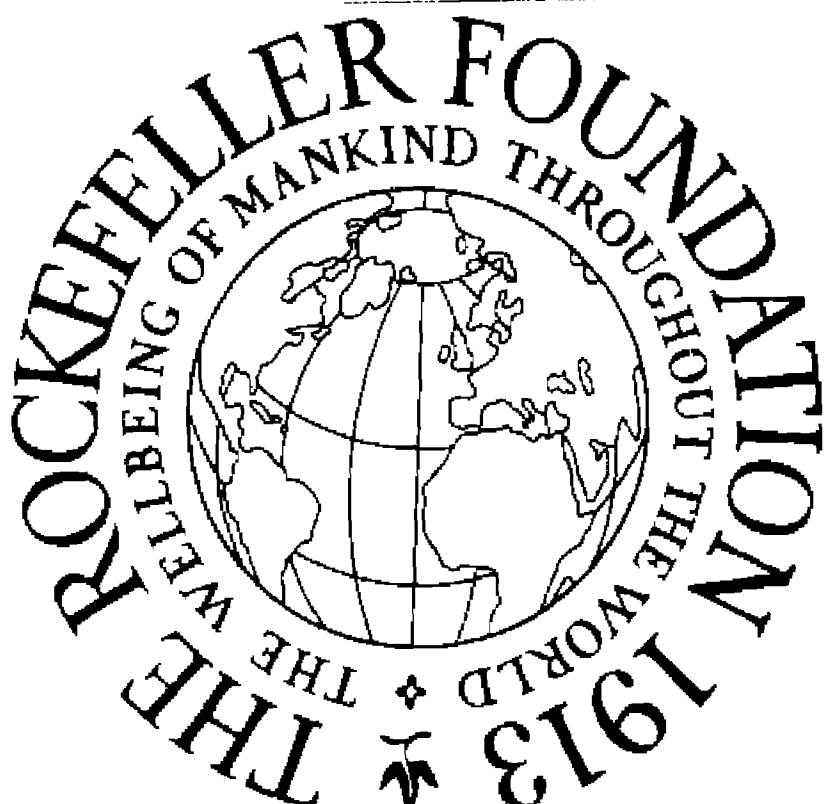
*Erich Hartmann*



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DR. JOSEPH H. WILLITS

Director of the Division  
of Social Sciences, The  
Rockefeller Foundation,  
retired.

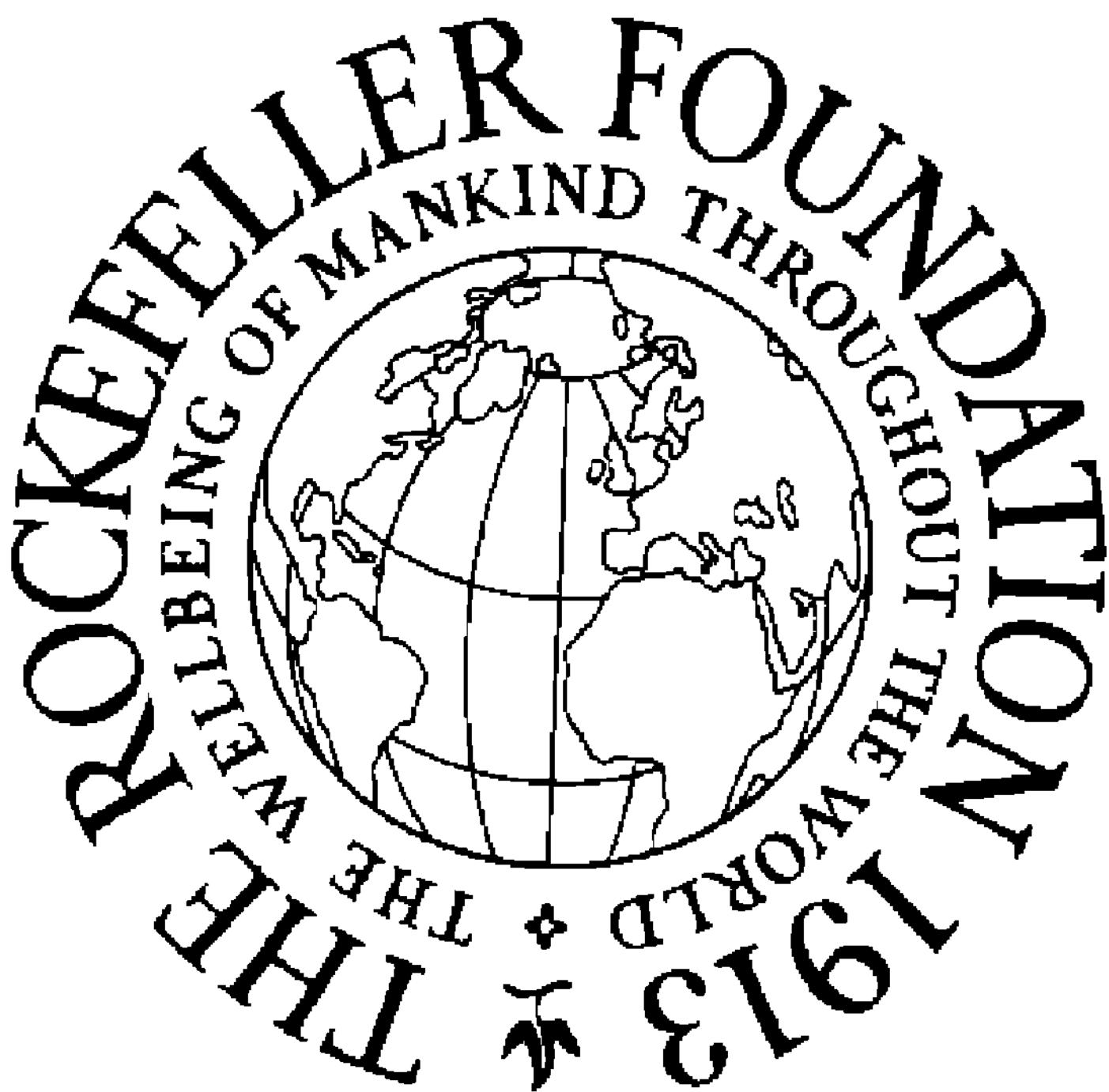


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DR. ANDREW J. WARREN

Director of the Division  
of Medicine and Public  
Health, The Rockefeller  
Foundation, retired.

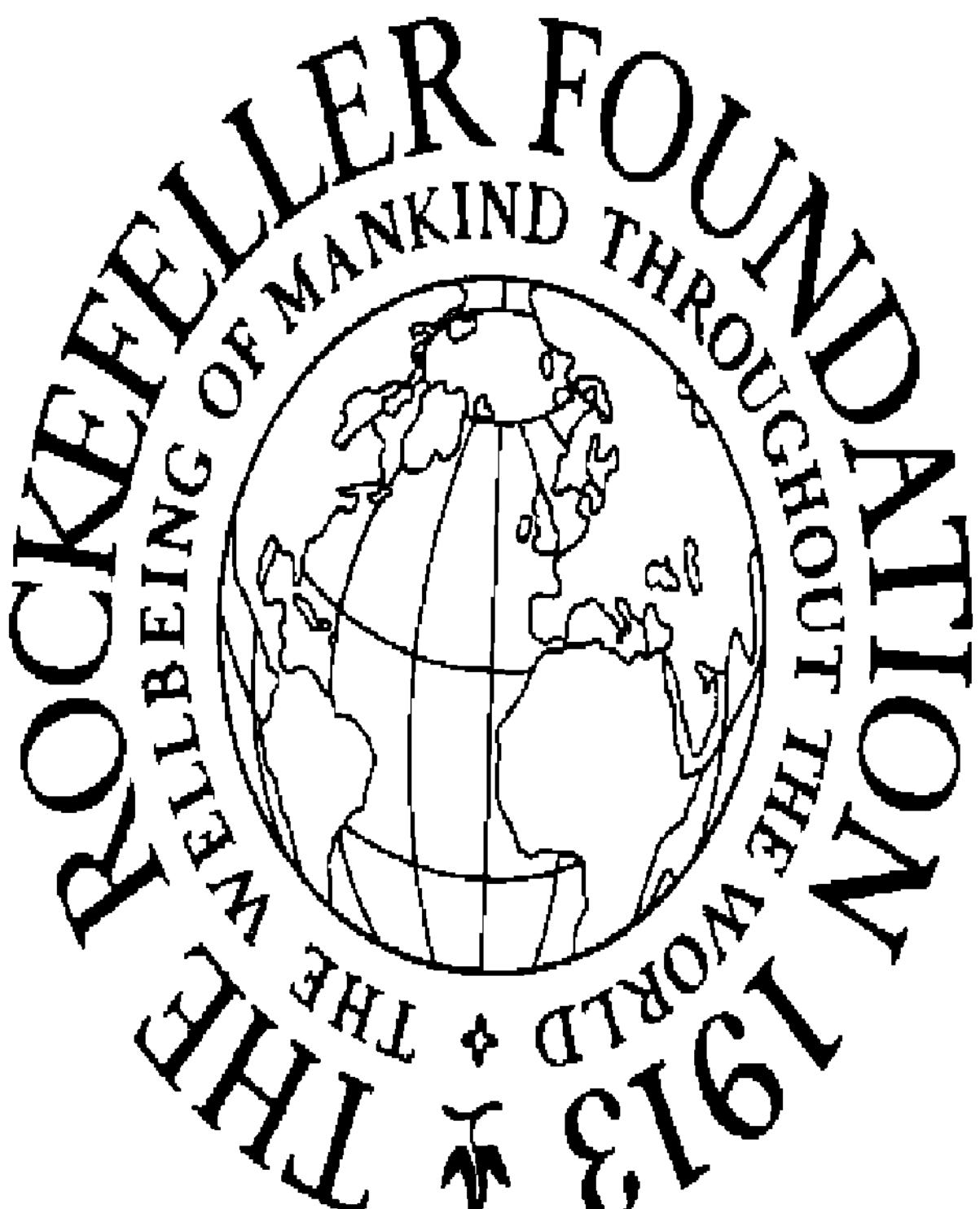
*Erich Hartmann*



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Southeast Asia Program, Cornell University

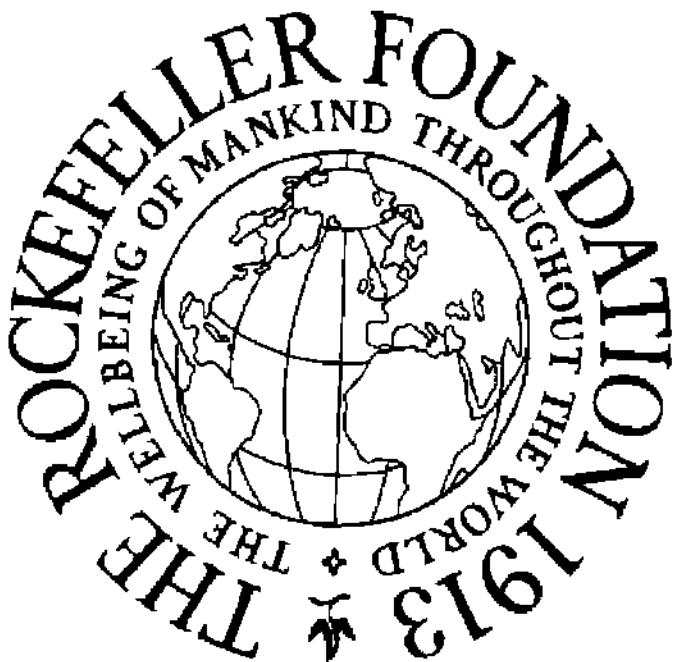
Prof. J. Milton Cowan shows Miss Julia Shadily what her tongue  
"looks" like when recorded by the sound spectrograph.



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Marine Biological Laboratory, Woods Hole

Dr. Albert Szent-Gyorgyi (foreground), Director of the Institute  
for Muscle Research, at work in his laboratory.



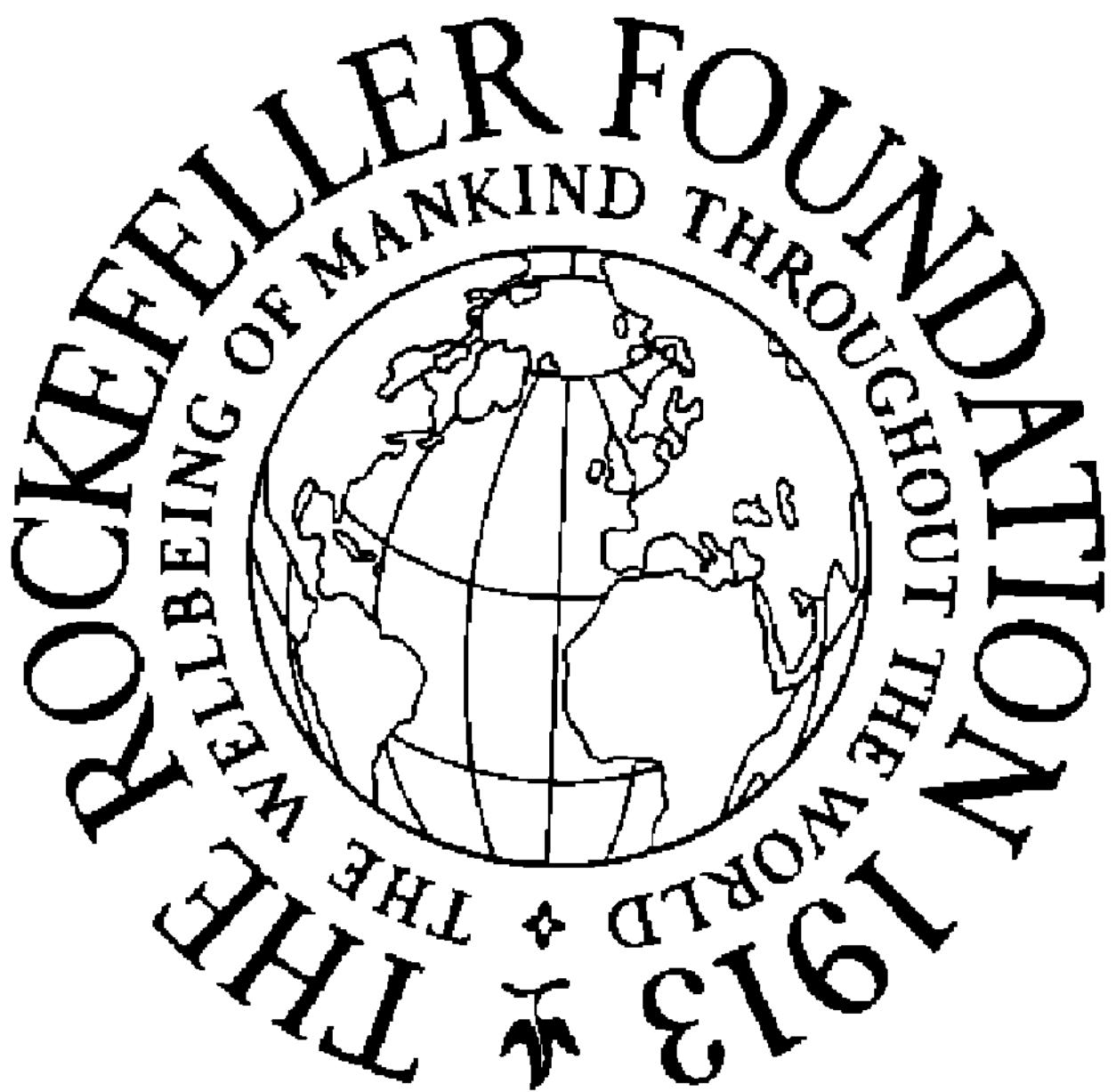
Marine Biological  
Laboratory, Woods  
Hole. Aerial view  
showing the main  
laboratory and  
other buildings.

Photograph Excised Here



Marine Biological Association of the United Kingdom.  
The "Sarsia," one of four research vessels maintained by the Plymouth Laboratory.

Photograph Excised Here



Photograph Excised Here

Karolinska Institute, Stockholm

Using the optical ultramicrospectrograph, the central tool in  
research on biophysics at the Institute for Cell Research.



Photograph Excised Here

Virus Laboratory, University of California

Assembling the synthetic boundary ultracentrifuge cell,  
which has greatly expanded the scope of the ultracentrifuge.

Department of Biochemistry, New York University. Studying the mechanisms of CO<sub>2</sub> fixation and phosphorylation during an experiment on photosynthesis.



Photograph Excised Here

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Photograph Excised Here

Mexican Agricultural Program,  
Office of Special Studies Exhibit at  
the Agricultural Exposition, Cuernavaca, Mexico.



Photograph Excised Here

Mexican Agricultural Program

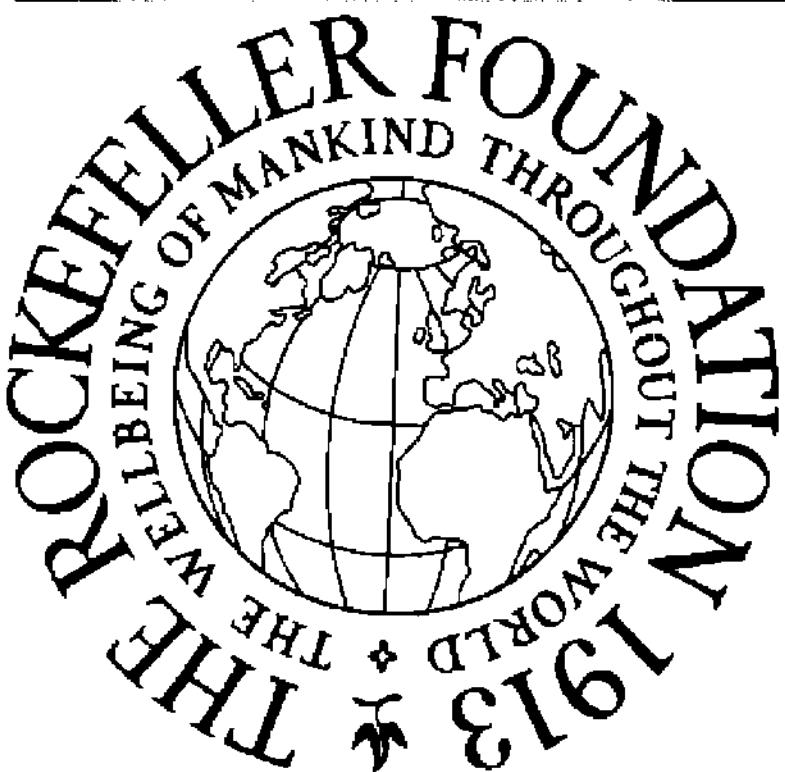
Mexican wheat production now rests solidly on developed varieties such as the one contrasted here with a native variety.



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Mexican Agricultural Program

Harvesting beans at Chapingo, where improved selections  
and hybrids are grown for testing and distribution.



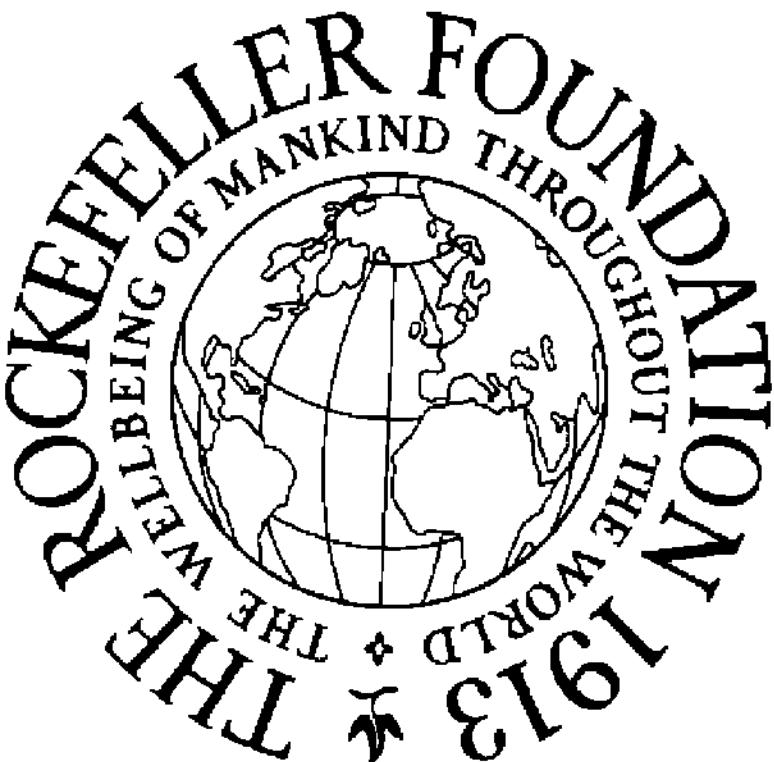
Mexican Agricultural Program.  
A staff member explaining some of  
the program's work  
to farmers during a  
field day held at  
experiment station  
Santa Elena,

Photograph Excised Here



Mexican Agricultural Program.  
Planting onions  
for thrips control  
studies at La Piedra  
experiment  
station in Michoacán (buildings in  
the background).

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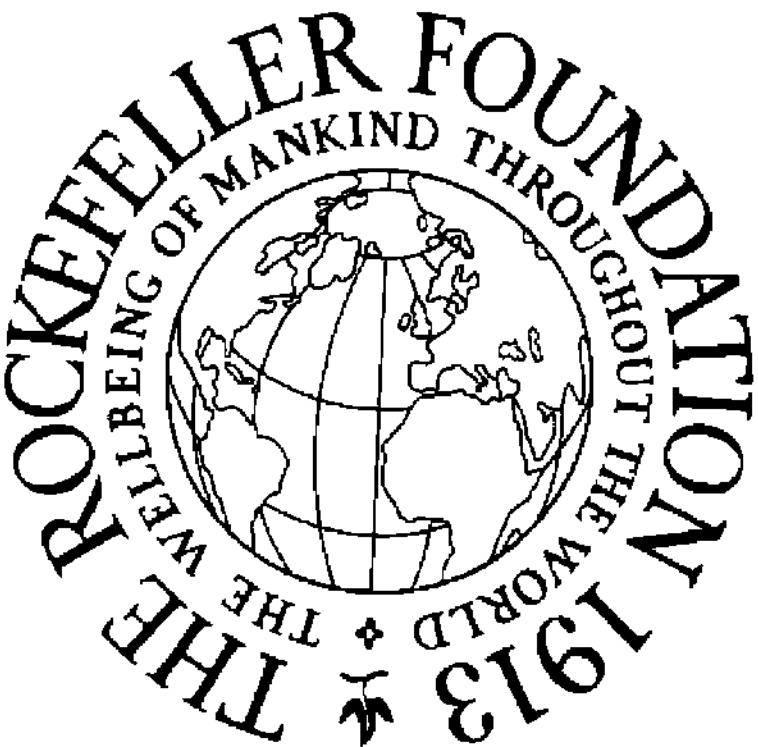
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Central American  
Corn Improvement  
Program. Yield  
trials of corn and  
bean varieties at  
Nueva Alida ex-  
periment station  
near Tegucigalpa.

Colombian Agri-  
cultural Program.  
Harvesting corn at  
Medellin.



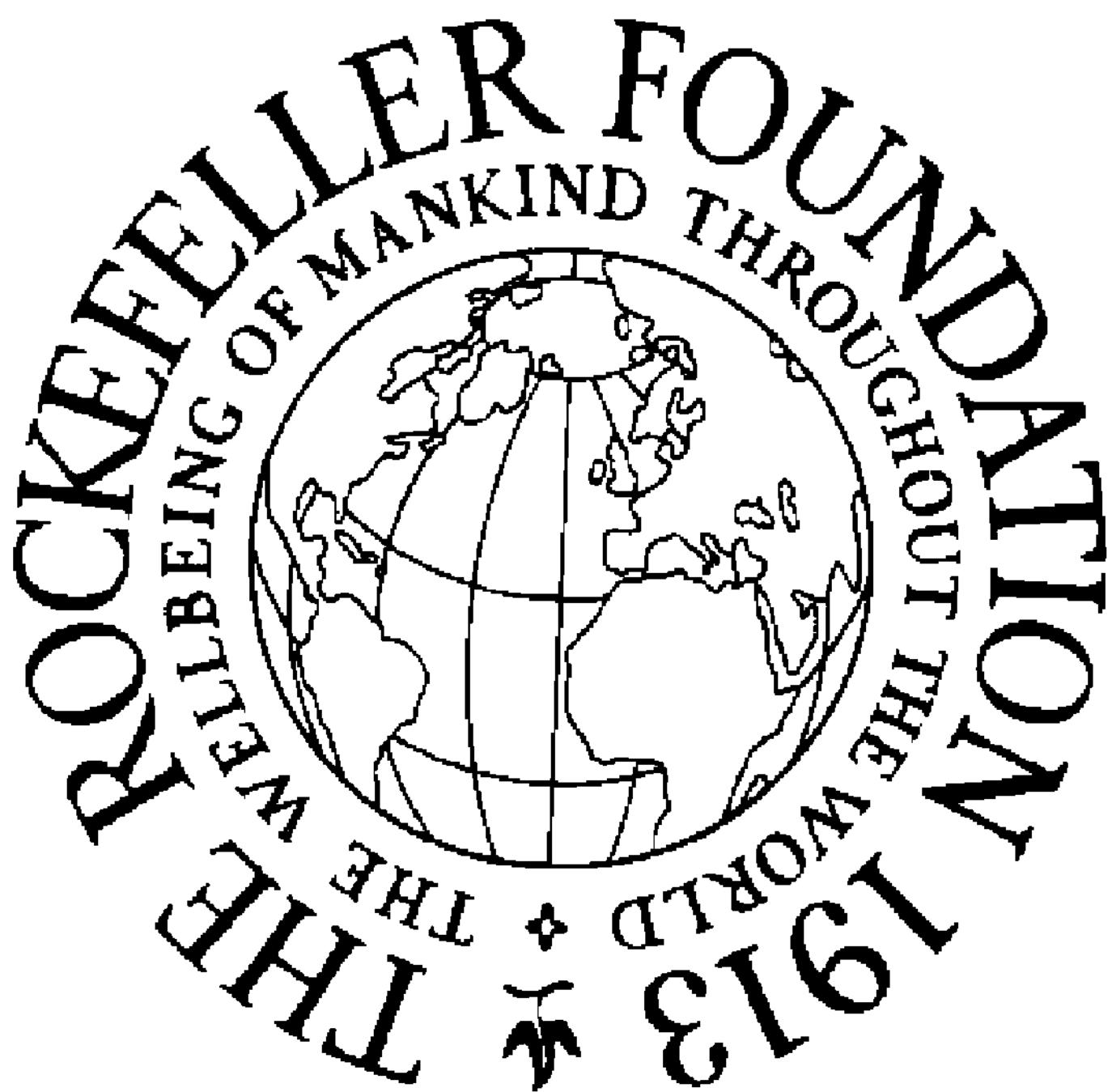
Colombian Agricultural Program.  
Milling and baking laboratory,  
Tibayatá experiment station.

Photograph Excised Here



Mexican Agricultural Program.  
Clearing land for the new experiment station at  
Cotaxtla, State of Veracruz.

Photograph Excised Here



Photograph Excised Here

Uusimaa Training Area, Finland

A public health nurse and a student nurse in resident field training say good-bye after a visit to a Uusimaa home.



Photograph Excised Here

Institute of Zoology, University of Pavia

One of the cages used for the breeding of Italian anophelines  
in connection with research on the cytogenetics of mosquitoes.



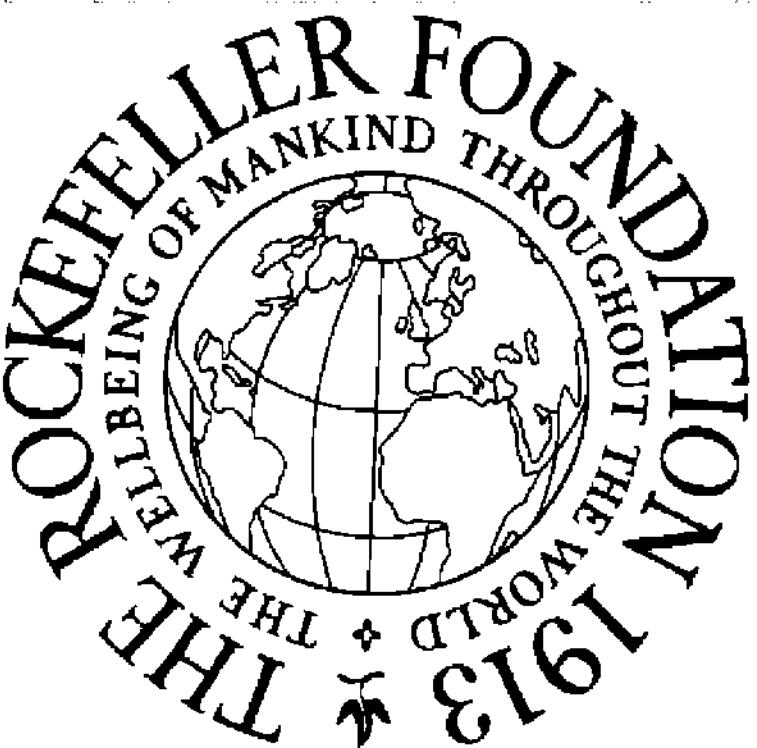
University of Natal, Union of South Africa. A group of students at the Medical School working in the Anatomy Dissecting Hall.

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University of Valle, Colombia. A new building for the Faculty of Medicine, which is to receive foundation aid for expansion of its curriculum.

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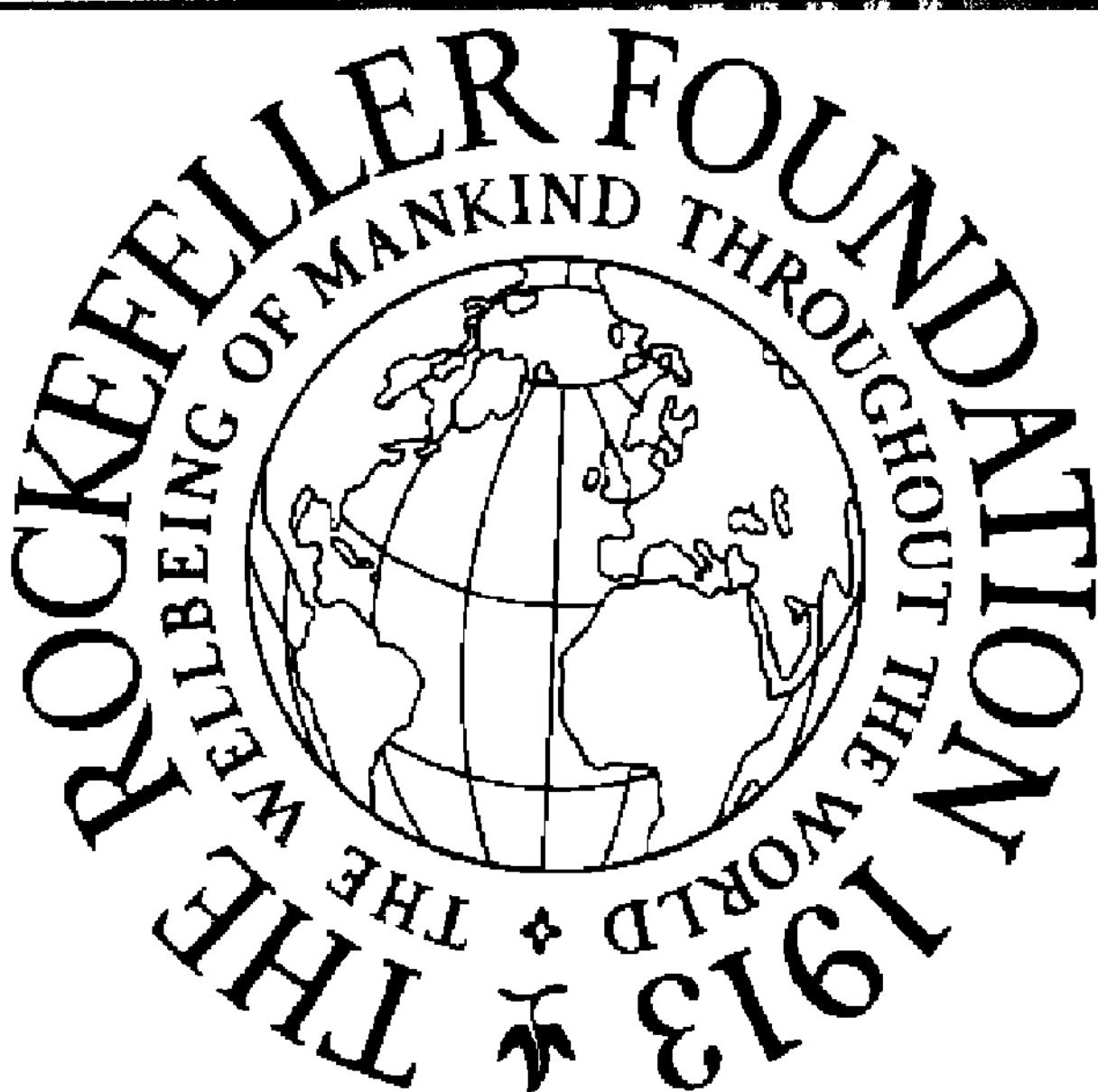
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Department of Psychology, McGill University. Prof. Donald O. Hebb, chairman of the department, leading a seminar.

Current Digest of  
the Soviet Press,  
Proofreaders and  
editors checking  
translations at the  
Digest's editorial  
offices in New York.



Photograph Excised Here

VIRUS RESEARCH PROGRAM

The isolation of a virus must begin with its recovery from a living host: a sick person or animal, or an infected insect or bird vector. *Above*, the technician takes a blood specimen from a patient with a fever suspected of being caused by a virus. *Below*, part of a specimen is withdrawn for immediate testing.

## **Medicine and Public Health**

# Medicine and Public Health

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# Medicine and Public Health

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## MEDICINE AND PUBLIC HEALTH

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THE FOUNDATION'S ACTIVITY in medicine and public health continues to reflect the conviction **that good health depends upon good people.** The character and training of the faculty determine the quality of the medical school; the quality of the medical school, slowly perhaps but nonetheless inevitably, determines the quality of medical practice. Organized public health depends on properly prepared health officers; pure water, pure food, and clean air are no longer the gifts of nature but the result of conscious effort by someone who knows the theory and practice of sanitary engineering.

The Foundation has long been interested in increasing the supply of trained people for performing specialized medical and public health functions in this country and abroad. Fellowships have been given either directly by the Foundation or through other bodies in order to encourage outstanding individuals to undergo the prolonged training necessary to become teachers or leaders of research. During the past year this program was highlighted by grants to the Medical Research Councils of the United States and Great Britain and to the Medical Library Association. Most of the people aided in this way have gone from their own countries to study abroad, often, though not always by any means, to the United States. The rapid development of new ideas and new techniques at various different places in the world makes

such foreign study essential if the benefits of progress are to be reasonably equally distributed in various parts of the globe. On the other hand, foreign fellowships cannot hope to meet the quantitative need for more trained personnel in many fields. Furthermore, foreign training is not always the best training for meeting certain local problems. Increasingly, complaints are heard that students trained away from home tend to lose touch with the needs of their own countries or develop feelings of frustration and self-pity when required to get on in laboratories less luxuriously equipped than the world-famous institutions in which they worked as students. Such considerations argue strongly for the development of a better quality of instruction in the home country.

The consolidation of the Foundation's interests in public health and medical education some four years ago led to increased emphasis on the improvement of education for health services in overseas areas. The first step was the assignment of additional staff in two areas — Latin America and the Far East. One officer undertook a three-year survey of virtually all the medical schools in South America. His work set the framework for the program which is now getting under way. Many of the small grants listed in a following section of the report were given to provide special training for individuals destined for leadership positions in certain schools selected for further development. Others have provided a good man with the equipment necessary to make his teaching or research more effective. A few more substantial allocations were directed towards a more comprehensive development; for example, the half million dollars to the University of Valle in Colombia for all the medical school departments interested in public health problems of particular importance to the Cauca Valley. Plans were laid for similar developmental grants in strategic institutions in other South American countries.

The past year brought to fruition a somewhat more limited review of education in environmental engineering in

Europe with special emphasis on Europe as a source of trained personnel for underdeveloped countries. Modern technology puts severe strains on existing sources of water for industrial, agricultural, and sanitary purposes. Problems of soil conservation and the economical disposal of industrial and domestic wastes increasingly demand attention if man is really to enjoy the fruits of an increasing productivity. Sanitary engineers capable of coping with these complex matters require a training which rests on a sound basis of scholarship and research. Such training has been available in several United States institutions for some years but it has not been common elsewhere. The grants to the Universities of Durham and Glasgow and the Institution of Civil Engineers in London, each of which is discussed in more detail in the following section of the report, were made in the hope of forwarding the professional education of environmental engineers overseas.

A separation between research and education, especially at levels above that of the undergraduate college, is to a large extent artificial and arbitrary. For convenience, however, activities which are directed primarily at increasing knowledge rather than at transmitting existing knowledge are discussed in separate parts of the following section of this report. Among these is the interest in insect-borne virus diseases which grew out of the successful effort to control yellow fever. There is clearly a practical importance to learning more about the distribution of these agents and the diseases of man and animals which they may induce under certain conditions. Even more challenging is the opportunity offered for studying fundamental properties of elemental living material. Viruses appear to occupy a particularly strategic spot somewhere between non-living molecules and unicellular organisms capable of independent life. The ease with which they can be made to change certain important characteristics like infectivity and virulence may provide a key to puzzling general problems of genetics and evolution.

As pointed out in a special section of this report, the program is still a long way from satisfactory engagement with these problems, but substantial progress has been made in methods for further characterizing and classifying the viral agents already known and the identification of new ones.

A growing interest in genetics of human beings found expression in another series of grants — two in the United States and three in Europe. Practical considerations such as the relatively small size and stable populations of many European countries, and possibly more subtle influences growing out of traditional hereditary elements in the social structure have until recently resulted in a greater interest in human genetics in Europe than here in the United States. Recent medical advances such as the discovery of the importance of the Rh factors in obstetrics and pediatrics and the chemical analysis of hereditary defects in hemoglobin formation have greatly stimulated the interest of American physicians in genetic problems. It may also be suggested that the continuing development of political, social, and economic equality makes it possible for Americans to take a more objective look at biological differences between individuals without regarding them as threats to the basic symbolism of the statement "All men are created equal." Whatever the explanation, American progress in genetics at all levels from viruses to man has been rapid in the last decade. Signalizing this trend, the last meeting of the Association of American Medical Colleges for the first time gave special attention to exploring ways and means of increasing the instruction of medical students in genetics.

The problem of providing adequate financial backing for the nation's medical schools continued to preoccupy the Foundation's officers as well as almost everyone else connected in any way with medical education. Medical education has become terribly expensive. The causes are complex but for the most part stem from the fact that enormous strides have been made in medical science. The modern

medical student simply has to learn much more and master it more thoroughly than his father did. He must have more and better teachers to help him, more expensive laboratory equipment, and he must take an intimate part in the elaborate (and expensive) care provided in a modern teaching hospital.

The nation's medical schools are spending four or five times what they were fifteen years ago but they have not caught up with their "educational deficit." Furthermore, most of the additional money is received in the form of temporary grants for special purposes. It is largely unavailable for meeting the most serious needs — stabilized faculty positions and provision of proper facilities.

Faced with these facts The Rockefeller Foundation has become increasingly reluctant to encourage schools to take on additional responsibilities with the help of temporary project grants. Its own funds, however, are pitifully inadequate in comparison with the schools' over-all needs for endowment or some other form of at least quasi-stable financing. Although a satisfactorily comprehensive solution still remains to be found, it is still possible to provide substantial help for highly selected developments of particular significance. The establishment of a full-time division of dermatology in the Department of Medicine at Washington University, St. Louis, may be cited as an example.

## Professional Education

UNIVERSITY OF VALLE, COLOMBIA

DEPARTMENT OF PREVENTIVE MEDICINE  
AND PUBLIC HEALTH

The University of Valle in Cali, Colombia, was established nine years ago by the State of Valle as a center for

studying the problems of the area, and for training personnel to handle them. Under the direction of the rector, Dr. Jorge Vergara-Delgado, faculties of medicine, engineering, social studies, and liberal arts were developed.

The medical school, with the full cooperation of government and private agencies, is now expanding its curriculum to include intensive training in community and environmental health. A new Department of Preventive Medicine and Public Health, the first of its kind in South America, will coordinate and participate in the teaching of the sciences related to community health and in the training experience provided the students within the hospital and community facilities. An eight-year medical program will include such courses as microbiology, biostatistics, parasitology, and nutrition; epidemiological studies in the hospital wards; and practical experience in family care within the new health center adjacent to the medical school and in the hospital's outpatient department. The last year will provide training in rural medical centers where student teams, each composed of an internist, a surgeon, an obstetrician, and a pediatrician, will render community health care under the supervision of the clinical staff of the school.

The health center will provide preventive medical and public health services for the adjoining suburban community, space for research on local problems, training for personnel, and referral services, thus serving the multiple purposes of medical education, community research, and regionalized medical care.

With the help of government and civic agencies, the university has developed increasing financial support for its expansion and has provided for a school of nursing. In 1954 the Foundation contributed 12,000,000 Colombian pesos (about \$504,000), to the University of Valle to be used over the next five years. The university and community plan to furnish increasing support, and to meet the total cost of the new department by the end of this period.

HARVARD UNIVERSITY  
MEDICAL SCHOOL

Increasing evidence that the psychological and environmental factors surrounding a patient can influence disease has led to the belief that medical schools might need to present a broader training program to their students. The feeling is that there should be a greater utilization of outpatient and ambulatory services for instruction in physiological and scientific medicine.

Most of the experiments which have been set up in medical schools in the United States for this purpose have improved the teaching in particular areas, but there has remained a need for developing patterns of complete family care through teams of students, staff, and personnel of clinical departments, working in cooperation with community paramedical and medical facilities. Harvard University Medical School and Massachusetts General Hospital have formulated a joint plan for teaching family care which will include the study and development of such patterns for home care, outpatient services, and hospitalization for family units.

The hospital, the medical school's Departments of Preventive Medicine and Psychiatry, the Division of Social Relations, and other departments of the university, will collaborate with the clinical departments on this program. A junior staff, in association with the senior members of each clinical service working within the outpatient department, will be responsible for the care of the families. Liaison will be established with other medical institutions, social service workers, and public health or community nurses, for services and teaching.

In addition to providing training in family care for the medical school students and resident personnel, there will be opportunities for fundamental studies of the medical needs within the geographic area served by the hospital. Studies

of family structure and stress in relation to disease will be undertaken by the Department of Psychiatry. The program is being supported in part by a five-year grant of \$275,000 made by the Foundation in 1954 to Harvard University.

NATIONAL RESEARCH COUNCIL  
FELLOWSHIPS IN MEDICAL SCIENCES

The fellowship program in the medical sciences administered by the National Research Council with funds supplied by The Rockefeller Foundation completed its 34th year of continuous operation in 1954. These fellowships, together with those in the natural sciences also administered by the National Research Council with the cooperation of the Foundation, constitute a successful and distinguished series of awards for advanced study in the basic medical and natural sciences.

The success of the National Research Council's program of medical fellowships is well known. Repeated analyses have shown that all but a very small percentage of the fellowship holders go on to influential teaching and research positions. Because the most crucial single factor in the continued excellence of American medical education will be the quality of the men available for teaching posts, the council's fellowship program will continue to be a significant one.

One reason for the success of the program is that the fellowships are not restricted as to the place in which the holder may study, or as to the subject which he may investigate. This feature distinguishes the National Research Council's program from various others. Since the war, the number of fellowships available from other sources has increased very substantially. However, though the investment of government and private agencies in the promotion of medical research continues to increase, there is a growing tendency to promote fellowships which are restricted to

work within specific disease areas and within a narrow discipline of perhaps temporary importance. The National Research Council program encourages men to seek out understanding and experience in their own way.

In view of the importance of the fellowship program for the future of medical education, its support for an additional three-year period ending in 1958 has been assured by a grant of \$150,000 to the National Research Council.

#### CHILDREN'S HOSPITAL, MEXICO CITY

##### PEDIATRICS

The Children's Hospital in Mexico City, established in 1943 under the direction of Dr. Federico Gomez, has developed a teaching program which has become one of its major activities. In addition to the conventional type of intern training, complete postgraduate instruction in pediatrics is provided. Training in this discipline has assumed more and more importance; the hospital now has 42 interns, 18 assistant residents, and 6 residents, each appointment covering a two-year period. In addition, individual courses in pediatrics and such special fields as radiology, anesthesiology, and pathology are offered to practicing physicians, and a course in pediatric nursing is open to graduate students from other institutions. The postgraduate clinical courses are given in conjunction with the National University of Mexico, which sponsors the entire program and awards certificates on the successful completion of each course.

A significant feature of the teaching program is its extension beyond the geographical boundaries of Mexico. A large number of foreign doctors — mostly from South and Central America — are admitted for training. Research is focused on problems of special clinical importance for Latin American countries, such as disorders of nutrition, and enteric infections in infancy. A location in a setting where disease patterns and the environment present problems

similar to those of other Latin American countries makes the hospital particularly well suited to this international role.

Full development of the research and teaching program has been aided by a five-year grant of 1,588,235 pesos and \$15,000 (about \$150,000) to the Children's Hospital. The grant is being used principally for salary supplements for a full-time teaching staff, in the expectation that the hospital will gradually take over this expense.

#### UNIVERSITY OF NATAL

##### DURBAN MEDICAL SCHOOL

In the Union of South Africa much of the medical care for the non-European inhabitants is given through multi-purpose health centers. These centers need doctors familiar with the problems of practice in this setting, as well as with technical aspects of public health sanitation and community social development.

The University of Natal established the Durban Medical School in 1951 to train physicians to care for the non-European population in South Africa and other African countries. Its program includes preventive medicine, environmental control, education, and social rehabilitation. The Institute of Family and Community Health, which was formed by Dr. Sidney L. Kark to develop methods and set standards for the other health centers in the Union, will now become an integral part of the Faculty of Medicine.

The objective of the new department of family practice is to provide a setting for continuous training in preventive and curative medical care in the health centers and homes of the community. The department staff will also hold appointments in the centers and serve as practicing physicians and teachers. There will thus be full integration of community resources with those of the university for instruction of the medical students. Associated facilities of the

university will be drawn upon for additional teaching in fields related to medical and community problems.

A Foundation grant of South African £42,400 (about \$127,200) for a five-year period has been appropriated to the university toward the development of the department.

#### MEDICAL RESEARCH COUNCIL OF GREAT BRITAIN

##### FELLOWSHIP PROGRAM

The Medical Research Council of Great Britain, with the cooperation of The Rockefeller Foundation, has been awarding fellowships in the medical sciences since 1923. During this period, 133 persons have received traveling fellowships, 116 of whom are still engaged in teaching or research in Great Britain. As in the case of the Foundation's cooperation with the National Research Council in the United States, the appointment of fellows and the selection of their fields of study lie entirely in the hands of the Medical Research Council. The list of former fellows contains the names of many medical scientists of international standing and reputation.

In 1954 the Foundation appropriated \$125,000 which, in addition to a grant made in 1952, will make it possible for the Medical Research Council to continue its fellowship program during the period ending in August, 1959. This program has resulted in a measure of understanding and good will between the leaders of British and American medicine which the Foundation hopes may be continued and increased.

#### NATIONAL INSTITUTE OF CARDIOLOGY, MEXICO CITY

##### CARDIOVASCULAR RESEARCH

The National Institute of Cardiology in Mexico City enjoys an importance in Latin American medical care and research quite beyond that implied by its special interest

in diseases of the heart as expressed in its title. The cardiological institute plays a leading role in preparing teachers of clinical medicine and certain of the basic sciences for the rest of Mexico and other parts of Latin America.

The institute was founded in 1944 by Dr. Ignacio Chavez as an independent center for research and post-graduate training in cardiovascular disease. The physical plant includes a hospital of 160 beds, a large outpatient department, lecture and conference rooms, and both service and clinical research laboratories. A separate building houses well-equipped laboratories for basic research in physiology and pharmacology under the direction of two full-time investigators, Dr. Arturo Rosenbluth and Dr. Rafael Mendez.

In the laboratories there is an average of eight full-time research fellows, about half of whom are being trained for teaching or research posts in Mexico and the rest for other Latin American countries. In addition the laboratories provide facilities for some ten visiting investigators from other countries for periods varying from a few months to a year.

The research program of the laboratories is concerned principally with the physiology and pharmacology of heart muscle and its blood supply through the coronary arteries, but also includes a number of basic studies on nerve conduction and reflex action. The institute is still in a period of development and expansion, and expects to complete a laboratory for experimental medicine within the next few years with a dual research and teaching program similar to that of the laboratories of physiology and pharmacology.

The Foundation has made an outright final grant of \$50,000 to support the basic research laboratories of the institute through the transition period while the already generous local support increases to an amount sufficient to carry the budget.

## STATE MEDICAL BOARD OF FINLAND

## UUSIMAA FIELD DEMONSTRATION AND TEACHING AREA

More than 60 per cent of the four million inhabitants of Finland live in rural areas under conditions varying from small market towns of a few hundred inhabitants to isolated farm and forest houses scattered through the countryside. This circumstance, together with the climatic conditions and sparse communications, has created difficult problems in the provision of medical care services to the rural public.

These problems have been met by the development of a system which is noteworthy for the way in which it is adapted to Finnish conditions and requirements, and for the degree of integration of curative medicine, preventive medicine, and public health services which has been achieved.

The rural commune, the basic local political authority, employs a physician as a communal official. He receives a house, a salary, and a well-equipped office and clinical laboratory, where he carries on a private practice for which he receives fees. In return for his salary, he provides general practitioner service, without charge, to those certified by the commune as unable to pay for private medical care. He is also responsible for operating the free communal public health services, such as maternal and child welfare clinics, and venereal disease and tuberculosis controls.

Because the communal physician is responsible for up to 8,000 people scattered over a relatively large area, the supplementary cooperation of well-trained midwives and public health nurses is important.

It was to provide facilities for the improvement of the training for these services that a teaching area was established in 1950 in the Province of Uusimaa. Students of the national schools of nursing, public health nursing, and midwifery are sent here for two to four months of resident field training under close supervision. In the past three years of operation of the Uusimaa area, 714 nurses and midwives

have received training under this program. In addition, field training in the area forms a part of the undergraduate instruction of Helsinki University medical students in public health and preventive medicine.

The Rockefeller Foundation has appropriated \$32,500, available during a three-year period, to provide continuity for this significant experiment.

#### NATIONAL LEAGUE FOR NURSING, INC.

##### NURSING EDUCATION

The National Nursing Accrediting Service was instituted in 1949 by the National League for Nursing, Inc., to evaluate schools of nursing in the United States, and to assist them in improving their programs to a point where they could gain accreditation under a uniform standard of nursing education.

In 1951 the accrediting committee developed criteria for judging the services in these schools, and on the basis of a questionnaire and visits by trained personnel, temporary accreditation was given for a five-year period to 628 of the 904 schools evaluated. A long-range program of supervision by qualified nursing educators, the use of self-evaluation guides, and a series of regional conferences have resulted in full accreditation to nearly 200 of this group, with the probability that 500 will reach this goal during the next three years.

The Foundation has appropriated \$72,000 since 1950 toward the accreditation program and has continued its support in 1954 by a grant of \$63,771 for a three-year period to the National League for Nursing, Inc.

#### ROYAL TECHNICAL COLLEGE, GLASGOW

##### SANITARY ENGINEERING

A postgraduate training and research program in en-

vironmental control has been organized at the Royal Technical College in Glasgow, Scotland. Like the two other British centers in sanitary engineering, that at Glasgow has an interest in equipping personnel to meet the needs of less developed areas of the world. Problems concerning types of water, sewage disposal systems, and related power and environmental needs in nearby towns will provide a convenient opportunity for field research and for experimentation.

A Foundation grant of £24,000 and \$10,000 (about \$82,000) over a five-year period will enable the college to launch its postgraduate course in sanitary engineering.

#### NATIONAL UNIVERSITY OF COLOMBIA

##### FACULTY OF MEDICINE

The Faculty of Medicine of the National University of Colombia, located in Bogotá, enjoys a key position in medical education not only in Colombia but in the Andes region. The faculty will soon move into a new medical school building which offers excellent physical facilities for instruction in the preclinical sciences. Because most of the faculty's budget is being devoted to strengthening the full-time instruction of the school, and because the purchase of necessary equipment might therefore be unduly delayed, the Foundation has made a grant of \$60,000 for research and teaching equipment, to be expended during the period ending December 31, 1956.

#### UNIVERSITY OF DURHAM

##### KING'S COLLEGE, NEWCASTLE-UPON-TYNE

The contribution of public health engineers to the improvement of environmental conditions in less developed countries will be furthered by the expansion of the public health engineering program of King's College at the Uni-

versity of Durham in England. The program, to be housed in a new building at the university, will include investigations of environmental control problems, and engineers will be trained to integrate their work in such fields as water supply, drainage, and housing, with health, agricultural, and development programs.

As an outcome of its interest in West Africa, and its long-standing affiliation with Fourah Bay College in Sierra Leone, the expanded department will provide for research into West African problems, and for training of West African students. Attempts will be made to work out co-operative arrangements with West African schools of technology for exchange of staff and students, and for consultation on engineering problems.

The Foundation has granted £16,000 (about \$48,000) for a four-year period to the University of Durham toward support of this project.

#### INSTITUTION OF CIVIL ENGINEERS, LONDON

#### PUBLIC HEALTH ENGINEERING FELLOWSHIPS

Since 1952, the Institution of Civil Engineers has awarded fellowships to public health engineers for graduate study and research in the universities of the United Kingdom, with the aid of a three-year grant from the Foundation.

Many of the fellowships have been awarded in overseas areas of the Commonwealth, including Africa, India, Australia, and Malaya. It is expected that this trend will continue and that a corps of environmental engineers will become available for posts in less developed areas and in universities.

Graduates of the program are already employed in several branches of the British government, both national and local, and as consultants in private firms in the United Kingdom and abroad.

In 1954 the Foundation extended its first grant of

£12,000 (about \$36,000) to the institution by an additional £16,000 (about \$48,000) for uninterrupted support of the bursaries through 1960.

#### UNIVERSITY OF PUERTO RICO

##### MEDICAL SCHOOL LIBRARY

The School of Medicine of the University of Puerto Rico, organized in 1949 and housed in the buildings of the former School of Tropical Medicine, is generously supported by the government of Puerto Rico. But because the costs of launching the medical school have been heavy, the library cannot be developed as rapidly as the need for its facilities requires.

With a consultant from the United States, the librarian listed the publications most needed to round out the present collections; for the purchase of the books and journals indicated, The Rockefeller Foundation has appropriated \$25,000, available until June, 1957, as matching sums are obtained in cash from other sources for the same purpose.

#### SMALLER GRANTS

University of Toronto, Canada: Faculty of Medicine, Department of Medicine and Department of Hygiene and Preventive Medicine; teaching and research in medical care; C\$27,740 (about \$29,150), for a three-year period;

Medical Library Association: foreign fellowships in medical librarianship; \$15,000 for the period ending May 31, 1957;

Tokyo University, Japan:

School of Nursing; teaching aids and equipment; \$10,000;

School of Medicine; Professor Yoshio Mikamo, Department of Medicine; to observe methods in teaching hospitals in the United States; \$3,100;

University of Guadalajara, Jalisco, Mexico: Faculty of Medicine, Department of Biochemistry; equipment; \$10,000;

King George's Medical College, Lucknow, India: Pathology Department; equipment and supplies; \$10,000;

Christian Medical College, Vellore, India:

To establish a hospital record system; 39,300 rupees (about \$8,650);

Department of Public Health and Preventive Medicine; to promote preventive medicine teaching and investigation, and to develop village medical services, under the direction of Dr. LeRoy R. Allen; \$3,700;

Keio University, Tokyo, Japan; School of Medicine:

Department of Preventive Medicine and Public Health; equipment; \$8,200;

Dr. Taiei Miura, professor of neuropsychiatry; to observe teaching methods in psychiatry in the United States and Canada; \$3,850;

Christian Medical College, Ludhiana, India: Department of Preventive Medicine; promotion of preventive medicine teaching and investigations, under Dr. Carl E. Taylor; \$8,500;

Massachusetts Medical Society: Postgraduate Medical Institute; a program of continuing education for the practicing physician; \$7,500;

Turku University, Finland; Faculty of Medicine:

Equipment; \$6,200;

Dr. Eero Mustakallio, professor of bacteriology; to observe recent developments in medical education in the United States and Canada; \$2,650;

Rhenish Frederick William University, Bonn, Germany: Institute of Anatomy; research of Dr. Emmi Hagen; \$6,150;

University of Saskatchewan, Saskatoon, Canada: College of Medi-

cine; visits to medical education centers in the United States and Canada, by seven professors and assistant professors; \$6,000;

Medical College, Indore, India: Department of Physiology; equipment to be used under the direction of Dr. J. C. Sachdev; \$5,500;

Darbhanga Medical College, Patna, Bihar, India: Department of Anatomy; equipment to be used by Dr. N. L. Mitra; \$5,200;

University of Minas Gerais, Belo Horizonte, Brazil: Faculty of Medicine, Department of Biochemistry; equipment for the use of Dr. James B. Sumner; \$5,000;

University of Geneva, Switzerland: Institute of Physiology; equipment to be used by Professor Jean Posternak; \$5,000;

Conference of Indian medical educators on undergraduate medical education in India; \$5,000;

New York University-Bellevue Medical Center, New York: College of Medicine Library; books on sanitation, public health, and preventive medicine, as a memorial to General William Crawford Gorgas; \$5,000;

Republic of Korea: purchase of medical and public health publications for selected institutions; \$5,000;

Nilratan Sircar Medical College, Calcutta, India; Thoracic Surgery Unit:

Equipment to be used under the direction of Dr. A. K. Basu; \$4,600;

Equipment to be used by Dr. S. K. Chatterjee, anesthetist; \$4,000;

Stanley Medical College, Madras, India: Dr. A. Ananthanarayana Ayer, chairman, Department of Anatomy; to observe modern trends in medical teaching and research with special reference to anatomy, in the United States, Canada, and Europe; \$4,450;

Lady Hardinge Medical College, New Delhi, India: equipment and supplies for the Cardiology Unit, under the direction of Dr. S. Padmavati; \$4,000;

Medical College Hospital, Patna, Bihar, India: equipment for the use of Dr. U. N. Shahi, director, Chest Surgery Unit; \$4,000;

Medical College Hospital, Trivandrum, Travancore-Cochin, India: Dr. R. T. Kesavan Nair, superintendent; to observe modern trends in surgery and in medical and nursing education in the United States and Great Britain; \$3,950;

Medical College, Baroda, India: Dr. A. N. De Quadros, principal; to visit medical centers in the United States; \$3,850;

University of the Philippines, Quezon City; Institute of Hygiene: Teaching aids and equipment; \$3,700;

Dr. Juan Sanchez Salcedo, Jr., professor of chemical hygiene and nutrition; to observe new developments in biochemistry and nutrition in Europe and the United States; \$3,000;

University of São Paulo, Brazil; Faculty of Medicine, Ribeirão Preto:

Dr. José Lima Pedreira de Freitas, professor-designate of hygiene and preventive medicine; to visit departments of preventive medicine in the United States and South America; \$3,250;

Dr. Ruy Ferreira Santos, head, Department of Surgery; to visit recognized centers for undergraduate and graduate (internship and residency) teaching of surgery in the United States; \$3,100;

To enable Dr. Fulvio José Carlos Pileggi, Clinical Hospital, to accept a residency at the National Institute of Cardiology, Mexico City; \$960;

Medical College, Amritsar, East Punjab, India:

Chest surgery equipment for the use of Dr. Yudveer Sachdeva, clinical professor of surgery; \$3,200;

Dr. Yudveer Sachdeva; extension of travel grant to observe the teaching of thoracic surgery at Harvard University Medical School; \$26.50;

National Health Service of Denmark, Copenhagen: Miss Maja Foget, director of nursing education; to study outstanding uni-

versity schools of nursing and meet with nursing educators in the United States and Canada; \$3,150;

University of Melbourne, Australia: Faculty of Medicine; Professor Sydney Lance Townsend, Department of Obstetrics and Gynecology; to serve as lecturer in the Department of Obstetrics, Johns Hopkins University, Baltimore, Maryland; \$3,050;

University of Chile, Santiago:

School of Medicine:

Dr. Juan Allamand, assistant professor of surgery; to observe recent developments in medical education, specifically in the undergraduate and postgraduate teaching of surgery, in the United States and Canada; \$3,050;

Professor Hernán Alessandri Rodriguez, Department of Medicine; to observe modern trends in the teaching of internal medicine in the United States; \$2,700;

Miss Erica Thiermann, laboratory assistant, Department of Parasitology; to visit the National Institutes of Health, Bethesda, Maryland; \$500;

Government of India, New Delhi: The Hon. Rajkumari Amrit Kaur, Minister of Health; to visit medical centers and public health agencies in the United States; \$3,050;

Dr. Eustace Akwei, medical officer of health, Accra, Gold Coast, West Africa; to observe the organization of medical and health services in the British West Indies, British Guiana, Puerto Rico, and the United States; \$2,850;

University of London, England: Dr. John R. Ellis, sub-dean, London Hospital Medical School; to observe latest developments in medical education in the United States; \$2,150;

McGill University, Montreal, Canada:

Professor F. Clarke Fraser, Department of Genetics; to visit medical genetics centers in Europe; \$2,650;

Miss Rae Chittick, director, School for Graduate Nurses; to visit university nursing schools in the United States; \$1,000;

Victoria University of Manchester, England:

Dr. Robert Francis Leslie Logan, liaison officer, Darbshire House Health Center; to visit recognized centers of medical education and medical care in the United States; \$2,800;

Professor Ronald James Cornish, College of Technology; to observe public engineering education, practice, and research in the United States; \$2,575;

Province of Saskatchewan, Canada: Department of Health, Regina; Dr. Abram Hoffer, director, psychiatric research; to visit psychiatric centers of Great Britain, Scandinavia, and other parts of Europe; \$2,700;

Ministry of Health, Federation of Rhodesia and Nyasaland, Salisbury, Southern Rhodesia: Dr. Richard Murchison Morris, Secretary for Health; to observe the organization of schools of medicine and public health in the United States; \$2,625;

Mandaqui Tuberculosis Hospital, São Paulo, Brazil: Dr. Gabriel Martins Botelho, chief surgeon; to visit recognized centers of thoracic surgery in the United States; \$2,550;

American University of Beirut, Lebanon: Faculty of Medicine; Dr. Leonardo Giaccai, chairman, Department of Radiology; to visit radiological centers in the United States and Canada to observe new methods and techniques in radiotherapy; \$2,500;

Massachusetts General Hospital, Boston: Dr. Raymond D. Adams, chief of neurology; to visit neurological centers in Europe, including England; \$2,500;

University of Glasgow, Scotland: Miss Margaret B. Swann, lecturer, Department of Psychological Medicine; to visit centers of psychiatric social work in the United States and Canada; \$2,400;

University of Recife, Brazil: Professor Nelson Ferreira de Castro Chaves, head, Department of Physiology, Faculty of Medicine; to observe modern trends in physiology teaching and research in the United States; \$2,350;

University of Chicago, Illinois:

Dr. Lester R. Dragstedt, chairman, Department of Surgery; to visit surgical centers in Great Britain and Europe to observe recent developments in the fields of surgery and physiology; \$2,250;

Dr. Wright Rowe Adams, chairman, Department of Medicine; to visit centers of medical education in Europe; \$2,150;

Pasteur Institute, Paris: Dr. Jean Vieuchange, laboratory chief; to observe recent developments in virus research in the United States; \$2,150;

University of Pennsylvania, Philadelphia: School of Medicine; exchange of senior assistants between that school and the Veterinary High School of the University of Stockholm, Sweden; \$2,100;

Indian Council of Medical Research, New Delhi: Dr. Chintaman Govind Pandit, secretary; to visit medical centers and government health agencies in the United States and Puerto Rico; \$2,050;

Karolinska Institute, Stockholm, Sweden: Dr. Eric Klas Henrik Kugelberg, associate professor of clinical neurophysiology; to visit neurological and neurophysiological centers in the United States and Canada; \$1,950;

Institute of Public Health, Tokyo, Japan: Dr. Yoshio Koya, director; to observe the teaching of public health and preventive medicine in the United States; \$1,900;

Ministry of Health and Welfare, Tokyo, Japan: Miss Mitsu Kaneko, chief, Nursing Section; to observe nursing and midwifery programs in Europe; \$900;

Kyushu University Medical School, Fukuoka City, Japan: Dr. Haruo Mizushima, professor of hygiene and public health; to observe the teaching of public health and preventive medicine in the United States; \$1,900;

Otago University Medical School, Dunedin, New Zealand:

Dr. John Bruce Howie, Department of Pathology; to visit hematological centers in the United States and Canada; \$1,750;

Dr. Frederick H. Smirk, Department of Medicine; to visit certain medical centers in the United States and Canada to observe hypertensive and cardiovascular research, as well as recent advances in the practice and teaching of general medicine; \$1,000;

University of San Marcos, Lima, Peru: Dr. Oswaldo Hercelles, dean, Faculty of Medicine; to observe modern trends in medical education in the United States; \$1,750;

St. George's Hospital, London, England: Miss Muriel Betty Powell, matron; to observe nursing schools and nursing service institutions in North America; \$1,700;

University of Antioquia, Medellin, Colombia: Professor Alfredo Correa-Henao, head, Department of Pathology; to observe modern trends in the teaching of pathology in the United States; \$1,650;

Royal Technical College, Glasgow, Scotland: Dr. Adam Simpson Turnbull Thomson, professor of civil and mechanical engineering; to visit sanitary engineering centers in the United States; \$1,650;

Seoul National University Medical School, Korea: Dr. Sang Whang Shim, professor of preventive medicine; to observe teaching of preventive medicine and public health in the Philippines and in Japan; \$1,550;

University of Guanajuato, León, Mexico: Dr. Francisco Gomez Guerra, professor of thoracic surgery; to observe modern trends in medical education in the United States and Canada; \$1,500;

University of Helsinki, Finland: Institute of Sero-Bacteriology; library equipment; \$1,500;

Johns Hopkins University, Baltimore, Maryland; School of Medicine:

Dr. Jerzy E. Rose; to serve as visiting professor in the School of Medicine, University of Chile; \$1,450;

Dr. George Otto Gey, director, Division for Cellular Pathology, Department of Surgery; to visit European laboratories conducting work in cell research and virology; \$500;

National University of Mexico, Mexico City: School of Medicine; Dr. José Laguna, lecturer in biochemistry; to observe modern trends in medical education in the United States and Canada; \$1,450;

University of Michigan Hospital, Ann Arbor: Dr. Donald Cameron Smith, resident in pediatrics and communicable diseases; to observe methods of teaching maternal and child health in the United States; \$1,400;

Harvard University Medical School, Boston, Massachusetts: Dr. George Packer Berry, dean; to observe recent developments in the Faculty of Medicine, American University of Beirut, Lebanon; \$1,350;

University of Puerto Rico, San Juan; School of Medicine:

Mrs. Dulce Maria Q. Negron, associate professor of nursing education; to visit nursing centers in the United States; \$1,300;

Miss Sara L. Morales, medical records librarian; to observe the handling of medical records in connection with the regionalization program in the United States; \$1,100;

Dr. Guillermo Arbona, professor and head, Department of Preventive Medicine and Public Health; to observe medical and hospital care programs in the United States; \$800;

Jefferson Medical College, Philadelphia, Pennsylvania: Professor Romano H. De Meio; to visit the Faculty of Medicine and Neurological Institute, National University of Chile, in connection with the university's need for a professor of biochemistry; \$1,265;

Medical Research Council of Great Britain, London: Dr. Jeremy N. Morris, director, Social Medicine Research Unit; to visit research centers in the United States in the epidemiology of chronic diseases, social medicine, and the teaching of preventive medicine to medical students; \$1,150;

University of Missouri, Columbia: Division of Nursing Education; a study of university nursing schools and continuing medical and nursing education programs as a part of regional planning, to be undertaken by Miss Virginia Hall Harrison, director; \$1,000;

United States Public Health Service: Dr. Bernard D. Davis, senior surgeon; to observe new techniques in research in protein synthesis at the Pasteur Institute, Paris; \$1,000;

Yale University, New Haven, Connecticut; School of Medicine:

Dr. Ira Vaughan Hiscock, professor of public health; to observe modern trends in Europe in the teaching of medical students in preventive medicine and public health; \$1,000;

Dr. Nicholas Joseph Giarman, Department of Pharmacology; to serve as exchange professor in the Department of Pharmacology, University of Edinburgh, Scotland; \$1,000;

Dr. Joseph Lewis Melnick, Department of Microbiology; to visit virus research centers in Israel; \$600;

Medical School of Pará, Belém, Brazil: to enable Professor Mario Machada Sampaio, Department of Histology and Embryology, to accept an assistant professorship in the Department of Anatomy, Louisiana State University School of Medicine; \$600;

University of Oxford, England: Dr. Francis Paul Glees, lecturer and university demonstrator, Laboratory of Physiology; to visit laboratories of neurophysiological research in the United States; \$800;

Commonwealth of Puerto Rico, San Juan; Department of Health:

Julio A. Perez, director, Hospital Survey and Construction Bureau; to visit medical care centers in New York, Boston, Rochester (N.Y.), Ann Arbor, and Baltimore; \$575;

Dr. Ernesto Quintero, director, Division of Public Health; to visit medical care centers in New York, Boston, and Rochester (N.Y.); \$400;

Dr. Oscar Costa-Mandry, director, Office of Pathology and Medical Education; to observe regionalization programs in the United States; \$350;

National Health Services of Chile, Santiago: Dr. Victor Ayub-Hauva; extension of visit to observe medical care activities in the United States, Canada, and authorized European countries; \$544;

South African Institute for Medical Research, Johannesburg: Dr. Maurice Paul Weinbren; to visit the Virus Research Institute, Entebbe, Uganda; \$500;

Mahatma Gandhi Memorial Medical College, Indore, Madhya Bharat, India: Dr. Bimal Chandra Bose, professor of pharmacology; extension of travel grant to include Canada, Europe, and Lebanon; \$500;

University of Aberdeen, Scotland: Dr. James Walker, senior lecturer in obstetrics; to visit laboratories of obstetric medicine research in the United States; \$400;

Medical College and Hospital, Nagpur, Madhya Pradesh, India: Dr. Govind Lal Sharma; extension of travel grant to observe medical education and facilities in Puerto Rico; \$215;

Ministry of Health, Republic of Korea: National Institute for Prevention of Infectious Diseases; shipment of medical journals and periodicals; \$70;

Syracuse University, New York: Miss Elfreda Sprague; to confer with officers of the Division of Medicine and Public Health in connection with her doctoral dissertation; \$65.

## Medical Care

### DEPARTMENT OF HEALTH, PUERTO RICO

### SURVEY OF MEDICAL AND PUBLIC HEALTH FACILITIES

The University of Puerto Rico and the Commonwealth Government are undertaking a joint study of methods to improve medical care on the island by the regionalization or coordination of its outlying and central health resources. The Bayamón district, with a population of 400,000, will serve as a demonstration area in which the basic pattern for regionalization in the whole of Puerto Rico may be worked out.

A preliminary survey will explore existing facilities in the district, and the possibility of reorganizing the services of the Department of Health. Subsequent action would involve the integration and development of the present resources; educational programs for professional and administrative personnel, and for the public; consultation services in all fields; and development of methods of evaluating administrative and health care problems.

In 1954 the Foundation granted \$63,500 for an 18-month period to the department toward the preliminary survey in the Bayamón region.

#### HEALTH INSURANCE PLAN OF GREATER NEW YORK

#### STUDY OF RECORDED EXPERIENCE OF THE PLAN

The Health Insurance Plan of Greater New York, established in 1947, is the largest and one of the most successful plans of prepaid medical care in this country. Not only is its program unusually comprehensive, but its experience has also been translated into a body of statistical data which is unique in many respects. The Plan has more information than is available anywhere on the sickness experience of typical middle-class families and their medical needs, as indicated by the amount and kind of medical care they consume when they face no economic barriers in asking for it.

Aided by appropriations from The Rockefeller Foundation and the Commonwealth Fund, the Health Insurance Plan in 1951 embarked on a study of its statistical data and its experience. The study, designed by a committee of biostatistical and medical care experts under the chairmanship of Dr. Lowell J. Reed, president of Johns Hopkins University, is now nearly complete. To provide for the final analysis of the material, and for the writing of a report, the Foundation has appropriated \$20,500, and the Commonwealth Fund a like amount, available through 1955.

**SMALLER GRANTS**

University of North Carolina, Chapel Hill: Division of Health Affairs; continuation of a study of general medical practice; \$15,000;

University of California:

At Los Angeles:

Institute of Industrial Relations; labor health education program; \$10,000;

At Berkeley:

Extension Division; to establish a certificate course in medical care administration; \$7,000.

## **Investigation and Control of Specific Diseases and Deficiencies**

### **THE VIRUS RESEARCH PROGRAM**

During the course of the study of jungle yellow fever by The Rockefeller Foundation, several unknown viruses were isolated, chiefly from mosquitoes, in South America and Africa. An intensive study showed that some of them were related to the viruses causing such well-known diseases as St. Louis encephalitis, yellow fever, dengue, and Japanese B encephalitis. It was also shown that antibodies to some of the new viruses were quite prevalent in the blood of human beings in the countries where they were discovered, indicating that human infections were common.

The close similarities among many of the new viruses, as shown in the laboratory and by their epidemiological patterns, led The Rockefeller Foundation to undertake a study of the arthropod-borne virus infections of man and his domestic animals throughout the world. The object of the study is to determine the distribution, incidence, epidemiology, and clinical manifestations of these infections.

It is thus primarily a fact-finding study designed to determine the importance of these virus infections and to acquire the necessary knowledge which will enable public health authorities to control their spread. For this virus research program the Foundation appropriated \$300,000 in 1954.

A great deal is known about the epidemiology of some of the agents under study. All have certain features in common. Man or his domestic animals become infected by blood-sucking arthropods only accidentally and are not essential to the maintenance of the virus cycle in nature. The primary virus cycle involves wild animals and birds. Examples of reservoir hosts which have been shown to be of importance are monkeys in the case of yellow fever, and various species of birds in Eastern and Western equine encephalitis, Japanese B encephalitis, and West Nile infection. The virus program is thus essentially a study of the infections of man when exposed to various ecological conditions. To achieve this objective, the central virus laboratory in New York is coordinated with field laboratories in various parts of the world.

At present five field stations are in operation, located on four continents. In the Far East a station at Poona, India, is operated jointly with the Indian Medical Research Council. In the Union of South Africa, at Johannesburg, a station is maintained in cooperation with the South African Institute for Medical Research. Two units are located in the South American region: one at Port-of-Spain, Trinidad, collaborative with the Government of Trinidad and the Colonial Medical Service; the other at Belém, Brazil, operated in conjunction with the Servico Especiales de Saude Publica. In 1954 a new station was established at Berkeley, California, collaborative with the State Department of Health.

Of prime importance to the study is the classification of the agents involved. Of the methods available for making the

classification, immunological reactions are of major significance, and through their use great advances have been made. Among the approximately 30 known arthropod-borne viruses two groups have been clearly defined. To the first, or Group A, belong the three equine encephalitides, Sindbis, and Semliki Forest virus. To Group B belong such well-known agents as the viruses of yellow fever, dengue, St. Louis encephalitis, Russian spring-summer encephalitis, and Japanese B encephalitis, as well as the Zika, Uganda S, Ntaya, and Ilhéus viruses discovered during The Rockefeller Foundation yellow fever investigations in Africa and South America.

This classification is based chiefly on the results obtained with the recently developed hemagglutination-inhibition (HI) test. It has been found that for many of the viruses preparations known as antigens can be made which have the power of agglutinating chicken red blood cells. The agglutination can be inhibited if a serum containing antibodies to the virus is added to the system. An immune serum to a given virus will inhibit agglutination with a specific antigen to a high titer. The same serum also has the ability to inhibit agglutination with an antigen prepared with other viruses belonging to the same group. This immunological overlap is slight in Group A but very pronounced among Group B viruses.

To assess the possibility of the use of the HI test for survey purposes is at present one of the major objectives of the virus program. Survey work — that is, the determination of the incidence of antibodies in any population — is now conducted by means of protection tests in mice. The substitution of a test-tube test for experimental animals would enormously facilitate and speed up this work.

The results obtained to date indicate that the HI test will be of value with the Group A viruses. There has been excellent correlation of results between the HI and protection

tests in mice obtained with sera from known cases of Venezuelan equine encephalitis virus infections in man in Colombia.

With sera from cases of infection with the Group B agents, the results are not as clear-cut. Nevertheless, in regions where only one Group B agent is prevalent, it is probable that the HI test will be of great value for survey purposes. Following an infection with a member of the Group B viruses, antibodies are produced which have the power of inhibiting agglutination not only with an antigen prepared from the causative virus but also with antigens prepared from other members of the group.

After a limited amount of work it has been found that some of the Group B viruses produce distinctive patterns of antibodies. The study of sera from confirmed cases of West Nile infection in Egypt showed that hemagglutination-inhibition antibodies were most active against a West Nile antigen and to a lesser extent against Japanese B, St. Louis, Ntaya, and Ilhéus antigens. Essentially similar results were obtained with sera from confirmed cases of St. Louis encephalitis in California. Here the convalescent sera were most active against the homologous antigen. In Egypt the only Group B virus shown to be present is West Nile, and in California the only Group B virus is St. Louis encephalitis.

The pattern of hemagglutination in the sera from individuals in Trinidad seems to be determined largely by dengue infections. This virus appears to be the most complex of all the Group B agents. Infection with dengue stimulates the production of antibodies which are active to an almost equal degree against antigens made from any other Group B virus.

HI tests have been shown to be of great value in determining the over-all infection rate with Group B agents in a community. For this purpose the test is possibly of greater value than the standard protection test in mice. It is also of great value in the diagnosis of acute infections in man. The

absence of HI antibodies in the serum taken during the acute phase of the disease and the presence of such antibodies in the convalescent specimen is clear evidence of infection. With the accumulation of knowledge regarding the pattern of antibodies produced by the different members of Group B viruses, it may be possible in the future to make a more specific diagnosis.

The protection test in mice is still the most useful method for determining the incidence and distribution of infections caused by the viruses under study. Extensive application of this test has supplied a great deal of information. In the Union of South Africa the results show that over the major portion of the area studied immunity to the viruses known to be prevalent in Central Africa is remarkably low. Only in an area of the Eastern Transvaal and Northern Natal was a significant number of immunes discovered. Here the agents involved were Semliki Forest, Bunyamwera, and Bwamba viruses.

Human immunity to the West Nile virus was found to be rare in South Africa. This infection is very prevalent in Central Africa, and it has been the subject of very extensive investigations in Egypt where the infection is extraordinarily common. Crows have been implicated in the epidemiology there. In the children in Egypt it causes a mild febrile disease. That the infection is not always mild was shown by the occurrence of several dengue-like epidemics in Israel which were proven to be caused by West Nile virus. In India it was found that antibodies to West Nile were common. Although this infection is rare in the human population of South Africa, it is presumably prevalent in wild monkeys and birds as well as in cattle and horses. It is thus apparent that infection with West Nile virus is very widespread geographically, and that a great variety of animals are infected.

While the occurrence of immunity to Bunyamwera and Semliki Forest virus was to be expected in South Africa, the

discovery that a significant number of individuals in the Amazon valley had antibodies to these viruses was surprising. Of all the agents under study these two, so far, seem to have the widest distribution in the world. Antibodies to viruses originally isolated from wild-caught mosquitoes in Uganda have been shown to be present in man not only in Africa but also in Malaya, Borneo, and the Amazon valley. In spite of their world-wide prevalence, no other strains of these viruses have yet been isolated, nor has any human infection been reported. It is more than probable that both produce a mild clinical disease.

In South America the protection test surveys have shown that infection with the Ilhéus virus is very common. This agent was originally isolated in Brazil during yellow fever investigations. In both Trinidad and the Amazon valley there is a high incidence of immunity to this virus. An analysis of the results indicates that infection with Ilhéus probably occurs in the forest. Unequivocal evidence of this is the high incidence of immunity among people living on the banks of the Rio Capim, a minor tributary of the Amazon. The region of the Rio Capim is in the Amazon rain forest. The population is sparse and lives in small clearings near the river edge. The common domestic mosquito, *Aedes aegypti*, does not occur there.

Evidence of a similar nature comes from Trinidad where immunity to the Ilhéus virus is prevalent in the rain forest area but is almost entirely absent in the population of Port-of-Spain, the capital city. At the time of these studies *Aedes aegypti* was widespread over a large area which included Port-of-Spain. The absence of a significant number of individuals immune to Ilhéus in Port-of-Spain would indicate that the common yellow fever mosquito, *Aedes aegypti*, is probably not a vector of this agent, and that epidemics involving only man and mosquito are not likely. Again, though infection with this virus is very widespread, no human infection has been definitely diagnosed as being caused by the

Ilhéus virus. Nothing is known concerning the clinical manifestations of Ilhéus infection acquired in nature.

In both Trinidad and the Amazon valley immunity to dengue is prevalent. A comparison of the two regions, however, showed some significant differences. In Trinidad immunity was prevalent not only in the city of Port-of-Spain but also in many of the rain forest regions. The incidence of immunity increased rapidly with age, indicating an endemic condition. In the Amazon valley antibodies to dengue were present only in adults, and no immunes were discovered in the isolated Rio Capim region. One of the differences between these two areas is the fact that *Aedes aegypti*, at the time of these studies, was very prevalent in Trinidad, whereas this species of mosquito has been eradicated from the Amazon region. It is thus possible that immunity to dengue may be correlated with the presence of *Aedes aegypti*, a known efficient vector of the disease. However, these observations do not exclude the possibility that dengue, like all other members of the Group B viruses, has a virus cycle in nature. It is more than probable that reservoirs of this infection do occur. In fact, some of the results of the immunity survey in Trinidad are hard to interpret as being entirely the result of a man-mosquito-man cycle.

In the Amazon valley, in addition to immunes to the virus already mentioned, a considerable number of individuals immune to Eastern and Venezuelan encephalitis viruses were discovered. Of particular interest was the finding of a high incidence of immunity to Eastern equine encephalitis in Cameta. This agent is prevalent in the eastern United States and, before the development of a vaccine, caused extremely severe epidemics in horses. Human infection in the United States is relatively rare, but when it does occur it is likely to be fatal. The discovery of an area in the Amazon valley where the incidence of immunity to this virus is high is thus a unique finding.

In both Trinidad and the Amazon valley evidence has

also been obtained that infection with the St. Louis encephalitis virus occurs. The evidence here is not conclusive because of the known immunological overlap between this virus and other members of Group B. However, if this finding is substantiated, it would indicate that all the North American Group A and B viruses also occur in South America.

The complete epidemiology of none of the North American viruses is known. That man becomes infected by the bites of mosquitoes is a well-established fact. However, mosquitoes are seasonal in their prevalence, disappearing almost entirely in the winter months. How the virus is maintained in nature in North America during this season is a complete mystery. The discovery that the three North American viruses occur in South America raises the possibility that they are introduced each year by migrating birds from South America.

While much information concerning their distribution can be obtained by survey work, more intensive work in selected regions is necessary to determine the epidemiology and significance of the viruses under study. It was for this reason that the field stations were established.

In all countries but particularly in the tropics, many cases of febrile illness of unknown cause occur. In the tropics many of these cases are diagnosed as malaria, even though the extensive use of modern insecticides has considerably reduced the incidence of this disease. Infection with the viruses transmitted by blood-sucking arthropods are generally of relatively short duration, as a rule without distinguishing clinical features. Severe manifestations such as encephalitis occur usually in only a minority of cases.

In an extensive program in Trinidad designed to determine the cause of such fevers of unknown origin, a mild case of yellow fever was discovered in April, 1954. This disease had been last reported on the island in 1914. However, extensive protection tests in mice on serum specimens collected

in 1953 showed eight immunes in young people between 15 and 19 years of age living in the forested regions of east-central Trinidad. This indicated clearly that yellow fever had been present since the last reported case.

The case of yellow fever discovered in Trinidad in April was the first in what eventually was found to be quite an extensive epidemic. The immediate consequence of these findings was to induce the government to intensify its anti-*aegypti* measures and to undertake an island-wide vaccination campaign. The institution of these measures, in all probability, prevented the development of a really severe epidemic.

The study of this epidemic of yellow fever was noteworthy for several reasons. When all investigations are completed it will probably be the most thoroughly studied epidemic of this disease. Although only 15 cases, of which four were fatal, were diagnosed, the infection was widespread in the forested areas of the island. At the same time there was an extensive epizootic of yellow fever in the howler monkeys on the island which killed large numbers of them. Numerous strains of yellow fever virus were isolated from *Haemagogus* mosquitoes.

Although most of the human cases were clearly of the jungle yellow fever type — that is, the infection was acquired in the forest — two cases occurred which must obviously have been infected by the bites of *Aedes aegypti*. One of these was in Port-of-Spain. It is significant that in spite of the prevalence of the common urban yellow fever mosquito in Port-of-Spain, no epidemic developed in the city. It is possible that the numbers of *Aedes aegypti* were below the level necessary for the development of a man-mosquito-man epidemic. Yet the prevalence of dengue, transmitted by the same mosquito, indicates clearly that this infection is endemic in the capital city. It is possible that *Aedes aegypti* is a much more efficient vector for dengue than it is for yellow fever.

The possibility must not be overlooked, however, that

individuals immune to dengue may also be relatively immune to yellow fever. These two viruses have been shown experimentally to be immunologically related. Evidence obtained during this epidemic clearly demonstrated that during an infection with yellow fever individuals develop antibodies which are capable, to some extent, of protecting mice against dengue. Whether the converse is true is being studied.

Diagnosis of fatal cases of yellow fever is usually made by the histopathological examination of livers. The lesions are often typical. This is the basis for the establishment in many countries of a viscerotomy service which consists of the examination of sections of liver from the cadavers of individuals who have died of a febrile disease of less than ten days duration. The special instrument used is called a viscerotome. This service has proved to be of enormous value in indicating where fatal cases of yellow fever occur. There is a generally accepted belief, originating in the last century, that an individual dead of yellow fever is non-infectious. Autopsies on yellow fever cases have been done without fear of accidental infection. It is consequently noteworthy that in Trinidad yellow fever virus was isolated from the liver of three of the fatal cases. Also of great significance was the isolation of yellow fever virus from the blood of a patient on the eleventh day of the disease. In general it has been found that yellow fever virus can be isolated only during the first three to five days of the illness. It is therefore likely that the above observation is a very unusual occurrence.

During the summer of 1954 a severe epidemic of a febrile disease, associated with a high death rate in children, occurred in the city of Jamshedpur in India. The authorities, suspecting a virus etiology, sought the help of the Poona Virus Laboratory. Within twenty-four hours after the receipt in Poona of the invitation to help a field party was under way.

The medical authorities of Jamshedpur had developed the working hypothesis that the encephalitis which was

killing the children was probably transmitted by some blood-sucking arthropod. At first it was suspected that Japanese B virus might be responsible for the epidemic. This virus is known to be active in Malaya, and protection test surveys with Indian sera had shown the possible presence of it in India. Numerous attempts to isolate a virus from the blood, cerebro-spinal fluid, and central nervous systems of fatal cases were unsuccessful. Blood-sucking arthropods of various types were prevalent. Attempts to isolate viruses from these were equally unsuccessful. Paired sera obtained in the acute phase of the disease and during convalescence, examined by means of the complement fixation test, did not reveal any increase of antibodies to any of the known arthropod-borne viruses. None of these, therefore, was the cause of the disease.

As the work progressed it began to appear that the epidemic was probably not due to a blood-sucking arthropod. Confirmation of this view was obtained from the results of control insecticide spraying. The incidence of the disease in those sections of the town where the blood-sucking insect population had been materially reduced by the insecticide was the same as in the portions of the town where no such measures had been taken.

Though the cause of the epidemic has not been determined, the presence of the Virus Unit was of great value in excluding a large number of possible infectious agents and thus guiding the work into other channels. At the present moment the possible relationship of intestinal viruses such as the Coxsackie group to the epidemic is being studied.

Early in 1954 the simultaneous occurrence of illness among human beings and cattle on a farm 26 miles from Johannesburg, South Africa, was studied by the Virus Research Unit in Johannesburg. Within a short time two strains of virus were isolated from *Culex* mosquitoes. Both of these were subsequently shown to be related, if not identical, to the Sindbis virus originally discovered in Egypt. The disease

in cattle was typical of a well-known clinical entity, stiff-sickness — a virus infection suspected of being transmitted by blood-sucking insects. No relation could be shown between the virus isolated from mosquitoes and the disease in human beings or cattle. By means of protection tests in mice, however, it was demonstrated that human infections with the Sindbis-like virus do occur, as 13 of 160 sera tested had demonstrable antibodies to this agent. The effects of infection in man are not known. No antibodies to this agent were found in the blood of cattle on the farm.

The Sindbis virus — a member of Group A — has been repeatedly isolated in Egypt from various species of *Culex* mosquitoes. The finding of a similar agent in South Africa indicates that this virus has a continental distribution. Immunity to Sindbis is quite prevalent in Egyptian residents, but very little is known concerning the clinical manifestations of the infection. In Egypt evidence has also been obtained that birds may be reservoir hosts.

A similar, if not identical, virus has been isolated in India. In fact, the possible relationship of Sindbis virus to Jamshedpur fever was studied. It is thus apparent that this recently discovered virus has a very wide geographical distribution. No similar agent has yet been found in the New World.

In Egypt as well as in South Africa some experimental evidence has been obtained that ticks can be infected with the Sindbis virus. As both regions have marked seasonal variations in climate and, consequently, a marked seasonal prevalence of mosquitoes, these findings offer a possible explanation of the mechanism by which the Sindbis virus is maintained in nature during the season of mosquito scarcity. So far, however, no naturally infected ticks have been found. Ticks are, in all probability, the best adapted arthropods for the transmission of infectious agents. Their sole food in all phases of development is blood. They have a long life span.

They have been incriminated as vectors of numerous protozoan, spirochaetal, and viral infections.

Ticks are the only known vectors of the virus of Russian spring-summer encephalitis, an agent clearly shown to be a member of the Group B viruses, to which also belong yellow fever, West Nile, and St. Louis encephalitis. Russian spring-summer encephalitis occurs throughout the northern Eurasian continent from Siberia in the east to Scotland in the west. In the latter country this virus causes a severe illness in sheep known locally as louping ill.

In the search for mechanisms by which the Group B viruses are maintained in nature during the winter, the possibility that ticks and the closely allied mites may act as reservoirs is being studied. In an extensive series of investigations in New York with the West Nile virus, it has been found that the common African tick, *Ornithodoros moubata*, can be readily infected in its early stages of development and can transmit the infection by bite throughout its life. No evidence has been obtained that the infection is passed on through the egg to the succeeding generation. However, the length of time during which the ticks are infective by bite is entirely adequate for the maintenance of the virus in nature from one mosquito season to the next.

The known distribution of the arthropod-borne virus diseases throughout the world has, at the present time, no very rational basis. Both yellow fever and dengue are readily transmitted by *Aedes aegypti*. Clinical descriptions of epidemics indicate that dengue epidemics have occurred throughout the world in tropical and subtropical regions. *Aedes aegypti*-transmitted yellow fever is now relatively rare. Before the modern era of sanitation and mosquito control, however, epidemics occurred in South and North America, Africa, and, at times, even Southern Europe. Yellow fever was essentially a disease confined to the two shores of the Atlantic Ocean. It has never been reported in Asia. Many theories

have been advanced to explain these findings, none of which has carried conviction. Governments such as India are rightly fearful of the importation of yellow fever, as conditions there appear to be highly favorable for the development of devastating epidemics.

It is hoped that as The Rockefeller Foundation virus program develops, rational theories may be found to explain the distribution of the arthropod-borne virus diseases throughout the world. At present one can only speculate. It is possible that a population largely immune to one virus may, at the same time, also be relatively immune to a closely allied virus. This has been advanced as a possible explanation of the failure of a yellow fever epidemic to develop in Port-of-Spain. An analogous hypothesis is that Egypt is non-infectable with dengue or yellow fever because of the almost universal immunity to West Nile virus. At the present time *Aedes aegypti* is scarce in Egypt and no epidemics depending on this species as a vector can occur. But even in the past when this species was common there has been no record of yellow fever epidemics in Egypt, although infection is prevalent to the south. Experimental evidence has clearly shown that sera from animals immunized with the West Nile virus have a slight but significant protective action against the viruses of dengue and yellow fever. Perhaps the freedom of other countries from yellow fever has a similar explanation. The systematic study of the immunological overlaps between arthropod-borne virus infections may help to explain their world distribution.

#### SMALLER GRANTS

Israel Foundations Trustees, Jerusalem: virus studies, under the direction of Dr. N. Goldblum; \$10,000;

Walter and Eliza Hall Institute of Medical Research, Melbourne, Australia: Eric Lancelot French; to visit United States diagnostic

and research centers in the field of virus, rickettsial, and systemic fungal diseases; \$3,000;

Institute of Public Health, Tokyo, Japan: Department of Microbiology; for the application of tissue culture methods to the study of viruses; \$2,000;

West Africa Yellow Fever Service: Virus Research Institute, Lagos, Nigeria; for air conditioning equipment; \$895.

## Development of the Health Sciences

WASHINGTON UNIVERSITY

SCHOOL OF MEDICINE

An intensive study of the diseases which give rise to symptoms observed in the skin, will be undertaken cooperatively by the Washington University School of Medicine and the Barnard Free Skin and Cancer Hospital, both in St. Louis. A joint research and teaching service in dermatology has been made possible by an administrative arrangement between the school and the hospital, and by the relocation of the hospital in a new building integral with the other teaching hospitals affiliated with the school.

Increasing evidence that most skin disturbances are probably caused by deep-seated systemic disorders which happen to alter the appearance of the skin, rather than by conditions of the skin itself, has resulted in the belief that dermatological research will progress more rapidly if it is integrated with general medical studies, rather than conducted as a separate specialty.

The new Division of Dermatology, with a full-time staff, is being established within the framework of the medical school. Office and laboratory space for the staff, and wards for intensive study of selected patients, will be provided by the hospital.

The Foundation in 1954 made an outright grant of \$400,000 to Washington University toward the development of this program, bringing total support to the School of Medicine by Rockefeller funds to over \$7,900,000 since 1918.

NATIONAL RESEARCH COUNCIL

COMMITTEE FOR RESEARCH IN PROBLEMS OF SEX

The Committee for Research in Problems of Sex of the National Research Council has, since its establishment in 1921, given financial support to more than 500 different research projects, the results of which are published in more than 2,000 monographs and articles. The Rockefeller Foundation has provided the major portion of the financial backing for the committee's work since 1931.

Major investigations supported by the committee include those on endocrine aspects of reproduction by Dr. E. Allen, on hormones and sexual behavior by Dr. Frank Beach, on patterns of sexual behavior by Drs. Beach and C. S. Ford — all of Yale University, and on human sexual behavior by Dr. Alfred Kinsey of Indiana University. Some of the projects formerly supported by the committee, including that of Dr. Kinsey, are now in a position to obtain support from other sources. Aid to the others, and to new projects, will be given in terms of the four objectives of the committee: "to encourage fundamental investigation of the biological nature of sexuality and its physical and chemical mechanisms; to develop better knowledge of sex behavior in higher animals, with which the experimental approach can be used; to gain knowledge of human sex behavior in other cultures . . . by utilizing the techniques of social anthropology; to maintain the propriety and worthiness of research in human sex behavior and to encourage the entrance of qualified workers into this particularly difficult field."

The Rockefeller Foundation became interested in systematic support for studies in sexual physiology and behavior

in 1931 at a time when it began to concentrate its natural science interest more in the life sciences and less in the physical sciences. With the Foundation's continuing interest in medicine, public health, and agriculture, support was given to studies in reproductive physiology and behavior as one of the elementary characteristics of living organisms.

The Committee for Research in Problems of Sex has achieved an extraordinary record in opening up and developing an entire field of medical physiology with little more than a million dollars of total support for research. Many of the most significant advances in knowledge of the reproductive process, and in the ability of modern medicine to control its disorders and diseases, stem directly from the work of the committee and from the closely related grants made directly by the Foundation. Examples are the isolation and synthesis of estrogen, the first ovarian hormone to be discovered; a similar identification of the hormone androgen; and the recognition of several different substances from the anterior pituitary glands.

In 1954 the Foundation made a new grant of \$150,000 for a three-year period toward further support of the National Research Council committee.

In addition to grants made through the committee, the Foundation has also provided funds at more than two dozen university and research centers for research related to reproduction and sex behavior.

UNIVERSITY OF SASKATCHEWAN

DEPARTMENT OF PSYCHIATRY

Fifty per cent of all hospitalized persons in the United States and Canada are mentally ill; of these patients, one-half suffer from schizophrenia. Schizophrenic patients thus constitute one of the most expensive burdens on communities which must care for them. In mental institutions in Saskatchewan, \$50,000,000 a year is spent on this group alone.

Dr. D. G. McKerracher, who is both director of mental health services for the Province and professor of psychiatry in the newly developed medical school, has organized his department so as to give primary emphasis to a long-term attack on the problem of schizophrenia. To meet the need for research, a team of scientists has been assembled to work in cooperation with the psychiatrists in the Provincial mental health service and the Department of Physiology and Biochemistry in the university.

Work has progressed on the premise that schizophrenics have an altered biological structure which reacts abnormally under stress situations, and that this is related to defective metabolism of the adrenal gland complex. During the past few years, the group has developed physiological and biochemical tests in attempts to define these altered reactions. Studies are now under way of an unknown substance which appears to be excreted in the urine of schizophrenics in much greater quantities than in normal persons and to decrease with improvement. It is hoped that eventually the etiological factors in this disease can be so specifically and accurately defined that improved methods for treating it can be developed.

The research, which has been centered in a special psychiatric wing of Regina General Hospital, is moving to new facilities at the University of Saskatchewan, where the entire staff will form the Department of Psychiatry. A grant from the Foundation of C\$115,000 (about \$121,275) to the university for a three-year period, in support of the continuation of this work, supplements other funds from Canadian sources.

#### CHILD RESEARCH CENTER OF MICHIGAN

##### ANEMIA STUDIES

The inheritance factor in sickle cell anemia, a severe disorder of the red blood cells occurring mostly in African Negroes and their descendants, is being studied by Dr.

James V. Neel of the University of Michigan and Dr. W. W. Zuelzer of the Child Research Center of Michigan.

Recent work led by Dr. Neel indicates that the disease occurs in persons who inherit a gene for the trait from each of their parents. Most genetically determined human characteristics behave in a complex manner; in sickle cell anemia, however, not only is the disease itself obvious, but carriers of a single abnormal gene for the trait can be easily identified by simple laboratory tests. These two facts make it possible for the geneticist to utilize unusually precise methods of investigation.

Many challenging questions, arising from findings which were worked out in the United States, pointed to the advisability of a collaborative undertaking, in further studies, between investigators in this country and investigators in Africa. In a pilot study supported by a first-quarter Foundation grant, the feasibility of a large-scale cooperative arrangement was determined, and Dr. Zuelzer established working relationships with several laboratories in Africa.

A continuation of the work, which may influence revision of current views on genetic theory and human evolution, has been aided by a new grant of \$66,000 to the Child Research Center of Michigan. These funds, together with funds from the initial grant, will be available for the period ending December 31, 1957.

MCGILL UNIVERSITY

DEPARTMENT OF PSYCHOLOGY

The Department of Psychology at McGill University, Montreal, under the direction of Professor Donald O. Hebb, has been conducting significant research on the physiological basis of the psychological phenomena of learning, perception, memory, and emotional response.

Studies made to discover whether certain primitive responses are learned or are inherent within the organism

have resulted in findings which emphasize the surprising degree to which normal functioning is the result of past experience. For example, in experiments in which newborn puppies were removed from outside contact as much as possible for periods of six months to a year, observable reactions to usually painful stimuli were absent upon their release into the laboratory or kennel. Only after a learning period during which the dogs mingled with their normal litter mates, did they recognize and manifest withdrawal behavior toward the stimuli.

Another type of work recently begun in the laboratory employs the techniques of electrophysiology to trace pathways in the central nervous system which might be involved in learning. In one group of experiments with rats, stimulation of a section of the hypothalamus induces a pleasurable sensation and is used as a "reward," resulting in the learning of simple tasks with great rapidity.

The laboratory at McGill maintains close contact, involving exchange of personnel, with several other animal behavior laboratories, for cross-checking of the many leads opened by this group. Six to eight fellows are in training and visiting fellows are regularly received from the United States and England.

Foundation support to the laboratory, begun in 1951, has been supplemented by a new grant to McGill University of C\$58,000 (about \$61,000) for a five-year period.

McGILL UNIVERSITY

DEPARTMENT OF PSYCHIATRY

The Department of Psychiatry of McGill University, Montreal, established in 1943 with the aid of another Foundation grant, has become a unit of key importance in the training of personnel to meet the rapidly expanding needs of Canada both in the clinical care of patients and in the development of research and investigation.

The department has enjoyed notable growth and success under the leadership of Professor Ewen Cameron. In 11 years the professional staff has increased eightfold. A new psychiatric hospital, the Allan Memorial Institute, has been developed which provides facilities for 250 resident and "day" patients, in addition to a large outpatient service. Clinical teaching units have been set up in four nearby hospitals, and five research units dealing with various aspects of mental illness are in active operation.

Special attention has been given to the development of "day wards" for treating patients who are well enough to return home at night. This arrangement makes it possible to offer special work in occupational therapy and rehabilitation, social adjustment, and even such procedures as insulin and electric shock treatments to large numbers of patients who do not require continuous confinement. The plan has attracted general interest and is now being adopted elsewhere. More than usual attention is given also to maintaining contact with patients after they return to normal life, and the clinic has taken the lead in developing social clubs and other activities for this recovered group.

The Foundation has now made a final grant to McGill University of C\$45,000 (about \$47,250) to provide tapering support through the period ending February 28, 1959.

#### UNIVERSITY OF PAVIA

#### INSTITUTE OF ZOOLOGY

Research on the cytogenetics of anopheline mosquitoes at the University of Pavia in Italy, oriented at first toward differentiating the species for malaria control, has developed wide implications in the whole field of genetics. This work is conducted at the university's Institute of Zoology, under the direction of Professors Carlo Jucci and Guido Frizzi.

Early studies showed that the chromosomes of cells in the salivary glands of mosquitoes were few in number and

large enough to be easily observed with the conventional light microscope. Indeed, their detailed structure is so apparent as to allow the use of chromosome structure as a basis for differentiating between species. This is a matter of some practical importance since it now becomes possible to correlate subtle differences in chromosome structure with the presence or absence of the ability to transmit malaria, even though the adult forms of the two types of mosquitoes may be indistinguishable by the usual methods of inspection.

From the theoretical standpoint, further development of the method provides an opportunity for checking by direct observation deductions in regard to such matters as crossing over and linkage of genes derived indirectly from analysis of genetic data. Both the practical and theoretical implications of the technique have aroused the interest of other workers, and similar studies are now being carried out on other types of insects in laboratories in both North and South America.

The Rockefeller Foundation, which has been supporting these investigations since 1949 as part of its program in malaria control, has made a grant of 12,000,000 Italian lire (about \$22,000) to the university for a three-year period, to cover expenses incidental to the expansion of the studies into a broader area.

UNIVERSITY OF AIX-MARSEILLES

RESEARCH IN NEUROPHYSIOLOGY

Psycho-motor epilepsy is a form of the disease which frequently goes unrecognized because it is not usually accompanied by convulsive seizures. It is characterized by brief episodes of unusual behavior of which the patient may be unaware, which are often followed by severe "panic" or "rage" reactions. The incidence of this form of epilepsy may possibly be as high as that of the classical type, and the fact that it often simulates other behavior disorders emphasizes the importance of accurate diagnosis and treatment.

The research interest of Professor Henri Gastaut and his associates is now concentrated on psycho-motor epilepsy. Professor Gastaut has contributed important studies on the electro-encephalographic response to visual-photic and auditory stimuli, and the relation of the rhythm of such stimuli to the production of epileptic patterns of electrical phenomena in the brain. In addition to clinical study of the disease, laboratory investigations are now directed toward a further understanding of the anatomy and physiology of the temporal lobe of the brain which seems particularly concerned in the attacks, and in various important aspects of normal intellectual and emotional activity.

Foundation support for the Laboratory of Neurobiology of the University of Aix-Marseilles began in 1936. The Foundation has now made a grant of \$30,000 for the equipment needs of the laboratory, available during a two-year period.

#### UNIVERSITY OF OSLO

#### INSTITUTE OF RESPIRATORY PHYSIOLOGY

Rapid advances in the field of thoracic surgery have emphasized the need for physiological research to develop techniques for determining the suitability of surgical treatment in patients with pulmonary disease and to permit the comparison of the functional end results of various types of operations. An important center for this type of research, and the first available in Norway, is the Institute of Respiratory Physiology established in 1951 by Professor Carl Semb, at the University of Oslo.

The research program of the institute is under the direction of Dr. H. Erikson. Using a special spirometer designed by Dr. Erikson and his associate, Dr. P. Scholander, and built in the institute's workshop, a pulmonary function test has been worked out involving the measurement of respiratory gaseous exchange during rest, during a stand-

ardized exercise period, and during recovery to the resting condition.

The institute group wishes to continue these investigations and to extend them to patients with non-surgical diseases, such as asthma, emphysema, and cardiac disorders. The Rockefeller Foundation has made a grant of 213,000 Norwegian crowns (about \$32,000), during the four-year period beginning early in 1954, to aid the enlargement of the program.

UNIVERSITY OF GENEVA  
INSTITUTE OF HUMAN GENETICS

The Institute of Human Genetics of the University of Geneva, established only three years ago, has already made significant contributions to research in this field. The institute, under the direction of Professor A. Franceschetti and Dr. D. Klein, is in the Ophthalmological Clinic of the university. The research work has produced more adequate descriptions of hereditary factors in muscular dystrophies and ophthalmological disorders. A central register for recording hereditary diseases by the medical profession of Switzerland has also been developed under the institute's leadership. This register, and the unusually fine birth and family records of Switzerland, will contribute substantially to a better definition of the role of heredity in the production of many poorly understood diseases.

The establishment of the institute was aided in part by a Foundation grant, and in 1954 a supplementary grant of \$10,000 for another three-year period will help the institute during the transition period before its budget can be provided by the cantonal government.

SMALLER GRANTS

University of Pisa, Italy: Department of Physiology; teaching and

research in neurophysiology, under the direction of Professor Giuseppe Moruzzi; \$25,000 for a five-year period;

University of Minnesota, Minneapolis:

Dight Institute for Human Genetics; research in human genetics; \$19,400 for a two-year period;

School of Medicine, Department of Physiology; work in mathematical biophysics; \$19,500 during a three-year period;

University of Oslo, Norway: research in the epidemiology of mental disease, under the direction of Professor Ørnulf Ødegård; 105,000 Norwegian crowns and \$2,000 (about \$17,000), for a three-year period;

University of Copenhagen, Denmark: Institute of Human Genetics; research in the genetics of mental defect, under the direction of Professor Tage Kemp; 96,000 Danish crowns (about \$14,200), for a five-year period;

University of London, England: University College; Department of Anthropology; research in human genetics; £3,300 (about \$9,900);

University of Utrecht, Netherlands: Institute of Clinical and Industrial Psychology; teaching and research under the direction of Professor D. J. van Lennep; 33,480 Dutch florins (about \$8,875), during a three-year period;

McGill University, Montreal, Canada: Department of Genetics; research in human genetics under the direction of Professor F. Clarke Fraser; C\$7,500 (about \$7,900);

New York University, New York: Department of Pharmacology; research under the direction of Dr. Bernard D. Davis; \$6,000;

Child Research Center of Michigan, Ann Arbor: pilot study of the genetics of blood disorders in Africa; \$5,200;

University of Melbourne, Australia: Faculty of Medicine; Department of Anatomy; equipment for the use of Dr. Ross Adey; \$4,000;

Supplies and equipment to be used by Frederick W. Knipe of the Foundation staff, in connection with his assignment to the Malaria Institute of India; \$2,500;

Lady Hardinge Medical College, New Delhi, India: research in physiology under the direction of Professor B. K. Anand; \$2,200;

University of Glasgow, Scotland: Department of Biochemistry; time-lapse cinemicrograph apparatus for the use of Dr. John Paul; \$725.

## Special Project

### DEPARTMENT OF PUBLIC HEALTH, STATE OF CALIFORNIA

#### CHRONIC DISEASE EPIDEMIOLOGY CENTER

Though chronic illnesses like heart disease, diabetes, and cancer now cause more deaths in the United States than the infectious diseases, little is known about the factors in the environment which influence their occurrence. The alleged association of heart disease or peptic ulcer with certain types of nervous strain, for instance, rests on clinical impressions rather than on rigorous statistical analysis of large groups of people.

The Bureau of Chronic Diseases of the California Department of Public Health is undertaking epidemiological studies of problems such as the relation of occupation and heart disease; occupation and cigarette smoking as factors in lung cancer; nutrition in the health of older persons; and methods of morbidity measurement in the general population.

The bureau is seeking to improve the methods of epidemiological analysis by combining the procedures used in the conquest of the major infectious diseases with modern methods of social and economic analysis developed in the

social sciences. A state department of health, experienced in the recording and analysis of vital statistics on large numbers of people, has a special opportunity to contribute to the knowledge of the epidemiology of chronic diseases. The bureau, originally established to develop services to control cancer and cardiovascular diseases, during the past five years has extended the scope of its work, establishing working relationships with universities, local health departments, medical societies, and similar agencies useful in gaining access to and observing specific population groups.

To assist the bureau's research program — among the first of its kind attempted by a state department of health — the Foundation has appropriated \$150,000 for a five-year period to the Department of Public Health of the State of California.



## **Natural Sciences and Agriculture**

# Natural Sciences and Agriculture

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# NATURAL SCIENCES AND AGRICULTURE

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THE program of the Division of Natural Sciences and Agriculture has been experiencing some modification during the last year or two; and to understand the present changes it will be helpful to review the evolution of this program over a longer period.

Prior to 1932 the phrase "Natural Sciences" included, as it was used by The Rockefeller Foundation, essentially everything that was science and was not medical; that is, the phrase included physics, chemistry, biology, mathematics, astronomy, meteorology, oceanography, etc., each treated as a more or less autonomous subject. But for nearly a quarter of a century since 1932 the program of The Rockefeller Foundation in the natural sciences has been a different, and in some senses at least, a less general one.

It is temptingly easy to say that the program since 1932 emphasizes the biological rather than the physical sciences. That statement, however, misses a good deal of the real point, and fails to do justice to the background motivation. It is more accurate to say that it was decided, over twenty years ago, that our efforts would be devoted to increasing man's knowledge of vital processes — the structure and behavior of living things from microorganisms to

man, including of course the universally basic phenomena of reproduction, growth, and development.

The shift of emphasis to biological problems was not based upon any lack of appreciation for the beauty, the significance, or the usefulness of the results which the physical sciences have been producing over the last century, and which they will surely continue to produce. On the contrary, the shift of emphasis was, so to speak, influenced more by envy than by disdain. It was believed that the time was ripe for an equally fine development of the whole range of the biological sciences; that the physical sciences could furnish most important help in producing that development; and that a greatly increased knowledge of living nature could be even more useful to man than is the analysis and control of purely physical forces.

It was thus an essential part of the philosophy which motivated this emphasis that every effort be made to bring to bear on studies of living organisms the entire battery of experimental procedures and techniques of analysis which had been — and continue to be — so marvelously developed in such physical sciences as chemistry, physics, and mathematics. Indeed the "biological" program we have been following does not in the least represent an abandonment of the physical sciences as uninteresting or unworthy. It does represent a definite choice of purpose — to concentrate on increasing our knowledge of the living world, but using *all* of science to serve that end. Hence, biochemistry, biophysics, and even biomathematics are importantly represented among our biological interests.

For about ten years following 1932, this emphasis on biology, and particularly on modern experimental biology, was, apart from fellowships, served exclusively by grants of money made to colleges, universities, research institutes, and to individual scientists, these grants of money being used by these agencies to help support their own research activity. The role of The Rockefeller Foundation, in con-

nection with this activity, is very largely restricted to the extensive study which precedes the decision to make the grant. The responsibility for the actual conduct of the research rests with the recipient. The Rockefeller Foundation's relation to the situation, once the grant is made, includes the accounting checks necessary to insure that the money is in fact used for the designated purpose, and informal scientific contacts based on interest in the progress of the work but not at all involving any element of inspection or control.

A little over ten years ago this Division of The Rockefeller Foundation, however, began an activity which departed from the above description in two major ways. First of all, this new activity was in *agriculture*, and involved practical application of biological (and indeed of other) knowledge, as well as basic research. Secondly, although the growing interest in agriculture is in many ways and places served by grants to other institutions and men, it is primarily what within our own offices is called an *operating program*. That is to say, the responsibility for planning such agricultural work, and for furnishing the scientific leadership for actually carrying it out, rests upon our own staff. The strategic aspects of the planning depend primarily upon decisions of the Trustees, made upon recommendation of the officers located in New York. The responsibility for the tactical field decisions rests upon The Rockefeller Foundation agricultural staff members, of which we had during 1954 some 15 located in Mexico, and some ten in Colombia, a few of these being at times engaged in temporary activities in Peru, Chile, India, etc.

This interest in agriculture is not really a new one for The Rockefeller Foundation and for the other philanthropic boards which received their capital funds from the same source. Nearly a half-century ago the General Education Board made agricultural grants, chiefly for initiating farm demonstration activities in our own South; and the Inter-

national Education Board made agricultural grants during the nineteen twenties, chiefly in Scandinavia, Bulgaria, and Hungary. The present interest in agriculture, however, contrasts by virtue of larger financial dimensions, by being largely operational in character, by being broader in geographical scope, and by its more specific recognition of the pressing character, as it exists today, of the contest between population and food supply.

Indeed the present interest on the part of The Rockefeller Foundation in agriculture represents a shorter-term phase of its over-all interest in this world-wide problem of the ever increasing number of hungry people. The longer-range approaches to this problem involve activities which reach into all divisions of The Rockefeller Foundation. In this Division the longer-range approach consists of a set of activities which, to keep the motivation in the foreground, we sometimes refer to as "nonconventional agriculture."

There are four principal sorts of such investigations. First are studies which in one way or another might make water less of a limiting factor in the future production of food. These studies involve the basic research (cloud physics, for example) which may some day lead to a useful partial control of rainfall; and the studies, now largely at the stage of exploring economic practicality, of reducing the salt content of brackish or sea water so as to make it available for agricultural purposes.

Second are studies of the ways in which solar energy might, at improved efficiencies, be stored in some chemical or electrical form. All the energy in the food we eat comes from the sun, and reaches us through a chain of processes whose over-all efficiency is shockingly low — say two-tenths of one per cent in good instances, and considerably lower in others. These studies, of course, include a lively interest in research concerning photosynthesis, the way in which the green plant converts radiant energy to a chemically stored form.

Third are studies in marine biology. About seven-tenths of the surface of our planet is covered with water, over half of it to a depth of two miles or more. Microscopic plants are present in these waters, and the total amount of nitrogen fixed by photosynthesis in the seas is almost surely larger than the amount fixed in an equal time by land plants. Yet mankind gets only about one-eightieth of his food from the seas. This, in the long run, is an obviously bad situation; and we are interested in the basic studies which will help produce the knowledge on which improvement will depend.

Fourth are studies in microbiology. Microorganisms — yeasts, ferments, etc. — have long been used by man in connection with food. But these classical instances give little indication of the range of usefulness which is suggested by modern knowledge of microorganisms. These tiny creatures have the capacity to carry out, at ordinary temperatures and with high efficiencies, organic syntheses which make even the most skilled modern chemist envious. Furthermore, we have rather recently learned that it is possible to induce and breed in large supply biochemical mutants of such microorganisms, each special mutant having its own specialized skill as an organic synthesizer. We have not yet learned how to exploit this vast store of efficient and specialized chemical ability, but there seems every reasonable promise that additional basic knowledge in this area will eventually pay large, even though specifically unpredictable, dividends. One limited aspect of this broad field involves the mass culture, as a direct source of food, of such microorganisms as the single-celled green plant known as *Chlorella*, which often grows in stagnant pools of water. As an example of the biochemical flexibility of microorganisms, it is possible to raise *Chlorella* whose protein content varies from 7 to 88 per cent, or whose fat content can be arranged to be anything from 5 to 75 per cent.

Two years ago the new range of interest of this Division of The Rockefeller Foundation was recognized when the

Trustees renamed it the Division of Natural Sciences and Agriculture. Its over-all program emphasis continues to be in the life sciences. In addition to basic research in experimental biology, the Division's program now includes major emphasis on one of the great fields of application of biological knowledge, namely agriculture.

A series of statements will illustrate the ways in which the present activities of this Division are in greater or lesser contrast with former years. In Mexico, Central America, and South America our agricultural activities are increasing; and in many instances are in very close relationship with our activities in biological research. In Europe the past emphasis on experimental biology is maintained, and our agricultural interests are reflected in a few grants. Within the United States we have considerably reduced support of projects in experimental biology, although we are continuing long-term and flexible support of a limited number of outstanding workers and groups. The general reduction of emphasis on this field within the United States does not apply to research in genetics, plant biochemistry, and plant physiology, which are in such close and important relation to agriculture. Within the United States, moreover, we are aiding some projects in "nonconventional agriculture" (catalogued as "Grants with Long-Range Relation to World's Food Supply"), and also certain researches directly connected with agriculture which seem to have difficulty in obtaining financial support because of their long-range and basic character. Finally, our interest is expanding in agricultural problems in the Near and Far East.

There follows a list, with brief descriptions, of the activities of this Division during the year 1954. The list, in accordance with the general description just made, has two main headings, *Experimental Biology* and *Agriculture*, under each of which will be found certain subheadings which are for the most part self-explanatory. Under *Experimental Biology* the subheading "General" refers to grants each of which aids a

number of aspects of biology; whereas the subheading "Biology" refers to grants each of which is largely concentrated on some one aspect of biology, such as genetics, entomology, embryology, etc. The actions listed, at the end, under "Special Projects" are for the most part exceptions to our regular program.

## Experimental Biology

### GENERAL

#### MARINE BIOLOGICAL LABORATORY, WOODS HOLE

Founded over sixty years ago, the Marine Biological Laboratory at Woods Hole, Massachusetts, has become the greatest national center for summertime research and training in biology, as well as an international center of significance and prestige. More than 500 individuals come to Woods Hole each summer for research and instruction, the laboratory augmenting its normal permanent staff of 36 by engaging a short-time instructional staff of over 30, and by hiring over 40 additional personnel in various service capacities.

Direction of the laboratory is in the hands of a group of research biologists who as trustees are broadly representative of the whole of the United States and of the more important institutions.

The biological library at Woods Hole is one of the best in the United States, consisting of about 9,000 books, around 60,000 bound volumes of serial publications, nearly 165,000 reprints, and 1,300 current journals.

The physical plant, which suffered during the period of wartime restrictions, is being improved through a program of modernization, and the instrumentation of the laboratories has been brought to a satisfactory point, partly through previous assistance from the Foundation.

The laboratory faces a somewhat different financial

situation than do most universities and colleges. Over four-fifths of its support depends on income from endowment and from operation. The former does not keep pace with costs, and the latter cannot be increased without seriously impairing the usefulness of the laboratory to students and research workers. Inasmuch as the Marine Biological Laboratory is essentially a summer facility, with no full-time permanent research staff, it is not in a good position to benefit from the kind of project support, with accompanying payment of overhead, which is so helpful in sustaining the research programs of departments of universities.

The trustees and administration of the laboratory have inaugurated a program looking to the long-term improvement of its financial situation, and substantial progress has already been made. For several years The Rockefeller Foundation has contributed to the general budget of the laboratory; during 1954 a further grant of this same character was made, amounting to \$20,000 annually for five years.

#### UNIVERSITY OF BERN

#### THEODOR KOCHER INSTITUTE

The Theodor Kocher Institute at the University of Bern, Switzerland, founded in 1948, is a private research institute designed primarily to serve the interests of scientists whose work requires the elaborate special tools of biophysics, biochemistry, and quantitative biology.

The institute building and some of its equipment were made possible by an endowment gift from the late Nobel laureate Theodor Kocher, and by funds from the Canton of Bern and the Swiss Confederation.

In 1950 the Foundation appropriated \$25,000 for equipment and for assistance to foreign scientists invited to avail themselves of the facilities in this special research center. In the interval since then, about 20 scientists from ten countries have spent many months as guests of the institute.

The initial success of the plan was such that in 1954 the Foundation again appropriated \$25,000 to the University of Bern for the use of the Kocher Institute for equipment and for the expenses of additional foreign guests invited to work there, the funds to be available over a period of four years.

#### BACTERIOLOGICAL INSTITUTE OF CHILE

The Bacteriological Institute of Chile, an agency of the Ministry of Health, for 25 years has served as a diagnostic and training center and more recently has begun productive research programs in human and animal virus diseases.

Under the direction of Dr. Eugenio Suarez an excellent full-time staff has been developed and the buildings and equipment built up to the point where they are practically without equal in Latin America. The latest addition to the plant is a 240-acre farm where facilities are provided for the isolation of the large animals and poultry flocks under study, for the breeding of laboratory animals, and for the production of feeds.

A previous Foundation appropriation of \$40,000 to the institute, for equipment and supplies for work on animal viruses, expired in 1953. In 1954 an additional sum of \$15,000 was appropriated for the same purpose for the remaining period of the calendar year.

#### SMALLER GRANTS

University of São Paulo, Brazil: Laboratory of Cell Physiology; a Spinco centrifuge and accessories; \$7,400;

Zoological Station of Naples, Italy: Dr. Peter Dohrn, director; to visit marine biology laboratories in Europe and in North America; \$4,500;

Swedish Natural Science Research Council, Stockholm: Palynological Research Center; research in pollen analysis; \$2,500;

Ministry of Public Health, Montevideo, Uruguay; Institute of Biological Research:

Salary of a secretary-librarian over a 12-month period; 3,000 Uruguayan pesos (about \$1,000);

Dr. Alberto Vaz Ferreira; extension of a visit to the United States to participate in a meeting of the American Association of Anatomists; \$600.

## BIOLOGY

### UNIVERSITY OF TEXAS

#### RESEARCH IN GENETICS

Over a span of three decades research in genetics at the University of Texas has contributed importantly to progress in this field. On the roster of present and former members of the Department of Genetics are names associated with a number of the fundamental advances in the accumulation of knowledge concerning the detailed procedures by which heredity operates.

One of the main interests of the department at present is the study of evolution in *Drosophila*, the fruit fly which is the best-known genetic material in existence. In the taxonomical and ecological studies related to problems of evolution in *Drosophila*, the group has nearly completed their collecting of *Drosophila* in the United States and Canada and in the process have built up one of the largest *Drosophila* collections in the world. The Central American types are not at all well known but there are indications that a careful study of this population will provide explanations for the marked differences that have occurred in the evolution between the North and the South American populations. The Texas group of geneticists is now, therefore, turning its attention toward the Central American *Drosophila* fruit fly population.

The department has also embarked upon a study of hybrid vigor and of population dynamics. The Texas studies of these phenomena, in which species of *Drosophila* rare in nature are used, are importantly complementing the studies of Professor Dobzhansky, of Columbia University, who is using species abundant in nature.

The Texas group is also doing intensive work on the biochemical, physical, and cytological aspects of the fundamental problem of mutation. Studies are going forward on mutants of *Neurospora* which are strongly inhibited by amino acids that are in turn required by these very mutants for protein synthesis. Substantial contributions are also being made to the studies of the mechanism of the action of non-ionizing radiations in producing mutants.

The Rockefeller Foundation, which has supported the research in genetics at the University of Texas since 1936, appropriated \$100,000 in 1954 to be used during the next five years, bringing the total amount of its grants to the department to nearly \$280,000.

#### UNIVERSITY OF ILLINOIS

#### BIOCHEMISTRY OF INSECTS

Professor Clyde W. Kearns and his co-workers in the Department of Entomology at the University of Illinois have made an important advance in answering the pressing and troublesome question as to how houseflies develop resistance to DDT. This is, of course, only a special case of the broad and important problem: How do organisms in general develop resistance to an originally toxic chemical? Phrased in these terms, the problem includes all the instances, so important to agriculture and to public health, of insects which develop resistance to insecticides, and the instances of resistance of bacteria to various sulfa drugs and antibiotics.

Professor Kearns and his co-workers have isolated from DDT-resistant houseflies and have obtained in a fair degree

of purity an enzyme system "DDT-dehydrochlorinase" which catalyzes the dehydrochlorination of DDT to a non-toxic product DDE.

The search for this enzyme was a long one involving painstaking, and ultimately successful, investigation. They now have enzyme concentrates which are some 43,000 times as powerful as those with which they started. This enzyme occurs in all DDT-resistant strains of flies obtained by them thus far in this country. It does not occur in any susceptible strain of flies, and it is believed to be the main cause for resistance to DDT.

These results constitute a significant advance, but it is only a beginning. Professor Kearns and his group propose a continuing program which would seek to purify DDT-dehydrochlorinase, and would then go on to study the kinetics of DDT-dehydrochlorination. They also hope to isolate and determine the reaction characteristics of other enzyme systems which detoxicate such insecticide chemicals as lindane, aldrine, etc. And they wish to study the basic question: Why and how does a housefly produce the detoxicating enzyme when DDT is present for many generations?

For this program of research, The Rockefeller Foundation made a grant of \$75,000, available for a five-year period.

COLUMBIA UNIVERSITY

INSTITUTE FOR THE STUDY OF HUMAN VARIATION

Columbia University has had a strong tradition in genetics since the days when Thomas Hunt Morgan did his pioneering work there. At the present time the tradition is being continued through the leadership of such men as Professors L. C. Dunn and T. Dobzhansky.

About three years ago the authorities of the university approved the founding of a new interdepartmental institute presently named the Institute for the Study of Human Vari-

ation. The institute has now been furnished with a suitable building, remodeled and equipped for work in genetics.

Professor Dunn has continued his studies of the genetics of wild mice and of their population dynamics as affected by certain lethal genes. He and his students have also continued the study of developmental genetics, working with various behavior mutants. Professor Dobzhansky has similarly continued his widely recognized research on *Drosophila* population genetics.

The interests of both men, however, are turning more and more to the study of human material. One relatively minor aspect of the newer program involves the study of the differences in physical type between identical and fraternal twins, utilizing data on 80 pairs of twins.

The more important newer developments, however, relate to their studies of human serological genetics and to their studies of the genetic interpretation of detailed chemical variations in the metabolic processes of individuals. Their first major effort in this direction is a study, still in its initial stages, of the amino acids and related substances in human urine. If factors of genetical significance can be found in these studies, they would be useful in the same way the various blood group factors are useful in the study of population genetics of man.

During 1954 the Foundation made a grant of \$50,000 for this work, which together with the balance from a previous grant will make available approximately \$26,700 annually for three years.

#### UNIVERSITY OF NAPLES

#### INSTITUTE OF GENETICS

Research in genetics at the University of Naples, under the direction of Professor Giuseppe Montalenti, includes substantial programs in a number of sub-areas. Among these are the population genetics of *Drosophila*, the minute anat-

omy of chromosomes and the mechanism of segregation, sex determination and tissue differentiation, and problems of human inheritance with particular reference to certain genetically controlled blood abnormalities. The institute is also responsible for developing the presentation of genetical subjects to medical students in the University of Naples.

The research of Professor Montalenti, a former Foundation fellow, has been aided by the Foundation since 1948. In 1954 a new grant for a five-year period continued the support; the appropriation is for \$1,000 and 15,000,000 Italian lire, a total of about \$28,000.

#### CONNECTICUT AGRICULTURAL EXPERIMENT STATION

##### CORN GENETICS

Professor Donald F. Jones, the distinguished plant breeder and geneticist, has been working effectively for 30 years in corn genetics, seeking to increase understanding of hybrid vigor, cytoplasmic inheritance, male sterility, and allied phenomena. Dr. Jones's current research program is particularly concerned with the phenomenon of cytoplasmic inheritance in corn as expressed by male sterility and by the ability of certain lines to restore fertility when crossed with sterile lines.

Since 1940 The Rockefeller Foundation has provided a total of \$38,500 to the experiment station in support of Dr. Jones's research program. A new appropriation of \$25,000 will be available for a five-year period.

##### SMALLER GRANTS

University of California, Riverside: Citrus Experiment Station; study of the development of resistance by injurious insects to previously toxic insecticides, under the direction of Professor R. L. Metcalf; \$15,000;

Dartmouth College, Hanover, New Hampshire: an interrelated

program of research in cellular physiology and microbiology, under the direction of Professor Roy P. Forster and Dr. Raymond W. Barratt; \$10,000;

Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine: to help meet the cost of a survey of its financial structure with a view to stabilizing its income, and for a symposium on the relationship of genetics to normal and abnormal growth, and behavior, each to receive approximately one-half of the grant in aid; \$10,000;

Smith College, Northampton, Massachusetts: genetics research; \$10,000;

University of Bern, Switzerland: Institute of Botany; equipment for research in plant physiology, under the direction of Professor W. H. Schopfer; \$8,500;

Columbia University, New York: research in immunochemistry, under the direction of Dr. Michael Heidelberger; \$7,500;

University of Milan, Italy:

Institute of Zoology; equipment for research in experimental biology; \$7,500;

Institute of Botany; equipment for studies of plant physiology, under the direction of Professor Sergio Tonzig; \$3,000;

Institute of Genetics; equipment for research in genetics, under the direction of Professor Claudio Barigozzi; \$700;

University of Glasgow, Scotland: three small working conferences of European scientists interested in genetical problems, to be held during the five-year period beginning January 1, 1955; \$7,500;

University of Cambridge, England: Molteno Institute; equipment for research in cell physiology; \$7,500;

University of Uppsala, Sweden: equipment to be used in research in fresh-water biology, under the direction of Dr. Wilhelm Rodhe; \$6,000;

University of Palermo, Italy: Institute of Zoology; equipment for research in cytology and embryology, under the direction of Professor Giuseppe Reverberi; \$5,000;

University of Rome, Italy: Laboratories of Comparative Anatomy and of Embryology and Histology; research in experimental biology; \$4,000;

University of Pisa, Italy: Institute of Zoology and Comparative Anatomy; research in genetics and embryology, under the direction of Professor Mario Benazzi; \$3,500;

McGill University, Montreal, Canada: aid to the General Organizing Committee in preparation for the Tenth International Congress of Genetics, to be held at McGill in 1958; \$3,500;

Long Island Biological Association, Cold Spring Harbor, New York: expenses of Latin American scientists invited to take part in the Symposium on Population Genetics, to be held in June, 1955; \$3,000;

University of Paris, France; Faculty of Sciences:

Travel expenses of American delegates invited to participate in a colloquium on the Physiology of Plants Grown in Tissue Culture, held in France in July, 1954; \$2,400;

Research in chemical genetics, under the direction of Professor Boris Ephrussi; \$2,200;

University of Bologna, Italy; Institute of Comparative Anatomy:

Research in embryology, under the direction of Professor Pasquale Pasquini; \$2,500;

Dr. Leo Raunich; to study steroid chemistry in Switzerland; \$700;

University of London, England; University College:

Department of Botany; research in plant physiology; \$2,600;

Dr. H. Kalmus, lecturer in genetics; travel to Brazil for research in genetics; \$1,300;

University of St. Andrews, Scotland: Department of Natural History; equipment for research in marine biology; \$2,000;

University of Illinois, Urbana: Department of Entomology; Pro-

fessor G. S. Fraenkel; to visit centers of research in insect physiology in Japan, Southeast Asia, India, and Israel; \$2,000;

National University of Mexico, Mexico City; Institute of Biology:

Dr. Alejandro Villalobos F.; to visit research centers in the United States; \$1,850;

Dr. Leonila Vázquez G.; to visit scientific institutions and museums in the United States; \$1,850;

University of Chile, Santiago: School of Medicine; Dr. Gabriel Gasic; to visit centers of research, principally in the United States, on cytological problems and genetics; \$1,800;

University of Liverpool, England: travel and/or living expenses of foreign delegates invited to participate in a symposium on the comparative endocrinology of vertebrates, held at Liverpool in July, 1954; \$1,500;

University of Kansas, Lawrence: Professor Charles D. Michener; to study the biology and taxonomy of bees during one year in Brazil; \$1,300;

University College of North Wales, Bangor: Professor F. W. Rogers Brambell; extension of a visit to the United States after his participation in the Cold Spring Harbor symposium on fetal physiology, held in June, 1954; \$1,150;

University of Paraná, Curitiba, Brazil: Faculty of Philosophy; equipment and supplies for teaching and research in genetics, under the direction of Professor Newton Freire-Maia; \$1,000;

University of Rio Grande do Sul, Pôrto Alegre, Brazil: Faculty of Philosophy; Dr. W. W. Milstead; toward living expenses during his tenure as visiting scientist; \$850;

Ministry of Public Health, Montevideo, Uruguay; Institute of Biological Research:

Research in Brazil on *Drosophila* genetics and histochemistry, by two staff members; \$800;

Dr. Alberto Vaz Ferreira; to visit the University of Freiburg,

Germany, to study the electro-physiology of the nervous system; \$700;

University of Oslo, Norway: Professor Trygve Braarud; to visit marine biology research centers in California while in the United States; \$660;

Nagoya University, Japan: Syozo Osawa; to supplement his living allowance during a period of research in the United States on embryology; \$600;

University of Padua, Italy: Institute of Zoology and Comparative Anatomy; Dr. Giorgio Marcuzzi; to visit research centers in England; \$570;

University of Copenhagen, Denmark: Magister Gunnar Kølmark; extension of a visit to research centers in genetics in the United States; \$500;

Bacteriological Institute, Santiago, Chile: Dr. Ramón Rodrigues and Dr. Raul Palacios; extension of their travel grant to permit their participation in the Congress of Veterinary Medicine, São Paulo, Brazil; \$120.

#### BIOCHEMISTRY

##### UNIVERSITY OF CALIFORNIA

##### VIRUS LABORATORY

The Virus Laboratory of the University of California, established about five years ago, is under the direction of Dr. Wendell M. Stanley. The emphasis of its work is on the basic biochemistry and biophysics of infectious agents without direct reference to practical application. Studies are made on all types of viruses — animal, bacterial, plant, and human. The laboratory occupies a new building with excellent arrangements, and with equipment which was provided in part with the aid of previous assistance from The Rockefeller Foundation.

Dr. Stanley and his colleagues base their selections for

study upon the suitability of the given virus to provide a convenient and promising approach to the problem under investigation. They are mainly interested in how a virus multiplies and how a virus mutates. This knowledge is basic to an understanding of the nature of viruses and of genes, to the control of viruses as infectious agents, probably to the solution of certain aspects of the human cancer problem, and, it may not be too much to say, to the nature of life itself.

In addition to being a large research organization, the University of California Virus Laboratory is an important training center for future investigators of viruses. It is situated on a major university campus, is associated with a teaching program, and is unusual in that all kinds of viruses are under investigation within a single laboratory. Ten postdoctoral fellows, including persons from England, Sweden, Denmark, Germany, and Italy, as well as a dozen graduate students, have received training here during the past fourteen months.

To assist in the general support of this program of research, and to help assure the emphasis on long-range and basic problems, The Rockefeller Foundation in 1954 made a grant of \$210,000, to be flexibly available over a seven-year period.

#### NEW YORK UNIVERSITY

##### ENZYME CHEMISTRY

During the past ten years the research group at New York University led by Dr. Severo Ochoa has been interested in the study of the basic enzyme mechanisms involved in the biological oxidation of foodstuffs, and in the manner in which the energy thus made available is utilized in various biosynthetic processes.

Some of the work is aimed at gaining an insight into the biological mechanisms of carbon dioxide assimilation. There is a growing belief that the basic mechanisms of photo-

synthetic assimilation of carbon dioxide by green plants do not greatly differ from those concerned with assimilation of carbon dioxide in animal and other cells, except for the specific mechanisms involved in the utilization of radiant energy by the green plant. This view has received support from experiments which Dr. Ochoa and his group have carried out within the last year or so, and which involve a photosynthesis-like reaction occurring in the test tube with components isolated from living cells. Many scientists believe that studies of this type may furnish an insight into the mechanisms operating during photosynthesis by the living cell.

Another line of Dr. Ochoa's work on biological oxidation led to the isolation in crystalline form of an enzyme which plays an essential role in the Krebs citric acid cycle. Dr. Ochoa has also been interested in the mechanisms utilized by the cell for the conversion of oxidative energy into the so-called "phosphate bond energy," which is the form so effectively utilized by the metabolic processes of the living body.

In the new Medical Sciences Building of New York University Dr. Ochoa and his group will have excellent physical facilities. In 1954 The Rockefeller Foundation appropriated \$100,000 for support of their research activities, of which \$50,000 is available as needed for certain items of large-scale equipment, and the remainder for general purposes at a flexible rate over a seven-year period.

#### WASHINGTON UNIVERSITY

##### ENZYME CHEMISTRY

The present research activities of Dr. Carl F. Cori and his group in the Department of Biological Chemistry at Washington University, St. Louis, include several main topics.

In studies of cell permeability, the mechanisms by which glucose and other sugars are ferried across the cell membrane

are being investigated on certain tumor cells. So far the rate of uptake of glucose, fructose, and mannose has been studied and a number of substances have been found which competitively inhibit sugar uptake. The intention now is to extend the research to single-cell studies of liver and kidney.

To investigate the specificity of enzyme action, Dr. Cori's group is studying an enzyme known as hexokinase, which initiates the utilization of sugar in tissue and which is in turn believed to be influenced in its own activity by various hormones which regulate carbohydrate metabolism. This enzyme has been purified from brain tissue and has been characterized with respect to substrate specificity, product inhibition, and competitive inhibitors. Similar studies are now being started with hexokinase from other tissues.

A third topic is protein synthesis *in vivo* and *in vitro*. Following the injection of several labeled amino acids into a rabbit, a number of enzymes are isolated in crystalline form from the rabbit muscle. These proteins are then broken down into their constituent amino acids and information is obtained about the roles which the individual amino acids play as they are incorporated within the living body into different proteins.

The fields briefly mentioned represent three of the seven major interests of Dr. Cori and his group, the remaining topics being physical measurements of polysaccharides, enzymatic lesions in glycogen storage disease, the isolation of various enzymes concerned with carbohydrate metabolism, and the mechanism of aerobic phosphorylation.

In the department, in addition to Dr. Cori and his distinguished wife, there are seven senior staff members who act as group leaders for these various fields of activity. The total number of research workers, including postdoctoral fellows and more advanced graduate students, is sixteen.

The Foundation in 1954 made a grant of \$50,000 to Washington University for the department, the funds to be available for general purposes over a five-year period.

UNIVERSITY OF SHEFFIELD  
RESEARCH IN BIOCHEMISTRY

Dr. Hans Adolf Krebs, who in 1953 shared the Nobel Prize for Chemistry with his former compatriot, Dr. Fritz Lipmann, is one of the distinguished biochemists of this generation. Two of nature's main metabolic pathways are named after him because he was the first to elucidate them: the Krebs oxidative cycle and the Krebs urea cycle. Both these major advances in the knowledge of the basic biochemistry of the cell came from work carried out in Dr. Krebs' laboratory at the University of Sheffield within the last 20 years.

Under the direction of Dr. Krebs, the Department of Biochemistry at Sheffield has grown into an internationally recognized center for research in cell metabolism, and more particularly for the study of chemical mechanisms by which the living cell utilizes foodstuffs and the energy they provide. Today, in substantially larger quarters, Dr. Krebs and his colleagues are pursuing their program of research along four main avenues: biological energy transformations, synthetic processes, properties of enzymes, and elaboration of methods in biochemistry.

The first grant made by the Foundation to Dr. Krebs was in 1933. Since 1935, grants totaling \$51,530 have been made to the University of Sheffield for the support of his research. Continuing this support, the Foundation in 1954 appropriated \$80,000 to be available over a five-year period for equipment and general purposes.

WASHINGTON UNIVERSITY  
PLANT PHYSIOLOGY AND BIOCHEMISTRY

Since 1947 Dr. Barry Commoner and his research associates at Washington University, St. Louis, have been studying tobacco mosaic virus, not primarily because of an interest in

the virus *per se* but because studies of the duplication and action of this virus might yield basic information concerning the duplication and development of the cells of the plant host.

The choice of this approach to plant physiological problems was dictated by several facts.

Tobacco mosaic virus, for example, is a valid model of a reduplicating agent. Its chemical and biological properties do not appear to differ fundamentally from the genetic agents within and around the nucleus of cells. Unlike them, moreover, "TMV" can be isolated from the cell as a specific nucleoprotein without loss of biological activity and can then be reintroduced successfully into a new host. This permits the design of experiments in which otherwise identical infected and uninfected tobacco tissues are compared quantitatively with respect to biochemical activity.

TMV exerts several specific determinative effects on the host. Results already published by Dr. Commoner show how the virus, a parasite not endowed by nature with the mechanism of self-duplication, compels the plant to do the job by somehow harnessing the plant's reproductive processes. These studies promise to lead to important advances in understanding the chemical processes by which viruses in general, including those which infect higher animals, reproduce themselves at the expense of their victims. This research, in turn, may pave the way to the understanding of nature's most fundamental process by which each living thing duplicates itself.

Toward the support of this program of research the Foundation contributed in 1954 the sum of \$75,000, available over a five-year period.

#### PASTEUR INSTITUTE

#### MICROBIAL CHEMISTRY

The Pasteur Institute, Paris, a private research organization, maintains laboratories in France and in a number of

French possessions; it derives its support largely from the sale of vaccines and antitoxins prepared under its auspices. Though it has no formal connection with French universities, it nevertheless makes important contributions to the education of young French scientists interested in biology and in disease, as well as conducting basic research in a number of fields.

The administrative council of the institute has recently approved a reorganization of the department of biochemistry into a larger center for the problems of microbial growth, and has provided substantial funds for very considerable rebuilding and new installations within the laboratories.

Under the leadership of Dr. Jacques Monod, the work of the department will be centered about the mechanism of biosynthesis of proteins and enzymes, of nucleic acids, of amino acids, and of purine and pyrimidine bases and nucleotides. Particular emphasis will be placed on the physiological aspects of these problems and especially on the integration of the various biosynthetic processes continuously going on in the growing cell.

To facilitate these investigations the Foundation has made a grant of \$50,000 to the Pasteur Institute, available over a four-year period primarily for the purchase of special research apparatus.

#### UNIVERSITY OF EDINBURGH

#### RESEARCH ON NATURAL HIGH POLYMERS

Over the past seven years the Department of Chemistry at the University of Edinburgh, Scotland, under the direction of Dr. Edmund L. Hirst, has developed into an important research program in carbohydrate and sugar chemistry.

Among the subjects now under investigation by Dr. Hirst and his research associates are the polysaccharides, including cellulose, starch, and glycogen; the sugars of marine

algae and the enzyme systems which are concerned in their formation; the conservation of fodders and other animal food crops; and the analysis of the carbohydrate and nitrogenous components of grasses and legumes and the changes which take place during their conservation. Although primarily in the area of biochemistry, these studies have significant implications for agriculture and the utilization of natural food resources.

Toward the expenses of this research program the Foundation has appropriated \$45,000 to be available over a five-year period.

#### WAYNE UNIVERSITY

#### NATURAL PLANT PRODUCTS

There are about a third of a million known plant species, but only about 150 of these are in cultivation on a scale that affects the commerce of the world. In fact, only 12 plant species at present furnish the great bulk of the world's food. Man has as yet scarcely begun to learn about plants and their potentialities.

Relatively little research has been done in Latin America on the natural products of native plants, although the flora is rich and varied. In the last few years a vigorous and productive group of investigators in that field has been formed at Wayne University, Detroit, under the leadership of Dr. Carl J. Djerassi of the Department of Chemistry, an outstanding organic chemist. After working in the pharmaceutical industry in this country and in Mexico, Dr. Djerassi has, in a comparatively short time, developed an active program in which the group at Wayne cooperates with investigators at the Institute of Chemistry of the National University of Mexico.

A previous small grant from the Foundation helped initiate a program on the natural products of one subtribe of

cacti. In the preliminary phase of the collaboration, plant collections and crude extracts were made by the Institute in Mexico and sent to Wayne University for structural degradation studies. Results to date show that a new, abundant, and easily obtainable source of triterpenes has been found; several new triterpenes have already been isolated; and new alkaloids, of which two contain hypertensive principles, have been obtained from cacti and other Mexican plants.

Such results show that only the surface of these rich sources of natural plant products has been scratched. To aid in continuing and extending the work, the Foundation has appropriated \$30,000 for a three-year period.

#### THE NEW YORK BOTANICAL GARDEN

##### PLANT BIOCHEMISTRY

The New York Botanical Garden, under the directorship of Dr. W. J. Robbins, has developed several major lines of research in plant biochemistry and physiology as related to the phenomena of plant growth and nutrition. Among the areas included are the identification of essential metabolites for plant development, the production of antibiotics from basidiomycetes and actinomycetes, the nature and origin of plant tumors, vegetative mutations in fungi, and studies on the nature of hybrid vigor.

These studies are carried out by Dr. Robbins and his staff aided by graduate students, principally from Columbia University, where Dr. Robbins holds professorial rank.

The Foundation has been supporting these researches since 1938. In 1954 two grants were made to the New York Botanical Garden for the work which Dr. Robbins is directing. The first provides \$8,500 toward the purchase of a Carey recording spectrophotometer. The second makes \$35,000 available over a five-year period for equipment, supplies, and stipends.

UNIVERSITY OF CALIFORNIA  
RESEARCH IN PHOTOSYNTHESIS

For the photosynthetic chemist there is perhaps no more important research center in the United States than the laboratories directed by Dr. Melvin Calvin, of the Radiation Laboratory and the Department of Chemistry of the University of California at Berkeley. Along with the contributions of van Niel and Hill, Calvin's demonstration of what happens when green plants begin to manufacture food forms an important part of our basic knowledge concerning the photosynthetic conversion of energy.

Generously supported by the Atomic Energy Commission and other governmental agencies, the laboratories are well equipped and amply provided with funds for current operating expenses. To supply a relatively unrestricted fund which it is expected Professor Calvin will chiefly use to bring to Berkeley visiting European and Japanese scientists, the Foundation has appropriated \$18,500 for a three-year period.

UNIVERSITY COLLEGE, DUBLIN  
RESEARCH IN BIOCHEMISTRY

At University College, Dublin, one of the three constituent colleges of the National University of Ireland, Dr. E. J. Conway, director of the Department of Biochemistry and Pharmacology of the Faculty of Sciences, has devoted the major portion of a long and distinguished career to the study of movement of charged particles, or ions, across the membranes surrounding living cells. He and his colleagues are now working together on a series of studies aimed at uncovering the nature and principles underlying the process of accumulation and exchange of inorganic ions in cells and tissues.

To continue support of Dr. Conway's research, the Foundation has supplemented a grant made in 1951 by another in 1954 of \$12,000 for a three-year period.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT

OF SCIENCE

GORDON RESEARCH CONFERENCES

The small summer conferences which began in 1931 as the Gibson Island Conferences on topics in chemistry have, since 1946, been called the Gordon Research Conferences in honor of their founder. Their planning and organization are controlled by the Management Committee of the Gordon Research Conferences of the American Association for the Advancement of Science.

The conferences are held during the summer months in three small New Hampshire communities: at Colby Junior College in New London, at the New Hampton School in New Hampton, and at Kimball Union Academy in Meriden. Each conference lasts about a week and enables active experts in diverse fields who are interested in common problems to get together for intensive informal discussions in pleasant but simple and quiet surroundings.

Foundation support of the conferences began in 1950. This year the Foundation has appropriated \$30,000 toward the expenses involved in the attendance of foreign scientists invited to participate in conferences on proteins, nucleic acids, steroids, vitamins and metabolism, and general biochemistry which will be held over the next three years.

UNIVERSITY OF BASEL

CHEMISTRY OF BIOLOGICALLY IMPORTANT MOLECULES

Dr. Tadeus Reichstein, who in 1950 shared the Nobel Prize for medicine and physiology with Kendall and Hench of the United States, has directed the department of organic

chemistry at the University of Basel, Switzerland, since 1946.

Long interested in the chemistry of naturally occurring alkaloids and in the organic synthesis of steroid compounds, Dr. Reichstein is heading a group of workers attacking these problems as well as the chemistry of amino acids and polypeptides.

The Foundation has made a grant of \$21,000 to the university for the purchase of an infrared spectrophotometer for the use of Dr. Reichstein and his associates in the department, the funds to be available for a one-year period.

UNIVERSITY OF BIRMINGHAM

RESEARCH IN BIOCHEMISTRY

Continuing a long tradition of distinguished research in carbohydrate chemistry, the department of organic chemistry of the University of Birmingham, England, under the direction of Dr. Maurice Stacey, now follows four main avenues: the synthesis and biosynthesis of carbohydrates, the mechanism of polysaccharide biosynthesis and the associated enzyme systems, the immunopolysaccharides which occur in vaccines and antigens, and the chemistry of nucleic acids and nucleoproteins.

In continued support of Dr. Stacey's work, the Foundation has appropriated \$15,000 to the University of Birmingham. The first grant for this purpose was made in 1949.

UNIVERSITY OF LOUVAIN

RESEARCH IN BIOCHEMISTRY

By breaking up the animal cell into smaller and smaller fractions through the separation of particles of different molecular weight, Professor Christian de Duve and his colleagues in the Laboratory of Physiological Chemistry at the University of Louvain, Belgium, have been attempting to locate

in the cell the special structures and centers which are responsible for the synthesis of enzymes, proteins, and other compounds.

The results of the studies undertaken so far are strongly suggestive that in this approach clues may be found as to the division of functions in the cell, but the work must be extended and repeated many times to provide information which can be analyzed statistically. To aid in the continuation of this research, the Foundation has made a 1954 grant of \$15,000 to the University of Louvain.

#### SMALLER GRANTS

Sloan-Kettering Institute for Cancer Research, New York: expenses of a symposium on trace elements; \$10,000;

University of Aberdeen, Scotland: Department of Biological Chemistry; for equipment to be used in general biochemical research; \$7,200;

University of Vienna, Austria: Second Chemical Laboratory; equipment for research in protein chemistry, under the direction of Professor Friedrich Wesseley; \$6,000;

University of Sheffield, England: equipment to be used in microbiological research; \$6,000;

University of Pavia, Italy: Institute of Biological Chemistry; equipment for biochemical research, under the direction of Professor Vittorio Zambotti; \$5,000;

Johns Hopkins University, Baltimore, Maryland: research in protein biochemistry, under the direction of Professor Emeritus E. V. McCollum; \$5,000;

National University of Mexico, Mexico City: Institute of Chemistry; research by Dr. Owen H. Wheeler; \$4,500;

Harvard University Medical School, Boston, Massachusetts: Dr. Bert L. Vallee; to visit European centers of research in spectroscopic analysis; \$2,500;

Tufts College, Medford, Massachusetts: toward a program on nucleic acid chemistry, under the direction of Professor Gerhard Schmidt; \$3,000;

University of Adelaide, Australia: Dr. Peter M. Nossal, reader in biochemistry; to visit research centers in the United States; \$2,400;

University of Oslo, Norway:

Faculty of Sciences; research on the chemistry of nucleic acids, under the direction of Dr. Søren G. Laland; \$2,000;

Pharmaceutical Institute; Professor Arnold Nordal; completion of studies at the University of California; \$975;

St. Andrews University, Scotland:

Department of Biochemistry; purchase of equipment; £560 (about \$1,700);

Department of Botany; research in plant physiology, under the direction of Dr. Leonard W. Poel; \$1,200;

University of São Paulo, Brazil; Faculty of Medicine, Ribeirão Preto:

Department of Physiology; Dr. Rainer Fried, to spend an additional year at the University of Wisconsin; \$2,275;

Department of Biochemistry; Professor José Moura Gonçalves, chairman; study in the United States during a three-month period; \$1,400;

Department of Histology and Embryology; Dr. Hanna Rothschild; additional equipment; \$60;

Kyoto University, Japan: Dr. Konoshin Onodera; to visit the United States for research in carbohydrate chemistry at Ohio State University, Columbus; \$2,000;

National Center for Scientific Research, Paris, France: Dr. Luigi Gorini; a one-year visit to the United States; \$1,250;

University of Liverpool, England: Dr. T. W. Goodwin; to visit centers of research in biochemistry in the United States; \$1,200;

Middlesex Hospital Medical School, London, England: Dr. James F. Tait; to extend for two months his visit to research centers in biophysics in the United States and Canada; \$1,100;

University of Liège, Belgium: Institute of Higher Physical Education; research in carbohydrate chemistry, under the direction of Dr. Claude Liébecq; \$1,000;

University of London, England: King's College; Dr. John Honeyman; to visit biochemical laboratories in the United States; \$920;

Institute of Biochemical Investigations, Buenos Aires, Argentina: Dr. Enrico Cabib; extension of his stay in the United States for further research in enzyme reactions at Columbia University; \$1,100.

#### BIOPHYSICS

UNIVERSITY OF LONDON, STRANGeways RESEARCH LABORATORY, KAROLINSKA INSTITUTE, ROYAL INSTITUTION OF GREAT BRITAIN

#### MICROSCOPY

The present century has brought many spectacular improvements in the application of optical and other related techniques to the study of microstructure of biologically important materials. In optical microscopy, to the methods of using direct and oblique illumination have now been added those of phase contrast; infrared and ultraviolet wave lengths of light are presently in common use, so the microscope also serves as a microspectroscope; the development of the electron microscope has pushed further still the frontier of infinitely small things into which the scientist can peer; and, more recently, the use of very gently-penetrating X-rays is helping to localize in the cell some of the larger chemical molecules.

The greater power and precision of these techniques is purchased at the price of vastly more complex and, concom-

itantly, more expensive instruments. In 1954 The Rockefeller Foundation aided three institutions to acquire electron microscopes, contributed to several research programs designed to exploit the power of the instruments, and helped another institution add to its equipment of instruments of a related kind.

Since 1947 the Foundation has contributed \$58,000 to the University of London, England, for the development of research in biophysics under the direction of Professor J. T. Randall. Begun at the close of the war, his program calls for the application of the most exacting techniques of physics to the study of such biological problems as the mechanism of cell division; the internal, minute, submicroscopic anatomy of the cell; the X-ray crystal and spectroscopic examination of plant and animal fibers; and the response of the living organism to its physical environment. In the years ahead Professor Randall proposes to devote an increasing amount of time to studies of collagen and to work on the structure and function of nucleic acids, while maintaining interest in the further development of physical apparatus for use in unraveling some of the difficult problems of biology. In 1954 the Foundation made two appropriations totaling \$30,000 for the purchase of an electron microscope for the use of Professor Randall and his associates, and a third of \$30,000 for use over a three-year period toward the expenses of his research program.

The Strangeways Research Laboratory was established more than a quarter of a century ago as a privately endowed laboratory for research on cancer and on problems of cell growth and tissue differentiation. Located on the outskirts of the town of Cambridge, England, it has maintained throughout its history the closest scientific relations with the various departments of the University of Cambridge.

Under the leadership of Dr. Honor B. Fell, the laboratory has achieved an international reputation as a center for the development and use of tissue and organ culture tech-

niques in the study of problems of organized growth; of the mechanisms of cell division; of the influence of vitamins, hormones, and other substances on the growth of cells and organ rudiments; on the influence of high energy radiation on normal and tumor cells; and on the distribution of nucleic acids in resting and dividing cells.

The Foundation made a grant of \$30,000 toward the cost of purchasing an electron microscope to complete the armamentarium of specialized research equipment which is already available at the Strangeways Laboratory.

To the Karolinska Institute, Stockholm, Sweden, The Rockefeller Foundation has contributed, since 1938, slightly more than \$135,000 for the development of some of the new scientific tools and techniques, and for their use in organized programs of research. In 1954 the Foundation made a grant of \$6,000 as a supplement to one of \$24,000 the year before for the purchase of an electron microscope for the use of Dr. Fritiof S. Sjöstrand.

Another appropriation of \$30,000 was made for the research in biophysics at the Institute for Cell Research of the Karolinska Institute, under the direction of Professor T. Caspersson for a three-year period. Professor Caspersson has made many notable contributions to the study of cells at the molecular and electron microscopic level. He has been among the first to formulate clearly the rigorous theoretical considerations which must be met in the use of microspectroscopic methods for the identification and localization of various chemical compounds in plant and animal cells, and he has himself pioneered in the designing and perfecting of some of the most delicate and exact technical tools for the pursuit of such investigations. At the same time he and his group of collaborators, and the many foreign investigators who have worked with them, have produced numerous studies on the submicroscopic anatomy of the cell, the localization of such vital things as nucleic acids, and the problems of cell secretion.

Professor Arne Engström of the Department of Physical Cell Research at the Karolinska Institute has been using very lightly-penetrating X-rays to study the architecture of the cell: the location and concentration of various elements and the ultrastructure of hard tissues such as bone, dentine, and enamel. With these methods and those of X-ray crystallography and X-ray diffraction, Professor Engström and his co-workers have been investigating the formation and repair of bone, the crystallography of kidney stones, and the structure of collagen fibers. In continuing support of this research, the Foundation made a 1954 grant of \$15,000 for an 18-month period.

Sir Lawrence Bragg, formerly of the University of Cambridge, England, became director of the Royal Institution of Great Britain in London and its associated Davy Faraday Laboratory in 1953, a post which had been occupied by his father, Sir William Bragg, at the time when father and son shared the Nobel Prize for Physics in 1915. In London Sir Lawrence is expanding the small unit for X-ray crystallography which has long been established there into a stronger center for studies on the structure of proteins. The expanded program will parallel and supplement the work of the group at Cambridge with which he was formerly associated. As an aid toward the procurement of modern crystallography apparatus which will be needed for this work, the Foundation made a 1954 appropriation of \$15,000 to the Royal Institution, available during a two-year period.

#### SMALLER GRANTS

University of Montevideo, Uruguay: Faculty of Engineering; Institute of Physics; research on biological and medical problems utilizing radioactive isotopes, under the direction of Professor Walter Hill; \$10,000;

University of London, England: King's College; research in electrophysiology, under the direction of Dr. Donald M. MacKay; \$8,000;

McMaster University, Ontario, Canada: Department of Chemistry; research in enzymes by Professor S. S. Kirkwood; C\$6,000 (about \$6,300);

University of Pavia, Italy; Institute of Comparative Anatomy; equipment for research in spectroscopic biology; \$3,500;

University of Liège, Belgium: equipment for research on the application of isotope techniques to problems of biology and medicine, under the direction of Dr. Walter C. Verly; \$3,000;

Pennsylvania State University, University Park: Professor Raymond Pepinsky; to visit European research centers concerned with the structure of biologically significant compounds; \$2,000;

University of Amsterdam, Netherlands: Laboratory of General and Inorganic Chemistry; equipment for research in X-ray crystallography, under the direction of Professor Caroline H. MacGillavry; \$1,500;

University of Rio Grande do Sul, Pôrto Alegre, Brazil: Institute of Biophysics Research; toward the establishment of Casimiro Tondo as director; 39,200 cruzeiros (about \$1,000);

University of Leeds, England: Department of Botany; Professor Irene Manton; to study in the United States the uses of electron microscopy, and to learn special methods of making ultrathin sections of plant tissues; \$700;

University of Geneva, Switzerland: Institute of Physics; Dr. Edouard Kellenberger; to visit several European research centers in biophysics; \$550.

#### BIOMATHEMATICS

##### GRANT IN AID

Harvard University Medical School, Boston, Massachusetts: to enable Anthony Bartholomay to continue his training and research in biostatistics over a three-year period; \$10,000.

## Agriculture

As indicated in the introductory statement for the Division of Natural Sciences and Agriculture (page 125) the emphasis of the Division on the broad problems of food supply was continued and expanded in 1954. The account which follows is divided according to the three chief types of activities supported by The Rockefeller Foundation in the furtherance of this objective. The first classification, "Aid to Research and Teaching," includes grants to other institutions for research projects and training programs. The second, "Operating Programs," covers the cooperative projects with certain governments of Latin American countries in which Foundation staff members collaborate with local scientists in research to improve the production of basic food crops and in providing advanced professional training for young agricultural scientists. The third, explained at some length in the introductory statement, describes the grants made to other agencies in support of certain activities which have a long-range relation to the future food supply of the world. An added heading covers a few grants not classifiable under the foregoing.

### AID TO RESEARCH AND TEACHING

#### UNIVERSITY OF ILLINOIS

#### DEPARTMENT OF DAIRY SCIENCE

The Department of Dairy Science at the University of Illinois, under the leadership of Dr. Glenn W. Salisbury, has developed a research team which is devoting major attention to the fundamental problems of protein production by animals. This group, which includes biochemists, microbiologists, physiologists, and geneticists, has been investigating the basic processes which take place in animal cells and tissues. Their work is resulting in information of value in human

physiology and medicine as well as in fundamental genetics.

The Rockefeller Foundation has made a six-year grant totaling \$100,000 in support of the Department of Dairy Science to permit more intensive and extensive investigation of important problems in animal physiology.

RURAL UNIVERSITY OF THE STATE OF MINAS GERAIS  
COLLEGE OF AGRICULTURE

One of the most important but least understood factors involved in the enrichment of rural life in Latin America is the role of farm women. Their significance in the development of farm family life has been increasingly realized, but as yet relatively little attention has been given to their needs or to the maximum utilization of their capabilities.

The establishment of a curriculum in home economics by the University of Minas Gerais is a significant step not only for the state but for all of Brazil. The department of domestic science renders a valuable service through training young women to be homemakers and home demonstrators. Even more important than this, however, may be its influence as an experiment in coeducation, one of the first in any Latin American college of agriculture.

The curriculum in home economics was organized by Miss Anita Dickinson, who was assigned to the college through a Point Four agreement with Purdue University. The Foundation has contributed \$30,000 to buy equipment for the laboratories and practice rooms and to help in strengthening the college library.

TECHNICAL INSTITUTE AND SCHOOL OF ADVANCED  
STUDIES OF MONTERREY  
COLLEGE OF AGRICULTURE

In 1947 the Technical Institute of Monterrey, Mexico, added a Division of Agriculture to deal with the agricultural and research needs of the State of Nuevo León and adjacent

areas. The school now has a student body of over 200, a full-time faculty numbering 15, and a modern curriculum covering the important disciplines in agricultural science. In spite of the few years in which it has been in existence, the Division of Agriculture of the Technical Institute has already achieved an excellent record of service to the Monterrey area.

The school has recently added a 240-acre experiment station to its agricultural facilities which is being developed both as a research and teaching center. The Foundation, which has supported the school with over \$45,000, has now appropriated \$60,000, a part of which will be spent for equipment for the new station, but the major portion of which will go into the research and teaching programs of the school.

#### ALABAMA POLYTECHNIC INSTITUTE

##### NEMATOLOGY

Nematodes, a group of submicroscopic worms, are worldwide in distribution. Many are parasitic on other forms of life, and in recent years their importance as limiting factors in crop production has become increasingly apparent. Unfortunately, however, the study of nematodes as plant parasites is not well developed in this country and, therefore, the properly trained personnel are not available for the numerous research positions in nematology which are coming into existence. Neither is there any center where emphasis is placed on the training of scientists as specialists in entomology.

Recognizing the scarcity of trained specialists and the need for regional studies on nematology, the Alabama Polytechnic Institute has initiated a training program utilizing the facilities of six of its departments. This program has been approved by the Association of Southern Agricultural Experiment Station Directors which is establishing nematode research on a regional basis. At the present time, fourteen land-grant colleges in the United States and Puerto Rico are cooperating in this effort, each member institution providing

funds for local projects and for travel to meetings of its workers. In addition, the U. S. Department of Agriculture has allocated \$15,000 for special projects at Alabama Polytechnic Institute and at North Carolina State College.

The Alabama Polytechnic Institute is providing funds for the construction of a greenhouse and laboratory and other facilities. To aid in getting this project well established, The Rockefeller Foundation has appropriated \$45,000 to the Alabama Polytechnic Institute to provide special equipment; to bring outstanding nematologists to Alabama for temporary periods to participate in the training and research program; and for the workshops attended by scientists from each of the cooperating states and Puerto Rico.

#### LATIN AMERICAN SCHOLARSHIPS TO THE ROCKEFELLER FOUNDATION AGRICULTURAL OPERATING ACTIVITIES

Soon after the establishment of the Mexican Agricultural Program in 1943, various Latin American agricultural colleges and experiment stations became aware of the unique opportunity the program afforded for the training of Latin American scientists in field research techniques in such basic agricultural sciences as plant breeding, agronomy, and plant protection. The great diversity of climate and of agricultural crops and problems in Mexico and its similarity to other Latin American countries contribute to making the Mexican program an excellent center for the training of young Latin American agricultural scientists.

In response to the demand and to satisfy the need for the training of graduate agricultural students, the Foundation in 1945 provided a grant to the Medellín Faculty of Agronomy of the National University of Colombia for a twelve-month scholarship to the outstanding graduating student of each class for three succeeding years. As the scholarship program expanded from this initial grant, others for this purpose were made to the Palmira Faculty of Agronomy in Colombia; to

the national schools of agriculture in Brazil, Bolivia, Peru, and Costa Rica; and finally, to relatively mature agricultural scientists holding responsible positions in other governmental or agricultural institutions who expressed a desire for such training.

Since 1945, some 57 graduate students from eight countries have been trained under the guidance of the staff members of the Mexican Agricultural Program. The present rate of appointment is approximately 15 scholars per year. Those who have held the scholarships in the past have returned to their own countries to continue professional work in agriculture.

The demand for scholarships among qualified graduates of agricultural colleges is still increasing. Staff members of the Colombian Agricultural Program are now ready to participate in this program. Colombia can offer advantages as a training center, particularly to students from Ecuador, Venezuela, and Peru, because of the proximity of these countries and because of the similarities in crop practices, topography, and climate.

In 1954 the Foundation appropriated \$70,000 for a broadened scholarship project. The scope of the program has been enlarged to include all the operating activities of the Foundation as training centers, to increase the number of scholarships granted annually to approximately 20 and to lengthen the scholarship period from 12 to 15 months. As before, the scholarships will be open to the best students of the agricultural colleges of Latin America and to qualified agricultural workers sponsored by governmental or other official agricultural institutions.

#### PAN AMERICAN AGRICULTURAL SCHOOL

#### SCHOLARSHIPS

The Pan American Agricultural School in Honduras is probably the leading school of vocational agriculture in Latin

America. Founded and generously supported by the United Fruit Company, it has been ably directed since its establishment by Dr. Wilson Popenoe.

Approximately 60 Latin American students are admitted annually for a three-year course in practical agricultural techniques. As of the ninth commencement in 1954, graduates of the school numbered more than 400. In 1947, and again in 1949, the Foundation provided funds for scholarships which enabled the honor students of the graduating classes to carry on advanced agricultural studies in colleges and universities in the United States. This year the Foundation appropriated \$30,000 to continue the program, an amount which will provide 14 or 15 scholarships open to the graduating classes of the next three or four years.

#### ALLAHABAD AGRICULTURAL INSTITUTE, INDIA

Two years ago, the Foundation made an outright grant of \$150,000 to the Allahabad Agricultural Institute in India which was employed chiefly for the purchase of scientific apparatus to be used in the several buildings constructed with funds from the Ford Foundation. This year a grant of \$12,000 for the calendar year 1954 was made for the purchase of certain additional equipment.

#### OTHER GRANTS

State of Mexico: Final contribution toward support of the collaborative research, demonstration, and extension program, for use as needed to purchase special equipment and for the local training of personnel engaged in extension, home demonstration, and rural sanitation activities; \$30,000 over a three-year period;

Pan American Sanitary Bureau, Washington, D. C.: Institute of Nutrition of Central America and Panama; research on nutritive value of corn varieties for northern Latin America; \$10,000;

University of Quito, Ecuador: School of Agronomy and Veterinary Science; laboratory equipment and library materials; \$10,000;

University of the Republic, Montevideo, Uruguay: Faculty of Veterinary Medicine; research in poultry pathology and animal genetics; \$10,000;

University of Guayaquil, Ecuador: School of Agronomy and Veterinary Science; for laboratory supplies and equipment, and library materials; \$10,000;

Inter-American Society of Soils Scientists: for meetings of the society during the period ending March 31, 1956; \$10,000;

Secretariat of Agriculture, Campinas, São Paulo, Brazil; Institute of Agronomy:

Purchase of equipment and supplies for field and laboratory research on insect ecology; \$10,000;

Minoro Itto; to visit centers of research in bean breeding in the United States; \$890;

Kihara Institute for Biological Research, Kyoto, Japan: research on improvement of vegetable crops and fruit; \$10,000;

American Association for the Advancement of Science: for international meetings on problems of arid lands development, held in New Mexico during April and May, 1955; \$10,000;

Catholic University of Chile, Santiago: Faculty of Agronomy; laboratory equipment and supplies, and library materials; \$10,000;

University of San Marcos, Lima, Peru: Faculty of Veterinary Medicine; for a cooperative project with the Ministry of Agriculture on the study of diseases of the alpaca, under the direction of Dr. Manuel Moro; \$7,300;

University of São Paulo, Brazil: Faculty of Veterinary Medicine, Department of Animal Husbandry; purchase of research equipment and supplies for research in animal nutrition, under the direction of Dr. Fernando Andreazi; \$5,800;

Dr. Harry H. Laidlaw, Jr., College of Agriculture, University of California, Davis: to assist the Department of Genetics at the Luiz de Queiroz Superior School of Agriculture, Piracicaba, Brazil, with its research program; \$4,200;

National College of Agriculture, La Molina, Peru: to enable Ing. Rosendo Postigo to continue a project on wheat stem rust control; \$5,000;

National University of Colombia, Medellín: Faculty of Agronomy; equipment and supplies for the establishment of a Plant Physiology Laboratory; \$5,000;

Ministry of Agriculture, Santiago, Chile:

Department of Agricultural Investigations; Ing. Raúl Cortes, entomologist; to visit agricultural research centers in entomology in Latin America and the United States; \$3,350;

Dr. Isaias Tagle V.; extension of his visit to research centers in the United States; \$285;

Ministry of Agriculture, Peru: National Institute of Animal Biology; Dr. Harry Preston Smith, director; to visit United States centers of research on animal diseases and laboratories concerned with production of biologicals; \$2,850;

University of Cuzco, Peru: Professor Cesar Vargas C.; to visit potato research centers in the United States; \$2,825;

Colombian Institute of Cotton Development, Bogotá: Ing. Mario Londono Beltrán; to visit fiber technology training and research centers in the United States; \$2,200;

Purdue University, Lafayette, Indiana: Graduate School; Dean E. C. Young; to visit Rockefeller Foundation agricultural programs in Mexico, Colombia, and Central America to advise on agricultural economic aspects and implications of program activities; \$1,950;

Ing. Lauro Luján, Hacienda San Ignacio, Cochabamba, Bolivia: to visit the Colombian Agricultural Program to gain experience in potato research; 3,300 Colombian pesos (about \$1,485);

Ministry of Agriculture and Animal Industry, Mexico City:

Federal Extension Service; Ing. Joaquin Loredo, head; to visit the United States Department of Agriculture and various state extension service centers; \$1,200;

Agricultural Directive Committee, State of Jalisco, Guadalajara; Ing. Raúl Palacios A., representative; to visit agricultural research centers in the United States; \$975;

Australian Commonwealth Scientific and Industrial Research Organization: Regional Pastoral Laboratory, Armidale, New South Wales; R. W. Jessup, senior research officer; to study in the United States problems of arid zones; \$1,000;

North Carolina State College, Raleigh: School of Agriculture; Dr. Ralph W. Cummings; to visit the Foundation's Mexican and Colombian Agricultural Programs; \$850;

University of Manitoba, Winnipeg, Canada: Miss Dorothy Shaw, Plant Pathology Laboratory; to visit plant pathology research centers in the United States; \$750;

University of Wisconsin, Madison: Department of Plant Pathology; Hugh Trevor Wenham; to visit agricultural, educational, and research centers in the United States; \$700;

Ministry of Agriculture, Brazil: Instituto Agronómico do Sul, State of Rio Grande do Sul; for equipment for investigations in soil physics; \$525.

## OPERATING PROGRAMS

### MEXICAN AGRICULTURAL PROGRAM

The Office of Special Studies (*Oficina de Estudios Especiales*) of the Ministry of Agriculture of Mexico was established in 1943 as a joint venture between the Ministry and The Rockefeller Foundation. The Ministry supports the Office by means of an annual subsidy, and in addition furnishes office quarters, land for experiment station use, and facilities and labor for research and demonstrations. The Foundation contributes funds for the services of its staff members and for scholarships and fellowships, as well as an annual budget in support of program activities. In addition, the Foundation makes other grants for agricul-

tural education and extension in Mexico. In December, the Foundation made an appropriation of \$209,620 for the annual budget in support of program activities in 1955, plus \$150,000 for the nonrecurrent capital costs of two new experiment stations which are to be established in 1955.

The two new stations, which were authorized by the Ministry of Agriculture late in the year, represent an important milestone in the development of an experiment station network covering the important geographical regions of the country. Altitude, the "third dimension" of Mexican agriculture, changes so abruptly in this mountainous country that fertile valleys only a few miles apart have entirely different climatic conditions. In the valley of Toluca, for instance, at 9,000 feet, heavy frosts coming late in the spring shorten the growing season far beyond that in the valley around Mexico City at 7,200 feet, only 26 miles away. In another direction from Mexico City, a distance of 45 miles takes one to Cuernavaca, 3,000 feet lower in altitude, where frosts never come and where crops grow the year around. An hour's trip by airplane toward either coast takes one into the tropics.

The experiment stations at which cooperative research is carried on are located with regard to these climatic regions. The first one was established in Chapingo (altitude 7,200 feet) about 20 miles from Mexico City, at the center of greatest population density. Most of the basic research and plant breeding for the high altitudes has been done here, supplemented by that at a winter station in the nearby State of Morelos. With good laboratory buildings, workrooms, greenhouses, storage and machinery sheds, and land now brought to a good level of fertility, the Chapingo station is a compact, efficient research center conveniently located in relation to the National School of Agriculture and the national capital.

A second station, known as La Cal Grande, is located near the town of La Piedad, on the river which bounds the

States of Guanajuato and Michoacán. It is at an intermediate altitude of about 5,800 feet. This region, called the Bajío, is especially important in the Mexican economy because it is the one which regularly produces a large proportion of the nation's food. La Cal Grande went into operation in the summer of 1954, when its two buildings and an access road were completed.

The two new stations to be established in 1955 supplement admirably those already in operation. One will be near the town of Cotaxtla in the State of Veracruz, the heart of the important east coast tropics, on a tract of about 500 acres recently purchased by the Ministry of Agriculture. The station is being cleared from a wilderness of tropical scrub and brush growth. The work of the station will be on tropical corn improvement, grass and forage crops, beans, sorghums, vegetables, and field crops. This station will be of great importance in the development of agriculture in the Mexican tropics.

The second of the new stations is being built in the State of Sonora near Ciudad Obregón. This is in the northwestern part of Mexico, at an altitude only a little above sea level, where the climatic conditions are dry like those in much of the southwest of the United States. When water is available, however, the land proves to be immensely fertile. Because large-scale governmental irrigation projects are being completed, this is the most rapidly growing agricultural area in the country, producing increasing quantities of wheat, cotton, and rice. The program of the Sonora station will emphasize wheat, rice, corn, sorghums, pasture grasses, and forage crops; soil fertility studies will also receive much attention.

The work of the Office of Special Studies has by no means been confined to the stations under its direct supervision. Federal and state experiment stations have generously lent land and often labor for the experiments of the Office. For example, supplementary work both in plant breeding

and testing for altitudes higher than that of Mexico City is carried out by the State of Mexico at the Santa Elena Experiment Station near Toluca. To this station the Foundation contributed a laboratory building and the cooperation of its professional staff in setting up the research and testing program.

The Office has, likewise, cooperated on research projects with other agencies, such as the National Corn Commission and the Papaloapan Commission. Moreover, many private farmers and *ejidos* throughout the Republic have provided land and labor for test plots and demonstrations.

During 1954 the regular work of the Office of Special Studies progressed steadily, as it has done during the twelve years since its establishment. Good progress was made in all the projects for the improvement of the basic food crops of Mexico.

The hybrid corn program, which began by producing superior hybrids for the high altitudes and the Bajío, has now completed and released several excellent types for the tropics. Rocamex hybrids H-501 and H-503, developed by office staff at the station of the National Corn Commission at San Rafael, Veracruz, are double-crosses from inbred lines created in anticipation of the tropical corn program. Both yield 25 to 30 per cent above Rocamex V-520, the best open-pollinated variety, have better resistance to certain diseases, and are of superior grain and ear types.

The spectacular success of the new tropical hybrids when introduced on the west coast, especially in the State of Nayarit, indicates what can be accomplished when several agencies for agricultural improvement cooperate toward a single objective. Through the cooperation of the National Corn Commission, the national banks for agricultural credit, the semi-official fertilizer company, and the extension division of the Ministry, it was possible to enable farmers to introduce the practice of adequate fertilization at the same time that they first used the new hybrid seed. Yields of up

to 105 bushels an acre resulted from this advantageous combination; in a region where a yield of 22 bushels is regarded as excellent, the effect of the large-scale demonstrations was most impressive. All the seed of the new hybrids in production for the 1954-1955 season was sold before it was harvested.

Another new hybrid, Rocamex H-124, was delivered to the National Corn Commission for increase and distribution. A type of very early maturity, it is adapted especially to the high altitudes of the valley of Toluca, where corn planted at the beginning of the rainy season in May must mature before the frosts at the end of September.

Wheat production reached an all-time high in 1954, with a harvest estimated at 800,000 tons, only 50,000 to 75,000 tons short of meeting total consumption. The steadily mounting production is due to two factors: the improved, rust-resistant varieties developed by the Office staff, with which more than 90 per cent of the wheat crop is now planted; and improved cultural practices, chiefly the more adequate application of nitrogenous fertilizers.

The breeding program for the development of a "composite variety" of wheat has entered its third and final stage of backcrossing. This is a new idea in the fight against stem rust. If it is possible to produce several varieties which mature at the same time, grow to the same height, and have grain of the same type and composition, but which incorporate genetic resistance to different races of stem rust, and if these are mixed and planted together instead of a single variety, it is anticipated that the danger of explosive epidemics of rust can be greatly reduced. The demonstration of the practical possibilities of the hypothesis are awaited with considerable interest.

The work in vegetables took a significant turn in direction during the year. When first begun, the work was centered on the observation of large quantities of plant materials in different regions, to separate those varieties of vegetables

adapted for each region and season. In this way rapid progress was made in the preparation of lists of recommended varieties and dates of planting. These recommendations were published in 1954 for the use of extension agents and farmers. Emphasis is now on an intensive study of cultural problems and comparative yield trials to study more closely the varieties selected as outstanding, and to start hybridizing where improved varieties are called for.

The vegetable section is also cooperating closely with the home garden program of the federal extension service. A graduate of the Saltillo school of agriculture, who worked in the Office during her vacations as an undergraduate, directs the program, which is oriented chiefly toward the women of the *ejidal* communities in the States of Mexico, Puebla, and Hidalgo.

The potato improvement program continues to be successful. In the major potato-growing area around León, the crop is planted during the winter, with irrigation, to escape late blight. Virus-free seed and improved cultural practices, developed in part by the Office, have contributed to increased yields and to lower market prices. In the high Toluca valley, Office experimentation has demonstrated that potatoes can be grown during the rainy season in the summer with proper protection against late blight, thus opening a new region where potatoes had not been grown before.

Potatoes, and likewise the diseases which prey on them, have grown wild for hundreds of years in the high valley of Toluca. Strains of late blight of a virulence unmatched elsewhere are prevalent in the valley. This fact makes Mexico an ideal place to test commercial potato varieties for resistance to late blight, and the staff of the Office is cooperating with the Late Blight Committee of the American Potato Association and with the United States Department of Agriculture in this testing work. In 1953-1954 more than 3,600 seedlings from Scotland, Germany, Holland, Canada, and the United States were field tested at Toluca. Ninety-

four per cent succumbed, but from the remainder some valuable material was selected.

In the soil science section, fertilization experiments in relation to plant population and fertilizer application methods for the basic food crops continued to occupy an important place. Soil samples from all field experiments are studied in the laboratory and greenhouse to obtain data by which it may be possible to link together soil properties and fertilizer response patterns. The effects of stubble mulching, of inter-planting legumes for incorporation into the soil, crop rotation with various crops, and other methods of adding nitrogen and organic matter to the soil were also studied.

Pathological studies on corn, beans, and tomatoes in cooperation with the plant breeders were continued in 1954. Work on late blight of potatoes has occupied a large share of the attention of the plant pathology section. The herbarium collection of fungi, particularly those causing diseases of plants, has grown at an accelerated pace, and a publication listing all the fungi discovered in Mexico, classified according to the host plants, was issued during the year.

The function of the section of entomology is to study the insects which cause economically important damage to the basic food crops of Mexico. During 1954 the major attention of the section was devoted to studies of the pests of corn and beans and of stored grain. A project on the control of flies in dairy barns was continued through investigation of the residual effects of insecticides on different commonly-used building materials. A study of the control of scorpions was also completed and published. Though not a plant pest, scorpions are common in several parts of Mexico and their bite is often fatal.

The forage crop section, which was established in April 1953, has concentrated its efforts during the year on the establishment of introduction gardens for initial evaluation of native and exotic plant material, yield trials of alfalfa, experimentation with different grass and legume pasture mix-

tures, and preliminary studies of seed production problems.

A new weed control program was added early in 1954. Initial experiments were conducted on methods for controlling weeds in corn, sorghum, wheat, potatoes, alfalfa and sweet clover at various locations.

The library maintained by the Office, one of the best in Latin America on the agricultural sciences, continued its regular growth and was used by an increased number of scientists and students.

The staff of the Office delivered 19 scientific papers at technical meetings in the United States and Mexico during 1953-1954, all of which appeared later as journal articles. Four extension bulletins in Spanish were published, and two technical ones also in Spanish.

In the training program, 27 graduates of agricultural colleges in other Latin American countries came to Mexico for advanced training experience. Seventeen Mexican agricultural scientists went to the United States for advanced study on Rockefeller Foundation scholarships and fellowships. Over 60 Mexican graduate students worked with the Office as part of their advanced professional education.

The cooperation of the Office in international projects for agricultural improvement was continued and extended. The Office lent a staff member to direct the technical work of the Central American Corn Improvement Project, and several members attended the professional meeting of the co-operating scientists held in Costa Rica in the fall of 1954. The International Corn Germ Plasm Bank project of the National Research Council completed its active collection of indigenous corn varieties in the middle of the year, and taxonomic and other studies are now in progress to analyze the collections. The specimens from the Central American and Caribbean area are stored at Chapingo, where they are available to corn breeders throughout the world. The program continued its cooperation with the International Wheat Rust Nursery Project of the United States Department of Agricul-

ture. The Rockefeller programs in both Mexico and Colombia have participated in this project since its inception. Another phase of the program's international cooperation is the testing for potato blight resistance which has already been described.

#### COLOMBIAN AGRICULTURAL PROGRAM

The operating program of The Rockefeller Foundation in Colombia, established in 1950, functions through the Office of Special Research (*Oficina de Investigaciones Especiales*) of the Ministry of Agriculture. Cooperatively supported by the Ministry and the Foundation and jointly staffed, the Office conducts research and demonstrations looking to the increased production of the basic food crops of the nation, and offers advanced training experience in research methods to selected graduates of the colleges of agriculture in Colombia and several nearby countries.

The principal agricultural regions of Colombia present contrasts of climate ranging from the humid tropics on the seacoasts to the year-round cold of the mountains above Bogotá. The experiment station system of the Ministry of Agriculture is designed to provide experimental facilities for the study of the agriculture of these contrasting regions. The largest of the stations which come under the supervision of the Office of Special Research is the Tibaytatá Station near Bogotá. With its newly completed laboratory building, this is among the best high-altitude stations to be found anywhere. Supplementing Tibaytatá are four smaller high-altitude substations: Usme, La Isla, and Bonza near Bogotá, and Obonuco in the mountains farther south. For work in the intermediate altitudes or the temperate zone, the Office uses the "Tulio Ospina" Experiment Station at Medellín and the Agricultural Experiment Station at Palmira. The Medellín Station is supplemented by a small installation at La Ceja.

For the tropics three stations are provided: Aracataca,

Montería, and Armero. The latter, though far inland, is at an elevation of only 1,500 feet because of its location in the Magdalena River valley.

The largest of the crop improvement programs, that for corn, maintains breeding research in five of the stations and observational plantings in four others. Improved varieties already released to farmers through the Agricultural Credit Bank include the selected varieties Eto, Colombia 2, and Venezuela 1; and three double-cross hybrids for the intermediate altitudes, H-201, H-202, and H-203. More than 22 tons of these were sold in 1953-1954, a supply far short of demand.

Selection and experimental crossing is well advanced for the production of high-altitude hybrids adapted to the cold climate and short growing season of the Bogotá region, where a quick-growing type which will not sacrifice any more yield than necessary is required.

The low-altitude breeding program at Montería was also emphasized during the year and a small amount of seed of a modified hybrid for the tropics was produced for initial distribution. In this region there is strong consumer preference for corn with a white grain. The best local white variety has grain which is too soft; the modified hybrid is more acceptable on this score.

The corn section continued its cooperation with the International Corn Germ Plasm Bank for collecting and preserving indigenous varieties of corn throughout Latin America. At Medellín, the program maintains the center for the high Andean region, where more than 3,600 specimens are stored. The collecting phase of the program was largely completed in June, 1954, and the work of classifying the material and analyzing it into races and sub-races is now being carried forward. Publication of the results of the analysis, it is hoped, will be possible in the near future.

The wheat section continued its program to develop higher-yielding varieties better resistant to disease and of

acceptable commercial quality. In Colombia, because of the high altitude of the major wheat growing areas, yellow leaf stripe rust (*Puccinia glumarum*) is the chief disease for which resistance must be sought, in contrast to the situation in the United States and Mexico where black stem rust is the principal threat. The variety Menkemen, developed by the Office, has shown good resistance and has been increased for large-scale distribution to farmers. Over 1,000 tons were grown in 1953 for planting in 1954, enough to seed almost the entire wheat acreage. Bonza, another variety also created by the program, with even better resistance and higher yield, was in the first stage of increase, about 25 tons being ready for 1954. Intensive work in selection and hybridization has been continued to create even better varieties; more than 27,500 different lines were planted and observed in a single year.

The wheat section cooperated again in the International Wheat Rust Nursery Project of the U. S. Department of Agriculture, the object of which is to test all the principal wheat varieties of the world under greatly diverse conditions and to catalogue their characteristics — especially disease resistance.

The laboratory for testing the baking and milling qualities of wheat and other grains, now established in the new building at Tibaytatá, plays an important role in the wheat program by evaluating the new varieties for commercial processing and market acceptability.

The work with beans includes both intensive collection, and selection and breeding. The bean collection at Medellín now contains more than 1,800 samples from 14 countries, all of which have been planted and observed. Three varieties for the intermediate altitudes have been selected and are being distributed by the Agricultural Credit Bank. The breeding program is moving slowly because of the large number of characteristics which must be combined into the hybrid — resistance to root rot and seed color being two of the mo

important. Some 511 segregating lines were studied in 1954. It appears that a simple cross will probably not provide the desired combination of characters and that multiple crosses will be necessary. This fact implies a lengthy and extensive breeding program.

In Colombia, in contrast with Mexico, potatoes are a staple of the national diet, and the objective of the potato improvement program is to increase production and quality rather than to popularize their use. The work is proceeding along two lines: the testing of local and imported varieties and the selection of the better ones for immediate increase and distribution; and the hybridization of better varieties. Already some 18 varieties have been demonstrated as better in certain respects than those commonly grown and have been turned over to the Agricultural Credit Bank for increase and sale.

The three qualities which the potato hybridization program seeks to combine into a single variety are resistance to late blight, earliness, and high yield. The program must proceed in three stages: first, to develop varieties with resistance to blight, which involves crosses with wild species; second, to create types which are of early maturity and high yield; third, to cross resistant plants with the early high yielders to produce the final desired variety. This will be a long process.

Late blight is a universal and ever-present enemy of potatoes wherever they are grown and the search for genetic resistance factors is a world-wide one. In this search the Colombian program cooperates with similar ones in Europe and North America under the leadership of the U. S. Department of Agriculture.

A small program on barley improvement completes the roster of projects on specific crops. This has consisted of planting the 5,000 or so varieties in the world collection of the U. S. Department of Agriculture, and selecting the ones which show the best adaptation and combination of desirable qualities. Barley is a dependable cash crop for many farmers

in Colombia and any increase in yield will have direct benefits to an important segment of the population.

The Colombian program has three other sections — soil science, plant pathology, and entomology — which work with and supplement the projects on specific crops.

The projects of the soil science section have chiefly been field fertility studies. With the completion of the building at Tibaytatá, greenhouse and laboratory studies could be begun in 1954 to speed up the accumulation of reliable data about the fertilizer requirements of different crops in different agricultural regions. Relatively little is known about the soils of Colombia, and a good deal of emphasis is being placed on correlating the results of the fertility studies with soil series and types. In addition to studies conducted at experiment stations, the placement of small fertility experiments on the land of private farmers is being emphasized both to increase the variety of the accumulated data and to help educate the farmers and their neighbors concerning the value of fertilizers. A number of projects are also in progress on the selection of legumes to recommend for rotation plans and for use as forage.

During the year, the plant pathology section continued to gather information on the disease losses in beans and corn and to study the epidemiology of corn, bean, and other legume diseases. Possible means of control of diseases of beans and other legumes were also studied. Another project deals with the inheritance of resistance or susceptibility in beans to certain diseases. Until the opening of the new building at Tibaytatá, the work was hampered by the smallness of the greenhouses at Medellín, but a full series of laboratory and greenhouse experiments was set up in 1954 to supplement the information from field studies.

The opening of Tibaytatá has likewise allowed a significant expansion of the work of the section on entomology. Though the facilities for field studies at the principal experiment stations had been adequate and a good insectary had

been developed at Medellín, it was not possible to conduct substantial biological studies until the Tibaytata facilities were completed. Good results on the determination of effective chemical control of a number of pests have been obtained. Pests under study include the most important insects of wheat, corn, beans, and the green manure crop crotalaria. Preliminary studies have also been made on the chemical control of weeds in beans and corn.

During 1954 four fellowships for study in the United States were awarded to members of the trainee group of the Office.

For its share of the support of the Office of Special Research in 1955, The Rockefeller Foundation appropriated \$100,500 and an additional \$40,000 for improvement of the experiment stations at Medellín, Palmira, Armero, and Montería. For 1954, the Foundation had provided \$90,000 in support of the general program and \$50,000 for greenhouses and scientific equipment at the Tibaytata station.

#### CHILEAN AGRICULTURAL PROGRAM

Following an official invitation from the Chilean Government, the Trustees approved an appropriation of \$60,000 in late 1954 to enable the Division to extend its direct operating program by setting up a cooperative unit in Chile under the sponsorship of the Ministry of Agriculture. The inauguration of this work is scheduled for the early part of 1955, when a staff member with long experience in Latin American agriculture will take up residence in Santiago.

In recent years, Chile has had to spend large sums annually to import wheat, which is the basic staple of the national diet. The nutrition of the people would be better if the domestic wheat harvest could be increased, and a heavy drain on the national economy would likewise be avoided. Better harvests depend on the breeding of higher yielding, disease-resistant varieties adapted to the different climatic regions of

the country and on the development of improved methods of cultivation.

Important among the cultivation methods which require study is the proper rotation of crops on the land. The new program, when it becomes active, will also emphasize the forage crops like clover, alfalfa, and grasses with which wheat is rotated. The improvement of forage crops will also contribute to increased animal production, with its attendant benefits to the national nutrition.

#### CORN IMPROVEMENT PROJECT: CENTRAL AMERICA

The success of hybrid corn and synthetic varieties in increasing the corn harvest in Mexico and Colombia has led a number of ministries of agriculture in Central America to explore the possibilities of securing similar results in their own countries. In all of them, as in much of Latin America, corn is a mainstay of the national diets. As a result, five of the ministries participated in a cooperative corn improvement project beginning in the spring of 1954.

In less than one year, much information was secured on the relative yields of local varieties in comparison with the new, improved varieties, and a selection of the better types has been made for wider testing under local conditions in 1955. Several Rocamex and Rocol varieties produced in Mexico and Colombia gave especially outstanding results in the uniform yield tests conducted in the five cooperating countries.

Delegates from the five countries — Honduras, El Salvador, Nicaragua, Costa Rica, and Panama — met in Costa Rica in October, 1954, to review the first year's work and to plan the program for 1955. Observers from Guatemala and Venezuela also attended, as well as Foundation representatives and a number of Foreign Operations Administration officials.

The five ministries of agriculture of the cooperating

countries are prepared to move forward rapidly in developing seed production and distribution facilities so that the corn varieties selected by the research workers can be put into the hands of farmers in substantial quantities as promptly as possible.

For the corn improvement project in 1955 the Foundation has appropriated \$50,000, chiefly for expenses of travel to coordinate the various national programs, for equipment, and for the costs of the meeting of professional personnel. The local expenses, and the provision of land and facilities for the experimental work in each country, are borne entirely by the participating ministries.

#### SMALLER GRANTS

For international cooperation in connection with, but not directly related to, the Mexican Agricultural Program: to cover expenses for exchange of seeds and other plant materials, literature, and information with foreign countries, and for special travel and expenses of scientists visiting Mexico, the United States, and Latin American countries; \$5,000;

Ministry of Agriculture, Santiago, Chile: Ing. Mario Astorga C., director general of agriculture; a 60-day visit to the Mexican and Colombian agricultural programs and to the New York office of The Rockefeller Foundation; \$2,750.

### Grants with Long-Range Relation to World's Food Supply

#### SCRIPPS INSTITUTION OF OCEANOGRAPHY

##### MARINE RESOURCES

Over seven-tenths of the surface of the earth is covered with water, but mankind gets only about 1.2 per cent of his total food from the sea. Scientists are just beginning to re-

alize that the long-range food requirements of our planet make it essential to work toward a substantial modification of the 1.2 per cent figure. This, in turn, means that they must have a vastly improved stock of basic knowledge concerning the now almost wholly unknown biological resources of the oceans and seas.

The study of marine biology is, by virtue of certain obvious physical facts, difficult and expensive. The study of the cycle of life existing in these vast and hidden regions cannot be done with small-scale equipment in the laboratory. It is necessary to go to sea in fairly large and expensive research vessels, equipped with complicated mechanical gear which permits sampling of the sea bottom, the sea water, and the marine life itself at depths which run from the surface down to many thousands of feet. It is also necessary to have many other types of equipment located in the research vessel, such as sonar equipment. The development of marine biology has been seriously handicapped by these factors and by the fact that a really effective approach to problems of the resources of the sea requires a sizable staff of men trained in a variety of scientific disciplines.

The Scripps Institution of Oceanography, one of the important branches of the University of California, is located at La Jolla in southern California. It is an impressive establishment with five buildings and five seagoing vessels, permitting travel on the open ocean to any point in the world. There are at the present time 18 on the professional staff and some 50 more on the technical staff. The entire personnel of the institution, including all of the staff on ships, is approximately 350.

It is characteristic of this institution as a whole that all of its scientists tend to think of the sea as one vast organism, with each member interested in one or another aspect of the great metabolic cycle of this whole organism. Underlying all of the individual activities are two basic problems. The first problem relates to the individual organisms of the sea, and

has as its leading curiosity the bewildering fact that there are so many and so widely divergent kinds of organisms in the sea. The second problem has to do with the over-all aspects of the marine population — what is the standing crop of marine life, and what are the factors that limit this crop and produce in it such dramatic variations from year to year.

To enable this institution significantly to expand its present interests in marine biology, through additions to its faculty and through increased aid for research, The Rockefeller Foundation made to the Scripps Institution of Oceanography, in 1954, an outright grant of \$1,000,000. It is planned that about two-thirds of the available money will be expended over a five-year period, and the remainder over an eight-year period.

#### COLUMBIA UNIVERSITY

#### LAMONT GEOLOGICAL OBSERVATORY

The Lamont Geological Observatory of Columbia University has devoted a major part of its attention to problems of the oceans and their margins. The observatory has well-equipped facilities for investigation and research. In addition to laboratories for physical, chemical, and micropaleontological research, it owns a 202-foot three-masted schooner, "Vema," for oceanographic and geophysical investigations, as well as a field station in Bermuda. There are approximately 100 persons, including part-time graduate students, engaged in the over-all research program.

The activities of the observatory have consisted primarily of seismic measurements at sea, gravity observations at sea and on land, and research on marine sedimentation as integrated by micropaleontological studies, geochemical investigations, hydrography, magnetism, and underwater photography.

The research group under the leadership of Professor

Maurice Ewing has shown special skill in the development of the complicated and ingenious equipment which is necessary to take various types of samples from the sea at great depths. In particular, a method has been devised for obtaining undisturbed cores from the floor of the sea to depths of as much as 24,000 feet. Already a unique core collection has been obtained from all over the Atlantic.

Professor Ewing and the codirector of the observatory, Professor David B. Ericson, desire to expand their program by supplementing the program in physical oceanography with a correlated one in marine biology. The primary purpose of the biological research will be in a general survey of the biocenoses of the oceans and of the factors determining them. In partial support of the increased program, The Rockefeller Foundation in 1954 appropriated \$90,000, available over two years.

MARINE BIOLOGICAL ASSOCIATION OF THE  
UNITED KINGDOM

MARINE BIOLOGY

The Marine Biological Laboratory at Plymouth, England, is an independent laboratory maintained for fundamental research on life in the sea. It is governed by the Council of the Marine Biological Association of the United Kingdom and has about 17 members on its full-time scientific staff. The laboratories, library, and major equipment — including four research ships — are excellent.

For many years it has been firmly established that this laboratory is to be under no pressure to take on practical problems such as applied fisheries research, but that the staff is free to engage in long-range basic work on the biology of the sea. The current program involves the following as main topics: sea water and plankton, macro-fauna and -flora of the sea, and physiology of marine organisms.

The laboratory receives generous support from British sources, but to provide a small but flexible fund for extensions of program and unexpected research opportunities, The Rockefeller Foundation has made a grant of \$30,000 available over a five-year period.

UNIVERSITY OF LONDON

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY

Detailed knowledge of the structure and general physical and chemical properties of water in its three phases — vapor, liquid, and ice — is of fundamental importance in many fields of scientific research including biology, meteorology, biophysics, and physical chemistry. But in many respects the knowledge concerning water is meager and uncertain, partly because it is an extremely complex substance with many anomalous properties, and partly because it has not received the detailed study it deserves.

Some problems of common interest to several fields are: molecular structure of water and ice, and its modification by the presence of ions and foreign particles; the super-cooling and freezing of water and aqueous solutions; the formation of ice on foreign substrates; the growth and evaporation of ice crystals; and the diffusion of water vapor and its condensation on atmospheric nuclei, plants, and vegetation.

Research on these subjects — useful from many points of view — forms a fundamental aspect of cloud physics as it relates to information which is basic to an understanding of what happens in a cloud when rain forms and falls. All of this constitutes knowledge and insight which must be gained before there can possibly be any rational approach to the practical problems of rain making and climate control.

The Imperial College of Science and Technology receives most of its support from British sources. The Foundation has made a grant of £6,000 (about \$18,000) available for three years toward the cost of research assistance.

**SMALLER GRANTS**

University of São Paulo, Brazil: Institute of Oceanography; equipment and supplies for program on the development of marine resources; \$10,000;

University of Chile, Marine Biological Laboratory, Montemar: Equipment and supplies for work on problems of marine resources, under the direction of Dr. Parmenio Yanez; \$6,750;

To enable Dr. Yanez to visit marine biology centers in Latin America, Canada, and the United States; \$3,200;

University of Arizona, Tucson: conference on the problem of cloud physics research, held in Tucson during August, 1954; \$5,000;

Woods Hole Oceanographic Institution, Massachusetts: meteorological research in the Hawaiian Islands, by Stewart Turner and Sean Twomey; \$2,500.

## Special Projects

**NATIONAL RESEARCH COUNCIL****COMMITTEE ON EDUCATIONAL POLICIES OF THE  
DIVISION OF BIOLOGY AND AGRICULTURE**

Widespread and deep concern exists among scientists because of the fact that educational procedures have not in any effective way taken account of the rapid development of the biological sciences in the past half century. From the most elementary levels through all the basic university courses, the organization of biological education still reflects the limited viewpoints of the nineteenth century.

The Division of Biology and Agriculture of the National Research Council have decided that this problem is one they cannot afford to disregard. They have every friendly desire to cooperate with educational agencies and groups at all levels, but they feel it essential that the proposed studies

and reforms be sponsored at the highest scientific level and continuously receive the most competent scientific attention. The division therefore set up a Committee on Educational Policies which will make studies and suggest reforms, maintaining for the purpose an office devoted exclusively to this problem of outstanding importance.

To support the activities of the committee, the Foundation has appropriated \$50,000 for a three-year period.

#### SMALLER GRANTS

New York University, New York: a preliminary survey of public opinion concerning science writing for the general public, under the direction of Professor Hillier Kriegbaum, Department of Journalism, and sponsored by the National Association of Science Writers; \$10,000;

National University of Mexico, Mexico City: Institute of Mathematics; library research materials, on condition that \$10,000 is secured from local sources for the same purpose; \$5,000;

California Institute of Technology, Pasadena: Professor and Mrs. Harrison Brown; a three-month visit to India to study Indian mineral resources; \$4,650;

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

## The Social Sciences

# The Social Sciences

*Director* JOSEPH H. WILLITS<sup>1</sup>

*Acting Director* LELAND C. DEVINNEY

*Assistant Directors*

ROGER F. EVANS                           FREDERIC C. LANE<sup>2</sup>

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HERBERT A. DEANE<sup>2</sup>  
PHILIP E. MOSELY<sup>3</sup>

JOHN B. STEWART  
KENNETH W. THOMPSON

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<sup>1</sup> Retired June 30, 1954.  
<sup>2</sup> Until June 30, 1954.  
<sup>3</sup> Until April 7, 1954.

# The Social Sciences

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# THE SOCIAL SCIENCES

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**A**PPROPRIATIONS in the social sciences, which totaled \$2,992,030 in 1954, continued to reflect the Foundation's effort to assist in bringing the best scholarly knowledge, inquiry, and reflection to bear on the struggle for survival and the strengthening of free societies throughout the world. Emphasis was placed on support of studies and research centers contributing knowledge likely to be helpful to the development and vigorous functioning of free economies, of democratic societies and governments, and to productive and harmonious relationships among such free economies, societies, and governments.

The research and educational activities of The Brookings Institution of Washington, which are directed to all of these matters, were assisted by an appropriation of \$375,000. The preparation of a comprehensive history of the United States Federal Reserve System, including a critical appraisal of its role in promoting stability in our economy and in providing an effective mechanism of governmental regulation, was supported by grants of \$320,000 also to The Brookings Institution, which is collaborating on the study with a committee headed by the president of the New York Federal Reserve Bank. The University of Pennsylvania's Wharton School of Finance and Commerce received a grant of \$100,000 for a period of five years in support of studies of factors influencing the mobility of labor in the United States and

their effects on the flexibility of our economy. An appropriation of \$59,000 was made to Northwestern University in support of a study of the structure and functioning of industrial markets in the United States, with special attention to problems of monopoly in large industries. Grants of \$79,200 to the University of Genoa in Italy, for the research program of its Center of Economic and Econometric Research, of \$60,000 to the National Institute of Economic and Social Research in Great Britain, and of \$21,000 to the Institute of Applied Economics in France, were made to support studies designed to contribute knowledge about the better functioning of the economies in those countries. An effort by the International Bank for Reconstruction and Development to aid its less developed member countries to strengthen their economies was assisted by a grant of \$85,000 toward the costs of establishing at the Bank an Economic Development Institute which will offer training to senior officials from these countries who are responsible for economic development programs.

The mounting importance of the various media of mass communication in the modern world increases the need for greater knowledge of the effectiveness of these communications in both national and international affairs. The Foundation's past support to the Yale University Communications Research Program was extended through a grant of \$200,000 for basic research in this area.

The sharp rise in population growth in the United States during the past decade has reemphasized the need for good population forecasts as a basis, among other things, for necessary educational, economic, and military planning. The Scripps Foundation for Research in Population Problems, with the assistance of the University of Michigan's Survey Research Center, is conducting a study of fertility in the United States which is expected to lead to improvements in forecasting methods. A grant of \$91,835 was made to the University of Michigan in support of this study.

The need for Americans to acquire greater knowledge and understanding of other peoples and nations of the world, and to have specialists fully trained in the language, culture, and technical aspects of each important country, is becoming generally recognized. Of first importance in this respect is the Soviet Union. In 1954, the Foundation continued its support of major efforts to meet this dual need through a grant of \$375,000 to Columbia University for the Russian Institute in the School of International Affairs, and a grant of \$99,000 to the Social Science Research Council for the *Current Digest of the Soviet Press*. Another grant to Columbia University of \$25,000 extended for one year earlier support to the East Asian Institute. The sum of \$20,050 was appropriated to the Indian Council of World Affairs to enable it to undertake joint studies with the Council on Foreign Relations, New York, of Indian-United States relations. Both groups hope through such cooperation to acquire greater understanding of the policies and purposes of each country and thus to clarify common objectives.

The potential and mounting importance of Africa in international affairs was recognized in two grants made during 1954. Nuffield College, Oxford, received \$85,500 for its program of research and training in African studies, and The Royal Institute of International Affairs, London, received \$31,500 for a study of problems associated with racial conflicts in Central Africa and their implications for political developments in that area.

Interest in helping to develop more and better work in the United States in the fields of social theory and legal and political philosophy was expressed by the Foundation in the form of two appropriations and 29 smaller grants. More than 20 scholars were assisted to devote varying periods to study, reflection, and writing in these fields, and six law schools which publish law journals were enabled to commission advanced students to devote a summer to preparing a journal article on some aspect of jurisprudence.

The Foundation's long-standing recognition of the paramount importance of support to individual scholars in the social sciences was reflected again in 1954 by a grant of \$170,000 to the Social Science Research Council for its program of grants in aid, and by approximately one hundred smaller grants, ranging from \$500 to \$10,000, made through the Foundation's Division of Social Sciences. In addition, more than a third of the larger appropriations in the social sciences during 1954 were made in support of the work of individual scholars.

A complete statement of the appropriations and smaller grants made during 1954 follows.

## The Functioning and Management of the Economy

### THE BROOKINGS INSTITUTION RESEARCH AND EDUCATIONAL ACTIVITIES

Since its establishment, The Brookings Institution in Washington, D. C., has directed its attention to the study of economic and governmental problems of national and international significance. Through its reports it has sought to make a contribution both to policy making and to the advancement of knowledge. During the past year, the institution has reviewed its past program and has considered research and educational activities which it might appropriately pursue in the future. This study has led to the formulation of a general program, of which the research phase will focus on emerging issues of public importance, particularly problems of the American economy, problems relating to functions and processes of American government, and problems of international economic and political relations.

Within these broad areas, investigations will be under-

taken into problems of economic growth, productivity, and stabilization; the economic role of government and effects of government policy and activities; public aspects of economic organization and practice; welfare, income, and the use of human resources; the allocation of government functions and the effectiveness of government procedures; the framework of international relations; and basic issues of international economic relations. In addition, the institution plans to undertake, within specified limits, educational activities related to these research interests.

The Rockefeller Foundation in 1954 made an outright grant of \$375,000 to The Brookings Institution in support of its research and educational activities.

#### THE BROOKINGS INSTITUTION

#### HISTORY OF THE FEDERAL RESERVE SYSTEM

Concerned more than any other government agency with maintenance of stability in the economy, the Federal Reserve System represents an unusually successful partnership between public authority and private initiative in finance. A detailed study and appraisal of this effective instrument has been undertaken by "The Committee on the History of the Federal Reserve System," a group of leaders in economics and related fields, in collaboration with The Brookings Institution, Washington, D. C.

Episodes in the system's history around which conflict swarmed and out of which change came, the processes by which decisions were made, the importance of personalities, and the interplay between public policy and private needs constitute angles of approach for the study, which will draw widely upon the papers and memories of men who helped develop the system and who took part in its operation.

For the preparation of this history during a five-year period, The Rockefeller Foundation in 1954 appropriated \$310,000 to The Brookings Institution.

## UNIVERSITY OF PENNSYLVANIA

## STUDIES OF LABOR MOBILITY

Despite the advances made in recent years in the field of industrial research, very little is known about the lives and problems of the majority of wage earners — how they go about finding jobs or acquiring skills, why they change from one job to another, or search for new jobs.

Do workers tend to stick to given types of career lines, or shift from job to job without consistent patterns? How is the role of women in the labor force changing? Is unemployment during "normal" times largely confined to a limited class of chronic repeaters? Does unemployment created by declining industries feed labor demands of those in an upward cycle, or is a continuing pool of unemployed created? What are the effects of new trends in personnel practices, social security, and collective bargaining on the stability of work attachments?

These are some of the aspects of labor mobility and its effect on the flexibility of the American economy to be investigated in a five-year study at the University of Pennsylvania's Wharton School of Finance and Commerce. Dr. Gladys L. Palmer, director of the school's Industrial Research Unit and a pioneer in the field of labor research, will conduct the study, which will be partially supported by a Foundation grant of \$100,000.

## NORTHWESTERN UNIVERSITY

## STUDY OF INDUSTRIAL MARKETS

Wise discussion of public policy concerning antitrust regulations and similar matters depends on accurate knowledge of the structure and functioning of markets in which large business enterprises play a major role. Serious questions have been raised about the adequacy of existing price theory for explaining the operations of industrial markets or in ap-

praising relevant public policies. However, constructive and more useful theory has not been successfully developed nor sufficiently tested against the actual behavior of such markets.

Professor Richard B. Heflebower, chairman of the Department of Economics at Northwestern University, has conducted a number of important studies of competition and price formation in different industries. He now proposes to undertake an analysis of the structure and functioning of industrial markets in this country, and to develop a theory of industrial markets and prices which could account more adequately for the markets' actual operations than traditional price theory seems able to do.

Toward the costs of this research, The Rockefeller Foundation has appropriated \$59,000 to Northwestern University.

#### UNIVERSITY OF GENOA

#### CENTER OF ECONOMIC AND ECONOMETRIC RESEARCH

Although Italian economics has a distinguished tradition, there is no institution in Italy, like the National Bureau of Economic Research in the United States, which encourages and provides assistance for extensive and systematic research. To fill this need, a group of professors from the Law School and the Business School of the University of Genoa have formed a Center of Economic and Econometric Research through which they propose to intensify their research activities and to provide a year or two of further research experience for qualified graduate students.

Work at the center will concentrate on studies of the distribution of the Italian national income, and its interdependence on consumption, investment, and production. Similar research on the highly developed but atypical economies of the United States and England has had important effects on recent advances in economics. Because Italy combines characteristics both of underdeveloped and highly

developed countries, a searching analysis of the interrelations in the distribution of its national income would widen the basis for an understanding of the entire economic process.

The Rockefeller Foundation in 1954 contributed 44,-000,000 lire (about \$79,200) to the University of Genoa for this research.

NATIONAL INSTITUTE OF ECONOMIC AND SOCIAL  
RESEARCH, LONDON

STUDY OF POSTWAR BRITISH ECONOMY

Through all the changes in British economic policy since 1945, certain objectives have remained important: preservation of high employment, avoidance of price inflation, and maintenance of the overseas balance of payments. To attain these objectives a multitude of specific policies and direct controls have been established. However, despite an intimate relation to the ability of the British economy to sustain its people, the effect of these measures on the "navigation" of the economy has never been appraised systematically either by professionals in government, business, or journalism, or by university students.

W. A. Bryan Hopkin, director of the National Institute of Economic and Social Research, has undertaken a study of the effects of national political and economic policies on the functioning of the British economy between 1945 and 1953, as one phase of this extremely important but difficult task.

To cover the costs of this three-year study, The Rockefeller Foundation appropriated £20,000 (about \$60,000) to the National Institute of Economic and Social Research in 1954.

INTERNATIONAL BANK FOR RECONSTRUCTION AND  
DEVELOPMENT

ECONOMIC DEVELOPMENT INSTITUTE

As a result of experience accumulated in the develop-

ment field, the International Bank for Reconstruction and Development has been called upon increasingly to supplement its investment activities with advisory services to its less developed member countries. This phase of its operations has disclosed the need to improve generalized economic management in government, particularly in connection with policy planning, and the formulation and administration of development programs.

After extensive consideration of how it might help to fill this need, the bank has developed plans to establish, on a trial basis, an Economic Development Institute at its Washington, D. C. headquarters. During an 18-month period, 40 key men from the less industrialized countries will be invited to Washington in two groups for a carefully planned six-month course of study. They will include senior officials of ministries of finance or economic affairs, of central banks, development banks or corporations, as well as younger men who may be expected to hold these positions in the future.

Alexander K. Cairncross, professor of applied economics at Glasgow University, will be director of the institute during the first 18 months of the trial period. He will be assisted by members of the bank staff, and occasionally by experts from government, business, and academic institutions.

Toward the cost of establishing and operating the Economic Development Institute during a two-year period, The Rockefeller Foundation in 1954 appropriated \$85,000 to the International Bank for Reconstruction and Development.

#### SMALLER GRANTS

Institute of Applied Economics, Paris, France: continuation of a program of research and analysis of national income and wealth; 7,000,000 francs (about \$21,000) for a three-year period;

University of Chicago, Illinois:

The Law School; research into the relationship between large-

scale industrial enterprise and development and use of inventions; \$15,000;

Research on John Law's system of managed currency, by Professor Earl J. Hamilton; \$7,500;

A study of the genesis and development of industrial civilization, by Professor John U. Nef; \$7,500;

The Brookings Institution, Washington, D. C.: exploratory study of historical materials relating to the Federal Reserve System; \$10,000;

Yale University, New Haven, Connecticut:

A study of the present state and further needs of research in mathematical economics and econometrics, and their relevance to problems of the economics profession generally, to be undertaken by Professor Tjalling C. Koopmans; \$9,975;

Professor John Perry Miller, Department of Economics; to spend a year in Europe working on a study of industrial organization and public policy; \$9,657;

McGill University, Montreal, Canada: editing and preparation for publication of selected papers of the late Professor Robert B. Warren, Institute for Advanced Study, Princeton, New Jersey; \$9,900;

Victoria University of Manchester, England: a field study of economic stability, change, and differentiation in villages of southern India, by Mrs. Trude S. Trent; £2,975 (about \$8,900);

University of Hong Kong:

Dean R. Gordon Brown, Faculty of Architecture, and Professor E. Stuart Kirby, Department of Economics; travel and maintenance while studying principles and experience of government mass housing programs; \$8,000;

Professor E. Stuart Kirby; to visit American and Japanese research centers in economic history while en route from London to Hong Kong; \$1,200;

Northeastern University, Boston, Massachusetts: Bureau of Busi-

ness and Economic Research; exploratory study of the economics of employing the older worker, under the direction of William H. Miernyk, director; \$7,500;

The City College, New York: Department of Economics; study of the role of the Teamsters' Union in the American economy, by Professor Robert D. Leiter; \$7,425;

New School for Social Research, New York: Institute of World Affairs; completion of a study of problems of the European beet sugar industry, by Mrs. Edith Elbogen Yalden-Thomson; \$6,300;

Columbia University, New York:

Completion of book on *The Role of American Trade Unions in Labor Internationalism*, by Joseph Carwell; \$6,000;

Research on the economic growth of Italy since unification, by Professor Shepard B. Clough; \$1,200;

Stanford University, California:

To enable Professor Shinzo Kaji, University of Tokyo, to serve as visiting professor of economics for the academic year 1954-1955; \$6,000;

Assistance toward living expenses for Professor Masao Baba, Department of Economics, Yakayama University, Japan, while studying at Stanford; \$1,000;

Northwestern University, Evanston, Illinois:

Department of Economics; to bring Harry G. Johnson, King's College, Cambridge, England, to the university as a visiting professor; \$5,000;

Professor Robert H. Strotz; a year of study at centers of economic research in Europe; \$5,500;

Christian Albrecht University, Kiel, Germany: Economics Seminar; research on the economic effects of the integration of markets, under the direction of Professor Erich Schneider; DM 20,000 (about \$5,000);

National Institute of Economic and Social Research, London,

England: completion of an inquiry into the recruitment of industrial management in Great Britain, under the direction of Miss Charlotte J. Erickson; £1,670 (about \$5,000);

Johns Hopkins University, Baltimore, Maryland: School of Advanced International Studies; to enable Charles Gamba, lecturer in economics, University of Malaya, to join its staff for the first semester 1954-1955; \$4,000;

University of Illinois, Urbana: study of European sales taxes, by Professor John F. Due; \$3,750;

University of Genoa, Italy: Professor Eraldo Fossati, Faculty of Economics; to visit centers of econometric research in Europe and the United States; \$3,600;

Institute for the History of Socialism and the Italian Labor Movement, Rome, Italy: preparation of a bibliography of the Italian labor movement (1815-1952); \$3,000;

University of Stockholm, Sweden: Dr. Ernst Söderlund; research in economic history at the University of London; \$1,464;

Osaka University, Japan: Institute of Economic and Social Research; completion of studies of interindustrial relations and the related causes of the unfavorable balance of trade in Japan, under the direction of Professor Shinichi Ichimura; \$1,300;

University of Cambridge, England:

Charles H. Wilson, Jesus College; to visit American universities and research centers in connection with his research in economic history; \$2,550;

Professor Sir Dennis H. Robertson; to visit American universities and economic research centers; \$2,260;

Aubrey Silberston; to visit American universities, government agencies, and industrial centers in connection with his research in industrial organization; \$1,245;

Institute for Advanced Study, Princeton, New Jersey: to permit Professor William H. B. Court, University of Birmingham, Eng-

land, to spend the first term of the academic year 1954-1955 at the institute; \$2,600;

University of Virginia, Charlottesville: Professor David McCord Wright; to consult with industrial relations specialists in France, Spain, Italy, Austria, and Belgium during the summer of 1954; \$1,350;

Stockholm School of Economics, Sweden: Professor Bertil Ohlin; to visit American universities and research centers; \$1,500;

University of Oxford, England: All Souls College; to enable Professor H. J. Habakkuk to spend the academic year 1954-1955 as visiting professor at Harvard University; \$1,000;

Institute of Social Order, St. Louis University, Missouri: completion of field study of state advisory councils in the Federal Employment Security program, by the Reverend Joseph M. Becker, S. J.; \$750.

## Human Behavior and Interpersonal and Intergroup Relations

YALE UNIVERSITY  
COMMUNICATIONS RESEARCH PROGRAM

Although movies, television, and comic books are widely believed to be effective in contributing to the rise in juvenile delinquency in this country, these and the other media of mass communication appear to be much less effective when applied to the desirable end of promoting good citizenship, or a positive democratic ideology in the "cold war." On the other hand, it is feared that Soviet mass communications are outstandingly successful in disseminating communist propaganda, both behind the Iron Curtain and in neutral countries. In an effort to throw light on this anomaly and to aid development of scientific principles governing the effectiveness of mass media, The Rockefeller Foundation has continued its

support of the Communications Research Program at Yale University with an outright grant of \$200,000.

Directed by Professor Carl I. Hovland since its inception in 1947, the Yale project has been occupied with examining the multitude of hypotheses and speculations advanced by journalists, publicists, and social scientists on this vital topic. Original research findings, published in a volume entitled *Communication and Persuasion*, have stimulated many other studies throughout the country.

With the aid of the new Foundation grant, Professor Hovland and his associates plan to give attention to the psychological mechanisms through which communications exert their influence. How the individual deals with the welter of conflicting ideas with which he is constantly bombarded; how "wishful thinking" and emotional bias affect judgment; and whether the judgment process is transferred from one situation to another are among the problems to be studied. The Foundation grant will provide core support for the long-range research program over a ten-year period.

#### UNIVERSITY OF MICHIGAN

#### STUDIES OF POPULATION TRENDS

The most serious limitation in the methods now used to forecast population trends in the United States results from the great instability of fertility rates and the absence of adequate knowledge about factors affecting fluctuations in these rates.

A study designed to mitigate this limitation has been planned jointly by the Survey Research Center of the University of Michigan, an organization equipped to conduct scientific national sample surveys, and a group of social scientists with extensive research experience in the field at the Scripps Foundation for Research in Population Problems at Miami University, Oxford, Ohio.

The Rockefeller Foundation appropriated \$91,835 to

the University of Michigan toward the costs of this study during a two-year period.

#### SMALLER GRANTS

National Center for Scientific Research, Paris, France: Center of Sociological Studies; a study of social stratification and mobility in France; \$10,000;

University of Wisconsin, Madison: an exploratory study of talent loss in the United States, under the direction of Professor William H. Sewell, chairman, Social Science Research Committee; \$8,000;

Washington University, St. Louis, Missouri: Department of Sociology; completion of his section of a community study of Ivrea, Italy, by Professor Paul J. Campisi; \$7,500;

Harvard University, Cambridge, Massachusetts:

A field study of the economic and political systems of a society in French Oceania, by Professor Douglas Oliver; \$6,415;

Laboratory of Social Relations; research on the methodology of attitude studies; \$6,000;

University of the Philippines, Quezon City: costs of the services of John E. deYoung, an American sociologist, for a second year; \$5,000;

Cornell University, Ithaca, New York: an analysis of research materials on psychological stress, by Professor Richard D. Walk; \$4,830;

University of Pittsburgh, Pennsylvania: studies of the impact of the Communist revolution on Chinese society and institutions, by Ching-kun Yang, associate professor of sociology; \$4,200;

London School of Economics and Political Science, England: Dr. Hilde T. Himmelweit; to visit major research and training centers in social and clinical psychology in the United States; \$1,150;

University of California, Berkeley: Institute of Child Welfare; Professor Harold E. Jones, director of research; to visit social science research and training centers in Europe; \$880.

## Political Science and International Affairs

COLUMBIA UNIVERSITY

THE RUSSIAN INSTITUTE

Since its establishment in 1946, the Russian Institute at Columbia University has pursued two closely related objectives. Because of the urgent need for persons better able to comprehend the issues posed by communism, initial emphasis has been placed on intensive training at the graduate level for a carefully selected flow of junior research people to meet the needs of government, education, and private research. At the same time, the institute has developed a program of original research on critical aspects of the Soviet system — its strengths and weaknesses, its Russian background, and its impact on world affairs.

Within this framework, research at the institute focuses on Soviet economics; political and party institutions, administrative controls, and the evolution of legal systems; the evolution of Soviet ideology; the aims and effect of Soviet communism on the conduct of international affairs; and the control and use of literature as a means of ideological indoctrination.

In continued support of the institute's research program, The Rockefeller Foundation in 1954 made an outright grant of \$375,000 to Columbia University.

SOCIAL SCIENCE RESEARCH COUNCIL

CURRENT DIGEST OF THE SOVIET PRESS

Since its first issue in 1949, the *Current Digest of the Soviet Press* has amply demonstrated its unique value to scholars and government officials interested in the Soviet Union. Included among its subscribers are many universities and research institutes, government agencies, public and business organizations, and journalists. Its value as a source

of information on contemporary Soviet trends and developments has won widespread recognition, and tributes of warm appreciation of its services have been received from many persons of high standing in the fields of scholarship, journalism, and public affairs.

Supervision of the *Digest* is vested in the Joint Committee on Slavic Studies appointed by the American Council of Learned Societies and the Social Science Research Council. The Rockefeller Foundation in 1954 increased previous support of \$135,000 for the *Digest* by a new grant of \$99,000 to the Social Science Research Council. Payments are to be made during the period ending January 31, 1960, as matching sums are obtained in cash from other sources for the same purpose.

COLUMBIA UNIVERSITY

EAST ASIAN INSTITUTE

Despite, if not because of, the loss of China to the Free World, the training of more and better scholars in the problems of East Asia continues to be an important need and public service. The East Asian Institute of Columbia University, close to the extensive libraries and numerous international agencies in New York, has demonstrated its ability to make a useful contribution to this end.

To help initiate this center, The Rockefeller Foundation made a four-year grant in 1948 of \$120,000. In 1954, to consolidate the progress already made and to bridge the institute into a future of expanding usefulness, an additional contribution of \$25,000 was appropriated to Columbia University.

INDIAN COUNCIL OF WORLD AFFAIRS

STUDY OF INDIAN-UNITED STATES RELATIONS

With strong leadership, a representative membership of two thousand in regional groups, substantial facilities, and a

carefully designed program modeled after the best Western experience, the Indian Council of World Affairs in Delhi is an outstanding institution in its field for research, conference, information, and publication.

In an effort to promote mutual understanding between India and the United States, the Indian council is undertaking a study of Indian-United States relations, in cooperation with the Council on Foreign Relations, New York. A study group from each council will prepare research papers reflecting what are deemed to be the views of the two countries on such subjects as domestic and foreign policy, neutralism versus the collective security system, and others. Following consultation between the two groups, research results will be published jointly in one or more volumes.

To cover the costs of the Indian council's participation in this project, The Rockefeller Foundation in 1954 appropriated \$20,050, to be available for a two-year period.

PRINCETON UNIVERSITY  
STUDY OF GEOPOLITICS

Although the interdependence of the fields of geography and international politics is generally acknowledged by serious students, the two studies have remained more or less separate. Professor and Mrs. Harold Sprout of Princeton University are undertaking a research project designed to bridge this gulf, and plan to relate their findings to concrete studies in foreign policy.

Their research has three closely related aspects: an evaluation of past efforts to illuminate the impact of geography on world politics; a testing of general theoretical concepts on the basis of case studies; and finally, an attempt to establish theoretical principles based on observation of the physiological, psychological, and social linkage through which man reacts to his environment.

Toward the costs of this four-year study, The Rocke-

feller Foundation in 1954 appropriated \$22,500 to Princeton University.

**NUFFIELD COLLEGE, UNIVERSITY OF OXFORD**

**AFRICAN STUDIES**

Desirous of advancing knowledge in the field of African affairs, not only by direct research on specific questions but also by increasing the number of persons equipped to deal with these questions in the future, Nuffield College has formulated a program designed to facilitate faculty research and to improve the research and training offered to graduate students.

The plan enables three faculty members of wide experience in the urgent economic, political, and administrative problems of Africa to concentrate on their own research. At the same time, it provides intensive preparatory study for students planning field work in Africa, in an effort to make their time in the field as fruitful as possible.

Another aspect of the project includes invitations to persons with practical administrative experience in under-developed territories, or to teachers and research workers from other universities — particularly the new African universities and research institutes — to spend varying periods at the college as senior visiting scholars.

The Rockefeller Foundation has appropriated £28,500 (about \$85,500) to Nuffield College for a three-year period toward support of this program.

**THE ROYAL INSTITUTE OF INTERNATIONAL AFFAIRS,  
LONDON**

**RACE RELATIONS STUDY**

In 1952, the Council of The Royal Institute of International Affairs appointed a Board of Studies on Race Relations to explore this critical aspect of international affairs.

After a period of investigation and discussion, the board recommended that the institute initiate a series of studies in the field, and that high priority be given to an examination of the problems of race conflict in the Federation of the two Rhodesias and Nyasaland. This area was chosen because it is the meeting place of two concepts of the political and social relations between the European and African races — partnership and apartheid.

Philip Mason, director of studies on race relations at the Royal Institute, will conduct the study with the advice and guidance of a board of experts on race relations problems. Toward the costs of this three-year project, The Rockefeller Foundation has contributed £10,500 (about \$31,500).

#### SMALLER GRANTS

Columbia University, New York:

A two-year study of British-Soviet-American relations from 1940 to 1947, by Dr. Herbert Feis; \$15,000;

Bureau of Applied Social Research; completion of a study in political historiography, by Dr. Lee Benson; \$9,500;

Institute for Advanced Study, Princeton, New Jersey: research in history and government, by George F. Kennan; \$15,000;

New School for Social Research, New York: Institute of World Affairs; research on "The Written and the Living Charter of the United Nations," by Professor Erich Hula; \$15,000;

University of Oxford, England: Nuffield College; completion of his volume of *Reflections on International Administration*, by Dr. Alexander Loveday; \$7,000;

Philip University, Marburg, Germany: Institute for Political Science; research on the forms of internal resistance to the Nazi regime, under the direction of Professor Wolfgang Abendroth; DM 40,000 (about \$10,000);

American Law Institute, Philadelphia, Pennsylvania: a prelimi-

nary survey of the foreign relations law of the United States, by Professor Edwin D. Dickinson and Adrian S. Fisher; \$10,000;

Johns Hopkins University, Baltimore, Maryland: School of Advanced International Studies; research in the theory of international politics and American foreign policy, under the direction of Paul H. Nitze; \$10,000;

The City College, New York: research on "A Re-examination of Concepts in the Theory of International Politics," by Professor John H. Herz; \$8,500;

Miami University, Oxford, Ohio: research on the political aspects of United Nations membership, representation, and voting problems, and their implications for world peace and order, by Professor Joseph E. Black; \$8,500;

Tulane University, New Orleans, Louisiana: Professor Ferdinand F. Stone, director, Institute of Comparative Law; to visit faculties of law and institutes of comparative law in Europe, including Great Britain, to study techniques and methods in the teaching of comparative law; \$8,500;

New York University, New York: research on Soviet trade unions by Dr. Solomon Schwarz; \$8,075;

University of Virginia, Charlottesville:

Research in problems of American foreign policy by Louis J. Halle, Jr.; \$8,000;

Woodrow Wilson Department of Foreign Affairs, Professor Charles A. Micaud; to visit France to complete research on a study of the roots of French Communism; \$3,000;

Institute of International Relations, Brussels, Belgium: a conference on the integration of Germany in Western Europe; \$8,000;

Victoria University of Manchester, England: a study of the role and influence of civil services in Western European countries, by Dr. Brian Chapman; \$6,300;

McGill University, Montreal, Canada: to enable Keith B. Callard, associate professor of political science, to study the role of the

executive in independent Pakistan and India during the formative years of those states; \$6,150;

University of Cambridge, England: King's College; revision of his book on *Disarmament* by Philip Noel-Baker; £1,900 (about \$5,700);

Japanese Association of International Law: research in international organization, under the direction of Professors K. Yokota and T. Otaka; \$4,500;

Council of Education, Witwatersrand, Johannesburg, Union of South Africa: to bring a qualified North American to South Africa for a pilot inquiry into the problems of education in the Union of South Africa; \$3,500;

The Royal Institute of International Affairs, London, England: Miss Lois Simpson, press librarian, and Miss Helen G. Liddell, head, Information Department; to visit the United States and Canada in connection with their work at the Royal Institute; \$3,100;

University of Washington, Seattle: Professor Charles E. Martin; to visit Japan and Southeast and South Asia to study problems of international relations; \$3,400;

Conference of scholars and political analysts, Statler Hotel, Washington, D. C.: to cover the costs of the conference, held on May 7 and 8, 1954, to review and appraise international relations research with reference to theoretical approaches to international politics; \$3,000;

Graduate Institute of International Studies, Geneva, Switzerland: Professor Wilhelm Röpke; to visit American universities and research centers; \$2,700;

To enable Professor Charles P. Kindleberger, Massachusetts Institute of Technology, to spend the summer term, 1954, as visiting professor; \$500;

Stanford University, California: revision of his study of "The International City of Tangier" by Professor Emeritus Graham H. Stuart; \$2,000;

Smith College, Northampton, Massachusetts: completion of a book on the South African party system and its relationship to racial problems there, by Professor Gwendolen M. Carter; \$1,500;

University of London, England: University College; Professor George C. Allen; to visit Japan and the United States in connection with bringing up to date his work on the history of Japanese economic development; \$1,525;

Government Law College, Bombay, India: Professor Phiroze K. Irani; to collect in the United States materials for an Indian text in international law; \$1,500;

University of Illinois, Urbana: participation in the program of American studies at Kyoto University, Japan, by Rodney L. Mott, Colgate University professor of constitutional law; \$1,000.

## Legal, Political, and Social Theory and Philosophy

### DUKE UNIVERSITY

### HISTORY OF SOCIO-ECONOMIC THOUGHT

Professor Joseph J. Spengler of Duke University has undertaken a comprehensive program of research on the evolution of our economic thought both in the light of modern practical developments in many fields, and of current thinking in history, philosophy, and kindred areas. Professor Spengler will devote special attention to the circumstances shaping this evolution and to the effects exercised upon the course of economic events by the regnant system of socio-economic thought.

An important by-product of the project will be the advanced research training offered to a series of young scholars, each of whom will undertake a study in the field as his doctoral dissertation, under the supervision of Professor Spengler.

A five-year grant of \$33,000 has been made by The Rockefeller Foundation to Duke University for this purpose.

HARVARD UNIVERSITY

THE LAW SCHOOL

The 200th anniversary of the birth of Chief Justice John Marshall falls on September 24, 1955. The Harvard Law School plans to utilize this occasion for a convocation designed to focus attention, both in the United States and throughout the world, upon the importance of the tradition of government by law, toward the sound foundations of which John Marshall made so important a contribution during his life. Discussion will center on the general field of constitutionalism and the influence and effect which constitutions and the general notion of government and law have had on the development and preservation of liberty and sound government, with appropriate consideration of the problems presented in these areas in our own times.

Toward the expenses of this convocation, The Rockefeller Foundation in 1954 appropriated \$20,000 to Harvard University.

SMALLER GRANTS

Princeton University, New Jersey: research on the origin of modern legal institutions, representative government, and social philosophy in the West, by Professor Robert R. Palmer; \$17,945;

University of California, Berkeley:

Dr. Yosal Rogat, Department of Political Science; to study comparative private law at the University of Oxford, England; \$7,800;

A study of views concerning the nature of "politics," by Professor Sheldon S. Wolin; \$6,000;

A study of the role of public opinion in political theory, by David W. Minar; \$3,300;

Research on the underlying principles of certain modern sociological and political theories, by Henry S. Kariel; \$3,300;

Reed College, Portland, Oregon: a study of recent British jurisprudence and the theory of justice, by Professor Edwin N. Garlan; \$7,600;

Harvard University, Cambridge, Massachusetts:

A study of the civil liberties doctrines of the Supreme Court, by Professor Robert G. McCloskey; \$7,100;

A study of the decline in the observance of the political maxims of the nineteenth century during the period from 1870 to 1914, by Henry A. Kissinger; \$4,000;

Preparation of a study of tripartite arbitration, by Bernard Gold and Helmut Furth; \$700;

Sacramento State College Foundation, California: continuation of a study of the American democratic tradition, by Dr. John C. Livingston, Department of Government; \$6,000;

University of Wisconsin, Madison:

A study of philosophic literature concerning basic concepts in jurisprudence, by Professor Samuel Mermin; \$5,000;

To enable Professor Jaroslav Mayda to study Anglo-American law at the University of Chicago; \$2,500;

A study of "absolute liability" offenses in relation to main currents in contemporary economic and social policy, by Richard R. Robinson; \$700;

Yale University, New Haven, Connecticut: a study of the concept of property as it was understood in the political and legal philosophy of the seventeenth and eighteenth centuries, by Dr. Charles Blitzer; \$4,000;

Johns Hopkins University, Baltimore, Maryland: a study of the proliferation and modification of Marxism during the late nineteenth and twentieth centuries, by Dr. David G. Smith; \$4,000;

University of Chicago, Illinois:

To enable Richard H. Cox to study the Lovelace Collection of John Locke's papers in the Bodleian Library, University of Oxford; \$3,800;

A study of the relation of scientific method and ethics, by Richard H. Kennington; \$3,100;

An examination of the role of the Supreme Court in the judicial system of the United States as illustrated by the experience of the 1953-1954 term, to be undertaken by Norman Abrams; \$700;

University of Minnesota, St. Paul: a study of the relationship between the legal systems and the official political ideologies of modern totalitarian systems, by David Cooperman; \$3,500;

Brooklyn College, New York: completion of his study of the work of Justices Holmes and Brandeis, by Professor Samuel J. Konefsky; \$3,500;

McGill University, Montreal, Canada:

To enable Bernard Crick to continue, at the University of California, his research on American approaches to the study of politics; \$3,500;

To enable Dr. Jonathan Robinson to examine the literary remains of the British Hegelians at the University of Oxford; \$1,100;

University of Oxford, England: Nuffield College; preparation of a study of political thought during the period of the French wars of religion, by Dr. Kenneth D. McRae; \$3,500;

Columbia University, New York:

A study of "historicism," by David Kettler; \$3,300;

A study of the factual premises in state case law, by Marcel Lax and Warren F. Schwartz, *Columbia Law Review*; \$700;

Professor K. R. Popper, London School of Economics and Political Science, England: to extend by six months a period of uninterrupted work on problems of social philosophy and the methodology of the social sciences; £960 (about \$2,800);

Duke University, Durham, North Carolina: to enable the Reverend Francis P. Canavan, S.J., to examine the unpublished letters of Burke in Sheffield, England, and to consult authorities in England and in France on eighteenth-century rationalism; \$2,600;

Stanford University, California: an examination of the abandonment of nineteenth-century objectives in modern legal analysis, by Ronald A. Murphy, *Stanford Law Review*; \$700;

Cornell University, Ithaca, New York: a study of the comparative law of penalties and forfeitures, by Bernard LaLone, *Cornell Law Quarterly*; \$700.

## Development of Social Science Talent

### SOCIAL SCIENCE RESEARCH COUNCIL

#### GRANT-IN-AID PROGRAM

One of the most significant services of the Social Science Research Council is its grant-in-aid program, which The Rockefeller Foundation has supported since 1933. This project assists completion of relatively small researches initiated by mature social scientists who are without access to adequate funds for this purpose.

During the last several years there has been a steady increase in the cost of research and in the number of applications for assistance from the council. Belief in the continuing importance of this kind of encouragement to individual scholars throughout the country has resulted in a new Foundation grant to the council of \$170,000 over a five-year period. These funds will permit the council to expand the program and to seek other sources of support for its maintenance at an increased level.

### UNIVERSITY OF CHICAGO

#### RESEARCH IN PUBLIC FINANCE

A new curriculum in public finance at the University of

Chicago will attempt to supply the profession with a core of experts conscious of empirical as well as theoretical research needs of the field, and trained in the techniques necessary to meet these needs.

A group under the direction of Professor Arnold C. Harberger will build its research efforts around two goals of society: maintenance of a high level of economic activity without inflation, and selection of a pattern of taxes and government expenditures appropriate in the light of generally accepted values and goals.

Advanced graduate students will spend at least one additional year at the university as Professor Harberger's research assistants, while preparing individual research projects which will serve as their doctoral dissertations. Student participation of this nature should develop mastery of research techniques far superior to that achieved by the ordinary doctoral dissertation.

In support of this program, The Rockefeller Foundation in 1954 contributed \$50,000 to the University of Chicago for a three-year period.

JOHNS HOPKINS UNIVERSITY  
DEPARTMENT OF POLITICAL ECONOMY

In recent years The Rockefeller Foundation has made a series of grants to carefully selected centers in this country and in Europe aimed at improving the quality of training for professional economists and increasing the supply of fully qualified professionals through provision of more adequate advanced research training. In 1954 the center selected by the Foundation for this purpose was the Department of Political Economy at the Johns Hopkins University, to which \$39,000 was appropriated, available during three years, for its Research Guidance Program.

The department will offer research training to young pre- and postdoctoral scholars hampered by heavy teaching

or administrative duties. Promising students in need of a fourth year to complete exceptionally ambitious research projects for their doctorates will also be aided.

#### SMALLER GRANTS

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

Indian Council of World Affairs, Delhi: study and research in the Near East, by M. I. Ansari, research associate; \$3,900;

Louis M. Goreux, University of Louvain, Belgium: completion at the University of Chicago of research on labor productivity in French agriculture; \$625;

Harvard University, Cambridge, Massachusetts: The Law School; completion of special studies in the field of international law, by Kwang Lim Koh; \$1,160.



## **The Humanities**

# The Humanities

*Director* CHARLES B. FAHS

*Associate Directors*

EDWARD F. D'ARMS JOHN MARSHALL

*Assistant Director* CHADBOURNE GILPATRIC

# The Humanities

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# THE HUMANITIES

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## INTERCULTURAL STUDIES

WHETHER one views the future with hope or with fear, and whatever foreign policy one favors, there is no escape from the increasing need for greater mutual understanding among the world's different yet interdependent cultures. The expansion of intercultural understanding, principally in and through universities, has been one of the objectives of The Rockefeller Foundation since the organization, more than 20 years ago, of its program in the humanities. During these years, however, the problem has grown more urgent and complicated. While much progress has been made in the United States and in many other countries, there is reason to believe that our universities are only beginning to reflect the changes in the content of education and in intellectual approach which extended intercultural contacts demand. There is a continuing need for attention to cultures as yet inadequately studied, for greater depth and insight in existing research programs, and for a broader view in disciplines such as comparative literature, philosophy, and history to encompass the thought and characteristics of cultures heretofore neglected. What may be most needed, as is indicated by the present instability of some of the existing university "area programs," is a radical reconsideration of the ways in which attention in depth to a selected different culture can be thoroughly integrated into university life and work rather

than added merely as an interesting but expensive and dispensable luxury. The difficulties encountered are reason for increased rather than decreased effort.

Two capital grants of \$500,000 each to Cornell University and Princeton University for Southeast Asian and Near Eastern studies respectively are intended to provide greater independence and continuity for two university programs in which the Foundation has previously been interested. Both institutions have achieved leadership in difficult fields of foreign study by concentration of effort and by interdepartmental cooperation. The way in which their resources have been husbanded and mobilized to make possible greater depth and intensity of work gives promise that longer-term financing will be similarly used. While only the income from these two capital grants will be expended during the first ten years, and the recipients are free to continue to conserve the capital thereafter, the grants are not conceived of as providing adequate endowment for the two programs. The intensive study of other cultures runs into high costs, and adequate endowment would require much larger sums. The universities will need to continue to seek short-term project funds from many sources, but in the meantime it is hoped that these capital grants will provide greater freedom to administrators and scholars both in long-term planning and in meeting immediate needs not readily dealt with through the project approach.

In such a broad field, a single foundation cannot hope to meet more than a small proportion of the needs, and some pattern of selection is necessary even if consistency is unattainable. Grants by The Rockefeller Foundation to projects in intercultural studies in the United States relate chiefly to contemporary humanistic subjects. Examples are the proposed work on the contemporary arts of Indonesia by Mrs. Claire Holt, a major study of religion in Germany since World War II under the auspices of the New School, the critique of Soviet social philosophy by Professor Herbert

Marcuse, the work on neo-Confucianism in Japan by Professor Wing-tsit Chan of Dartmouth, and the conference on contemporary aspects of Oriental-Western literary relations at the University of Indiana.

Aid to intercultural studies has not been confined to the United States. Among the newly independent and large nations struggling with the handicaps of internal diversity, none has more complex linguistic problems than India. These problems have far-reaching ramifications for political, social, and educational policies. The research and personnel development in the major languages of India which the Foundation has assisted at Deccan College are expected to add to the resources in men and knowledge on which India's leaders can draw in making wise policy decisions.

During 1954 there were grants large and small for European studies at Oxford and the Royal Institute of International Affairs in London; for studies of the Arab Near East in Turkey, Israel, and Canada; for studies of modern China in Japan and of Southeast Asia in the Philippines; and for Slavic studies in Paris, Toronto, Vancouver, and Canberra. Help was given American studies in Cambridge, Munich, Cagliari, Turin, Leiden, Istanbul, Kyoto, and Tokyo.

#### HUMANISTIC RESEARCH

There is a deep need and a persistent demand in society for what the humanities can help to give -- such values as aesthetic enjoyment, emotional understanding, moral insight, and vital purpose. It is less clear that these are actually provided by much humanistic research, but the grants listed below illustrate serious effort to select among the various projects brought to the attention of The Rockefeller Foundation a few which give promise of making the humanities more meaningful in today's life.

Much of the emphasis in selecting historical projects

has been on broad interpretation of the recent past, as in the Colegio de México project on the modern history of Mexico, because it is the recent past which in most countries seems least adequately treated. The new Republic of Korea, however, for a variety of reasons finds itself without indigenous historical writing sufficient for present educational needs, and the Foundation has given assistance to the Chin-Tan Society for a general Korean history. In another region, a deeper understanding of the Arab tradition as it lives today is a desideratum both for the West and the Near East, and the grant to the American University of Beirut is directed to this need.

At the opposite extreme from international history is local history, a field which is cultivated in the United States by many scholars and societies, but which has somehow failed as yet to make the substantial contribution to healthy local democratic life of which it seems capable. The City College of New York graduate program on the metropolitan area, Dr. Constance M. Green's history of Washington, D. C., and the State Historical Society of Wisconsin's roundtable on the university and the community are all efforts to develop such a contribution.

Through its humanities program, The Rockefeller Foundation continues to encourage philosophical work which leads to clarification of the basic issues of our times. The constructive examination of educational purposes and principles is the object of two grants in Japan: one to the Kyushu (National) University, and the other to the International Christian University. In the United States, grants in philosophy were made to the Western Division of the American Philosophical Association for two new undertakings: one a series of awards to outstanding philosophers to write on topics of wide relevance and importance; the other a series of discussions and conferences to stimulate philosophical attention to basic political concepts and the meaning of democracy.

## THE ARTS

Industrial society since its inception has been persistently censured as ugly and inimical to individual creation and to the enjoyment of beauty. The criticism is exaggerated, but even the limited justification it has should be removed, for there is no necessary reason why the arts cannot flourish in a democratic industrial society. On the contrary, the standard of living, leisure, education, and freedom which are enjoyed today should all be favorable to an unprecedented artistic development. In this new situation, past models of support for artistic activity are no longer adequate. The Rockefeller Foundation continued in 1954 the program of grants in the arts which was initiated in 1953. It aims not to provide patronage, but rather to assist those who are finding new ways, which can be maintained after limited and temporary Foundation assistance expires, whereby the public can enjoy and support the arts at higher levels.

In general, the Foundation is concerned with contemporary creative work in the arts, but Shakespeare is so germinal to our dramatic tradition as it lives today that assistance seemed justified in 1954 to both the Stratford Shakespearean Festival of Canada Foundation and the American Shakespeare Festival Theatre and Academy of Connecticut. As this report is written, both organizations have successfully raised the matching funds required by their Foundation grants. Stratford, Ontario, has had two successful summer seasons, and Stratford, Connecticut, expects to be in production in 1955.

The grant toward the new music building at Karamu House serves other performing arts as well as music, because of the interrelations between music, dance, and drama which Karamu House has always emphasized. The grants to the Bennington Composers' Conference and to the American Symphony Orchestra League carry forward the interest represented in 1953 by Foundation grants to the

Louisville Symphony Orchestra and the New York City Center for commissioning of new works.

The work at the Massachusetts Institute of Technology on the aesthetic aspects of city planning represents a new phase of interests in the arts which is of unusual significance for industrial society.

While most Foundation grants in the arts will continue to be made in the United States, a few activities of special interest abroad were aided in 1954. The Mexican Writing Center, which has received help on an annual basis for several years, in 1954 was assisted with a five-year grant contingent upon substantial contributions from other sources. The drama program at the University of Bristol, also an interest of several years' standing, was given additional help. Some assistance was also given in Indonesia, Korea, Malaya, and Japan.

## Intercultural Studies

UNIVERSITY OF MUNICH

AMERICAN INSTITUTE

In November, 1949, after carefully considering the need for studies of American civilization in Germany, the University of Munich, with the assistance of the Bavarian Ministry of Education, established an American Institute in its Faculty of Philosophy. The institute, under the direction of Dr. Helmut Kuhn, professor of American studies, now offers, through its courses and seminars, both general study in American civilization available to all students at the university, and advanced work, leading ultimately to the doctorate, to students who select American studies as a field of specialization. The range of offerings at the institute has been broadened through the cooperation of visiting professors from the United States.

The Rockefeller Foundation appropriated \$50,000 to the American Institute in 1949 as a contribution toward the salaries of visiting professors of American literature and history from the United States and Canada, and toward the cost of purchase and delivery of essential library materials. In 1954 the Foundation made a further grant of \$32,800 toward the support of the institute during the four-year period ending December 31, 1958. The grant provides \$5,000 annually for the continued development of the institute's library, which now contains more than 8,000 volumes, and includes funds for an annual visit to the United States by members of the institute, and some essential expenses.

**KYOTO UNIVERSITY, DOSHISHA UNIVERSITY, AND THE  
UNIVERSITY OF MICHIGAN  
AMERICAN STUDIES PROGRAM**

In 1952 Kyoto University and Doshisha University, in cooperation with the University of Illinois, held in Kyoto a summer seminar on American studies which offered Japanese professors, instructors, and graduate students an intensive series of lectures and conferences conducted by five visiting professors from the United States. In 1954 this seminar was repeated, but in a different form. Arrangements were made for two visiting American professors to spend approximately six months each in Kyoto, one to stay from February to August, and the other from June to January, giving regular courses at the two universities. During the summer, both professors, with the assistance in 1954 of Japanese professors, collaborated in organizing and teaching the summer seminar.

The Kyoto seminars have proved highly successful, largely because of the effective and enthusiastic participation and cooperation of the three sponsoring institutions. The summer seminar and winter courses will therefore be con-

tinued in 1955, with the University of Michigan as American sponsor of the program. With the full concurrence of the University of Illinois, responsibility for American participation has been transferred to the University of Michigan, which has long been committed to work in Japanese studies, both through the Center of Japanese Studies in Ann Arbor and the Field Research Center maintained by the university in Okayama.

Since 1952 The Rockefeller Foundation has contributed a total of \$54,700 toward the program in Kyoto. In 1954 this support was continued with grants of 5,147,499 yen (about \$15,440) for the work of the joint Kyoto University-Doshisha University Committee on American Studies, and \$28,000 to the University of Michigan for the expenses of American personnel.

#### ST. ANTONY'S COLLEGE, UNIVERSITY OF OXFORD

##### EUROPEAN STUDIES

Since the establishment of St. Antony's College at the University of Oxford in 1950, it has become a center for postgraduate studies, particularly in the field of recent European history, and has attracted a large proportion of students from the United States, Europe, and the Near East. In addition to the regular work of the college, informal advanced study groups, composed of fellows from St. Antony's and other university colleges, and with participation also by students, have been organized for the continuing study of such subjects as European revolutions since 1917, the Soviet Union, and the relations between Great Britain and the Continent during the past fifty years. Members of the groups have produced many valuable papers, and made important contributions to other publications concerned with European history.

With the recent inauguration at the University of Oxford of a bachelor of philosophy degree in European history,

St. Antony's College, because of the special interest and experience of its fellows, and the breadth of geographical and disciplinary interests they represent, offers a promising locale for the growth of a broad and comprehensive program in European studies. To assist St. Antony's in developing the postgraduate work made possible by the new degree, The Rockefeller Foundation in 1954 appropriated £41,000 (about \$123,000), available during the period ending June 30, 1960.

The funds provided by the Foundation will be used for the award of fellowships to postgraduate students, to meet the expenses of European scholars brought to Oxford for teaching and research, to help finance travel to the Continent for research purposes by senior Oxford scholars concerned with European studies, and, finally, to acquire special library resources and materials. It is hoped that, through the availability of these opportunities, both teaching and research at the postgraduate level will be stimulated by contact with foreign scholars, while students, from the United Kingdom and abroad, will be encouraged to undertake serious advanced study in the field at Oxford.

#### NEW SCHOOL FOR SOCIAL RESEARCH

##### RECENT GERMAN HISTORY

Professor Carl Mayer's study of religion in Germany since the end of World War II began in 1953 with the aid of a \$50,500 grant from The Rockefeller Foundation. Through examination of the organization, doctrine, and social and religious attitudes of the major religious groups, and the changes they have undergone in the past twenty years, Professor Mayer intends to evaluate the situation of religion in the present-day problems of Germany.

An unexpected wealth of material, and a heightened appreciation of the significance of the study, have led Professor Mayer and his assistants to feel that it should be

carried out in somewhat fuller fashion than originally contemplated. Among the subjects to be included in the expanded form of the project are: the position of the church in Eastern Germany; the Evangelical Academies; the significance of the "Diaspora parishes"; the ideological crisis of labor; and the religious orientation of the younger generation.

To enable Professor Mayer and his assistants to complete their study, The Rockefeller Foundation in 1954 made an additional grant of \$22,145 to the New School for Social Research, with which Professor Mayer is associated, for the support of the project through December 31, 1955.

PRINCETON UNIVERSITY

PROGRAM IN NEAR EASTERN STUDIES

Princeton University is one of the few American universities which maintains comprehensive instruction and research on the modern Near East. Starting with a Department of Oriental Languages in 1927, Princeton established its Program in Near Eastern Studies in 1947. This program has become an important source for the trained personnel needed for American work in this critical area and for the broader development of Near Eastern studies in the United States. Through its graduate division, 14 doctorates and 13 master's degrees have been awarded, and many who are pursuing careers in government or business in the Near East have had periods of training at Princeton.

The Program in Near Eastern Studies is an interdisciplinary project, directed by Professor T. Cuyler Young, chairman of the Department of Oriental Languages and Literatures, in his capacity as head of an interdepartmental committee on which history, economics and social institutions, and politics are represented. The teaching and research staff of the program includes both American and Near Eastern scholars.

Foundation interest in Princeton's work on the Near East was first shown in small grants made in 1937 and 1939. A grant of \$42,500 made in 1946 toward the establishment of the Program in Near Eastern Studies was followed in 1952 by a \$100,000 grant to aid the program in expanding its coverage of the area's political, economic, and social aspects. In 1954, the Foundation made an outright grant of \$500,000 to Princeton, with the understanding that during the first ten years the university may expend only the income of this fund. It is believed that the existence of this assured income will be of assistance to the university in stabilizing its present offering in Near Eastern studies, and in its effort to secure the larger support which is needed for its long-term maintenance.

#### CORNELL UNIVERSITY

##### SOUTHEAST ASIA PROGRAM

The Southeast Asia Program of Cornell University was organized in 1951, with the assistance of a \$325,000 grant from The Rockefeller Foundation, around interests already established at the university. Since that time it has become the leading research and training center in the United States for the study of this vital region — an area comprising Burma, Indochina, Indonesia, Malaya, the Philippines, and Thailand.

One of the major factors contributing to the effectiveness of the Southeast Asia Program has been Cornell's success in establishing it as a university-wide responsibility, involving the participation of a variety of departments and schools. Associated with the program are members of the faculty in anthropology, government, economics, linguistics, history, philosophy, rural sociology, and fine arts. Visiting professors, often from the countries of Southeast Asia, have enriched the program's curriculum. The work is directed by Professor Lauriston Sharp of the Department of Anthropology.

The Cornell program has been strengthened through cooperative relationships with operating activities in Southeast Asia sponsored by governmental and other agencies. The wide range of these undertakings assure a broad base of academic interest, good advice on cultural problems for the field workers in the operating programs, and experience with practical problems for the regional studies personnel. Personal associations with scholars and intellectuals in Southeast Asia have also proved of value.

A large number of the graduates of this program are engaged in developing Southeast Asian studies in other universities and colleges in the United States, while others have entered government service in fields relating to their training. During 1954, 49 graduate students, including 11 from Southeast Asia, were enrolled in the program. Individual and group investigations of highly diversified topics have resulted in the preparation or publication of well over a hundred studies since the program's inception.

In order to provide a nucleus for long-term maintenance and stabilization of the Southeast Asia Program, the Foundation in 1954 approved an outright grant of \$500,000 to Cornell University. Made with the understanding that only the income from this fund may be used during an initial period of ten years, the appropriation is available for the program's expenses other than regular faculty salaries.

CORNELL UNIVERSITY

MRS. CLAIRE HOLT

In the studies of Southeast Asia conducted by Cornell University with the aid of Foundation funds, increasing interest has been taken in the arts and their contemporary influence in the area. To further this interest, Cornell University will sponsor a study of the role of major arts in Indonesia by Mrs. Claire Holt, for which the Foundation has appropriated \$31,720, available during a three-year period.

Indonesia is an area in which the arts have traditionally had an important place in everyday life, as is perhaps best illustrated by the widespread participation in the arts still to be found in Bali. Various forms of dance drama are used in popular education, and more widely to express ideas about human personality and morals. The traditional arts of Indonesia are being influenced and even threatened by such Western arts as the cinema. Many new problems have arisen concerning the relationship of new to traditional art forms. Knowledge of these problems and of the arts involved is important both better to understand contemporary Indonesian culture, and to enable Indonesians concerned with educational and cultural policy to adopt sound practices.

Mrs. Holt is unusually qualified to undertake the present study. She has lived in Indonesia for a number of years and speaks its language fluently. Her studies of Indonesian dance at one of the leading Indonesian schools led to the publication of important monographs on the subject. The Foundation's grant will enable Mrs. Holt to return to Indonesia for approximately two years, and, during a third year at Cornell, to formulate her materials for use in teaching in the Southeast Asian Studies Program, and for eventual publication.

DECCAN COLLEGE POSTGRADUATE AND RESEARCH  
INSTITUTE

INDIAN LANGUAGE STUDIES

The language problems which confront India today are highly complex and far-reaching in their import. The present Constitution of India explicitly recognizes fourteen languages, but many more, as well as hundreds of dialects, are used by considerable populations. Among even the major languages of India there are great differences in vocabulary, grammar, and script. The solution to the problems created by this plurality of languages and their

current state of development will undoubtedly influence the strength of Indian national unity, the character of its politics, and the direction of its cultural growth in such domains as education, literature, and mass communications. With advanced training in linguistics, it is hoped that Indian scholars will contribute knowledge of great value for the clarification and implementation of linguistic policies.

Little information has been assembled outside of India on current language problems and developments in the area. Existing dictionaries, grammars, and other tools for foreigners to learn Indian languages are unsatisfactory. It appears clearly desirable that a few well-qualified scholars in the United States be encouraged to study Indian languages with the aim of providing a better understanding of the role of Indian languages in Indian life and some of the tools for learning the principal languages.

The Foundation which, through its humanities program, has long stressed the importance of foreign language studies to intercultural understanding, in 1954 made a grant of \$79,550 to the Deccan College Postgraduate and Research Institute in Poona, India, for studies of the principal languages of India by Indian and American linguists during the eighteen-month period beginning July 1, 1954. The main purpose of this program is to provide intensive training for Indian and American scholars at three six-week linguistic schools at Poona, in which key linguists from Pakistan, Burma, and Ceylon may also participate. In addition, selected Indian linguists will be assisted in continuing studies in their respective language regions, and a number of carefully chosen American scholars will conduct research on some of the principal languages.

PHILADELPHIA MUSEUM OF ART

DR. STELLA KRAMRISCH

Dr. Stella Kramrisch, now visiting professor of Oriental

Studies at the University of Pennsylvania, is one of the leading scholars and interpreters of Indian art. From 1923 to 1953 she was professor of art at the University of Calcutta, devoting 28 years during this period to research on Indian architecture, sculpture, and religious arts. Of her eight books and some 60 major published papers, perhaps the best known is the two-volume study, *The Hindu Temple*. Since 1932 Dr. Kramrisch has edited the *Journal of the Indian Society of Oriental Art*, which has contained some of the best writing on the arts of South Asia.

In 1954 the Foundation made a grant of \$12,500 to the Philadelphia Museum of Art, which has recently appointed Dr. Kramrisch Curator of Indian Art, to enable her to devote most of her time during the next five years to research and writing. Her intention is to complete earlier studies of the distinctive themes and symbols of Indian art with the purpose of defining the basic patterns underlying Indian thought and religious attitudes.

#### COLUMBIA UNIVERSITY

#### SIR GEORGE SANSOM

For 25 years *Japan: A Short Cultural History*, by Sir George Sansom, has been recognized as one of the most penetrating and effective studies of an oriental culture by a Western scholar. Sir George, who lived for many years in Japan and who was, until his recent retirement, director of Columbia University's East Asian Institute, has planned during the next two years to prepare a new history of Japan utilizing historical research and materials which have become available only during the past quarter-century. This history, like the earlier book, will be generally interpretive in character, but in it Sir George expects to give greater emphasis to the integration and comparison of Japanese history with the history of the West than was previously possible.

The Foundation, which in 1950 assisted Sir George

in visiting the Far East through a grant in aid to Columbia University, has this year appropriated \$12,000 to the University to enable him to prepare his new history of Japan.

#### TOYO BUNKO, TOKYO

##### RECENT CHINESE HISTORY

The Toyo Bunko, or Oriental Library, in Tokyo, contains one of Japan's major collections of research materials on China. In 1953, with the assistance of a Rockefeller Foundation grant in aid, a group of Japan's leading scholars in the field of Chinese studies formed a seminar at the Toyo Bunko for the independent and critical study of China since 1898. The project is under the leadership of Professor Sei Wada of International Christian University, director of research at the Toyo Bunko, and Professor Tatsuro Yamamoto of Tokyo University, a former Foundation fellow.

In their effort to achieve a more balanced understanding of modern China, the group at the Toyo Bunko wish to maintain liaison with American scholarship in the Chinese field. Because of the importance of a Japanese contribution to recent Chinese history, the Foundation in 1954 provided 5,576,000 yen and \$16,910 (about \$33,640), which will enable the group to send one of their number to the United States each year, and will also permit members of the project to devote the major part of their time during the next two years to their work on China.

#### BIBLIOTHEQUE NATIONALE

##### UNION CATALOGUE OF SLAVIC COLLECTIONS

Paris, traditionally one of the great centers of Slavic studies, has in its different libraries major holdings in the Slavic field. The readier use of these materials, however, calls for the existence of a central catalogue through which their location may be made known to scholars.

Several steps have already been taken to provide a central index to the Slavic collections. A union catalogue of Russian books in Paris libraries, published before 1850, has been prepared; and, since 1952, the Bibliothèque Nationale has maintained a card catalogue of all Slavic works acquired by French libraries. Cataloguing of Slavic books, exclusive of Russian, acquired before 1952, and of Russian books published since 1850, is necessary to bridge the gap between the two existing indices.

In 1954, The Rockefeller Foundation appropriated 7,200,000 French francs (approximately \$21,600) to the Bibliothèque Nationale for the completion of a union catalogue, to be located in the Bibliothèque Nationale, of Slavic collections in the libraries of Paris. The grant, available during the three-year period ending June 30, 1957, will enable the Bibliothèque to utilize the services of personnel qualified to deal with materials in all principal Slavic languages.

#### UNIVERSITY OF TORONTO

##### SLAVIC STUDIES

In 1949 The Rockefeller Foundation appropriated \$90,000 to the University of Toronto for the development of Slavic studies during the five-year period ending in June, 1954. Work in this field at the university has made steady progress, principally at the undergraduate level. For the further strengthening of the university program in Slavic studies during the academic year 1954-1955, the Foundation has approved a grant of C\$9,000 (about \$9,500).

#### UNIVERSITY OF BRITISH COLUMBIA

##### SLAVIC STUDIES

For a number of years the University of British Columbia has been one of the principal Canadian centers for Slavic

studies. The development of this program was assisted in 1949 by a grant of \$90,000 from The Rockefeller Foundation, and it is now being carried forward effectively, at both the undergraduate and graduate levels, by the university and its regular staff. In 1954 C\$10,000 (about \$10,500) was appropriated by The Rockefeller Foundation for the further support of the university's work in Slavic studies during the academic year 1954-1955.

#### SMALLER GRANTS

University of Cambridge, England: Board of Extra-Mural Studies; expenses in connection with a Conference on American Studies held at Peterhouse College in the summer of 1954; \$9,000;

Center of Methodological Studies, Turin, Italy: a volume on American contemporary thought, to be edited by Dr. Ferruccio Rossi-Landi; \$3,400;

University of Cagliari, Sardinia; toward the development of American studies through aid for the research of Dr. Enzo Tagliacozzo, and through the purchase of books and materials; \$2,300;

University of Leiden, Netherlands: acquisition of recent books and materials in American and British literature and literary criticism; \$1,500;

University of Istanbul, Turkey:

Professor Vahit Turhan, Department of English; to gain a direct acquaintance with work in the general field of American studies in the United States and Canada; \$8,100;

Faculty of Letters; for Professor Robert G. Kelly, Indiana University, to serve as visiting lecturer in American literature; \$6,500;

Waseda University, Tokyo, Japan: purchase of books and magazines for the use of the Japanese Association for the Study of American Philosophy; \$2,000;

Royal Institute of International Affairs, London, England: a

study of the impact of Western civilization on modern Greece, by P. O. A. Sherrard; £3,255 (about \$9,800);

Dr. Stanislas Kot: to enable this Polish scholar and statesman, now living in exile, to visit American libraries in connection with his studies on European intellectual history; \$500;

University of Toronto, Canada: to enable Professor John W. Wevers to visit the Near East to gain a direct acquaintance with contemporary Muslem thought and movements; \$2,000;

University of California, Los Angeles: toward expenses of travel involved in a visiting professorship in Near Eastern studies for Professor Bernard Lewis, London School of Oriental and African Studies, during the academic year 1955-1956; \$2,000;

University of Chicago, Illinois: testing of the feasibility of preparing an anthology on the doctrines and practices of Islam, by Professor Gustave E. von Grunebaum; \$4,000;

American University of Beirut, Lebanon:

A study of the legal and judicial systems of the Arab countries, by Dr. Subhi Mahmassani; \$7,500;

To enable Dr. Enver Zia Karal, professor of history, University of Ankara, Turkey, to visit the Arab countries; \$1,000;

University of Ankara, Turkey:

Continuation, principally in Great Britain and France, of a study of the relations between the United States and the Near East during the second half of the nineteenth and the first years of the twentieth centuries, by Professor Akdes Nimet Kurat, Department of History; \$1,200;

Dr. Aydin Yalcin, member of the research committee, Turkish-American University Association; to consult scholars, while in the United States, on development of Turkish research; \$1,000,

Hebrew University, Jerusalem: studies of Near Eastern history by Dr. Uriel Heyd and Dr. David Ayalon; \$2,200;

Deccan College, Poona, India: Dr. S. M. Katre, director; to enable him to discuss future research on major Indian languages with scholars in Europe and the United States; \$4,900;

Toward additional expenses in connection with equipment for language study in India by Oscar Chavarria-Aguilar; \$250;

Columbia University, New York: completion of a book on modern Islamic civilization in India and Pakistan, by Professor S. M. Ikram; \$6,250;

Government of India, New Delhi:

K. G. Saiyidain, joint secretary, Ministry of Education; to visit the United States and Canada for conferences on Indian culture and education; \$3,250;

K. A. Abbas, assistant director, Industries Department; to visit the United States and Canada for conferences on Indian culture and education; \$3,200;

The Philippine Women's University, Manila: purchase of books and other materials on Southeast Asia; \$1,000;

Additional expenses for the shipment, from Siam to the United States, of books collected by William J. Gedney, former Foundation fellow; \$600;

University of Washington, Seattle:

Purchase of the Joseph Rock library of materials on East Asia; \$8,000;

Continuation of studies of contemporary Japanese literature by Dr. Richard McKinnon; \$4,200;

Indiana University, Bloomington: travel and living expenses of twelve leading participants at the Conference on Oriental-Western Literary and Cultural Relations, held at Indiana University during the summer of 1954; \$2,000;

Yale University, New Haven, Connecticut: a study in Formosa of the Chinese state in Ming times, by Richard L. Walker, assistant professor of history; \$8,000;

Dartmouth College, Hanover, New Hampshire: Professor Wing-tsit Chan; to spend approximately fifteen months in Asia for the study of Oriental philosophy; \$10,000;

University of the Ryukyus Foundation, Shuri City, Okinawa: purchase of library materials; \$5,000;

University of Hawaii, Honolulu: continuation in Japan of a study of America and Russia in the Pacific, by Dr. John Albert White, Department of History; \$4,000;

Harvard University, Cambridge, Massachusetts: a preliminary critique of Soviet social philosophy, under the direction of Dr. Herbert Marcuse, Russian Research Center; \$9,900;

Canberra University College, Australia: T. H. Rigby; to visit centers of Slavic studies in the United States; \$2,450.

## Humanistic Research

### AMERICAN UNIVERSITY OF BEIRUT

#### ARABIC STUDIES

In 1949 the American University of Beirut inaugurated a program of research on the modern Near and Middle East with the aid of an \$83,000 grant from The Rockefeller Foundation. Serving the dual purpose of contributing to the West's understanding of this vital area, and to greater awareness by Near Easterners of their own cultural problems and potentialities, the project has helped to establish the American University as one of the principal centers of research on the contemporary Arabic world.

Foundation funds, including grants in aid for the work of individual scholars, have enabled the university to free members of its faculty from some of their teaching responsibilities to undertake interpretive studies of various aspects of modern Islamic civilization, and to travel abroad for study and research. Their investigations have resulted in the preparation of nine books, appearing first in Arabic editions, but with English translations now also ready for publication. Noteworthy titles include *Factors of Unity and Dissension in the Arab World* by Professor Nabih A. Faris in collabora-

tion with Mohamed Tawfiq Husayn; *The Muslim Brotherhood* by Dr. Ishak M. Husayni; and *Modern Lebanese Proverbs* by Professor Anis K. Frayha, which has already been published in English by the university. The Foundation's grants have provided also for an annual conference in which scholars from other Arab universities participate, and for the development of the university library's resources.

A grant of \$211,400 made in 1954 continues Foundation assistance to the American University of Beirut through the period ending August 31, 1957. This appropriation will again make possible the release of selected faculty members from teaching duties for research by bringing to Beirut each year visiting professors representative of a broad approach to Arab studies, and by adding to the faculty promising younger scholars. It will also provide for the establishment of a research fund to defray expenses of study and travel, and to finance appointments to graduate fellowships; for the continuation of the conference of Arab scholars; and for the further development of the library's collections and bibliographic resources.

The renewed support of research at the American University of Beirut reflects the belief that work done by scholars who are themselves Arabs can make an important contribution to the better interpretation of Arab life, thought, and tradition which is essential to intercultural understanding.

THE CITY COLLEGE, NEW YORK

NEW YORK METROPOLITAN AREA

The City of New York, with its vast and varied population, and its major roles in national affairs, education, the arts, and international relations, offers a unique opportunity for regionally oriented research and teaching in American civilization. As yet, however, no sustained effort has been made to produce a full and integrated portrayal of the city's

history. While distinguished contributions, notably in the fields of the social sciences, have been made by governmental agencies, planning associations, and individual scholars concerned with particular aspects of metropolitan life, large gaps still remain in our knowledge of New York City's history and culture. There is, for example, no adequate history of the city since its consolidation in 1898, and its cultural and artistic problems and potentialities have remained largely unexplored.

It is, therefore, peculiarly appropriate that in the year in which New York City observed its tercentenary, The City College of New York should have chosen the metropolitan area as the focus of a new postgraduate program which will offer the many City College alumni who enter the fields of public administration and education in New York a deeper understanding and appreciation of the city, and will bring The City College into closer contact with the community which it serves. On a broader scale, the successful establishment at The City College of a postgraduate course centering around the metropolitan area may well contribute to the development elsewhere of a more vital approach to studies of American civilization.

Under the general direction of Oscar I. Janowsky, director of graduate studies at the college and professor of history, and with the guidance of an advisory council of scholars and laymen concerned in various ways with the development of the area, the faculty of The City College will organize basic materials around central themes essential to an understanding of the New York area. Among the topics to be explored will be the rise and character of the city's population; the dynamics of the democratic process by which it is governed; changing concepts of metropolitan planning; the popularization of culture; the achievement of business enterprise; and the impact of science and technology. These materials will then be utilized and tested in graduate courses leading to the master's degree.

The City College expects to maintain this program from its own or other resources, but to make possible the staff research needed to provide the materials and background for its effective inauguration, The Rockefeller Foundation has provided \$107,500, available during the three-and-one-half-year period ending in June, 1957.

THE AMERICAN UNIVERSITY  
HISTORY OF WASHINGTON, D. C.

The Foundation's grant to The City College of New York for a study of the New York metropolitan area reflects the belief that, because the rise of cities has been such an important factor in American life, a better understanding of their development and distinctive characteristics offers a significant approach to the study of American civilization and, particularly, to the study of recent American history. The program at City College will, however, utilize the cooperative effort of scholars drawn from various disciplines. A second Foundation grant in 1954 will assist in the preparation of an interpretive history of the city of Washington by a scholar of established reputation in the field of urban history.

Dr. Constance M. Green, at present a lecturer at The American University in Washington, D. C., is the author of *Holyoke, Massachusetts: A Case History of the Industrial Revolution in America; History of Naugatuck, Connecticut*; and a study of the rise of American cities, shortly to be published by the Athlone Press of the University of London. In her proposed history of Washington, a city of major importance fulfilling, as it does, the dual function of capital for the nation and community for its residents, she aims to provide an intelligible portrayal of the development of the city, its problems, and its potentialities as a community. Important subjects to be examined include the interplay of Congressional control and municipal responsibilities,

economic development, and the location in Washington of private enterprise and various nongovernmental national institutions.

The American University, which has accepted administrative responsibility for the Foundation's four-year grant of \$46,000, will appoint an advisory committee of distinguished scholars concerned with urban history and the history of Washington and the District of Columbia to assist Dr. Green in the preparation of the history.

#### COLUMBIA UNIVERSITY

#### HAMILTON PAPERS

Among the most important collections of American historical papers are those of Alexander Hamilton, first Secretary of the Treasury, whose contribution to the economic policies and organization of the United States Government has been increasingly recognized by American historians. Hamilton, perhaps more than any other man, formulated for his generation, and with lasting influence, the relation of economic issues to politics and statecraft.

Although the writings of Hamilton were published by two editors in the nineteenth century, these editions, long out of print, hardly meet modern standards of scholarship or interest. Columbia University has, therefore, assumed responsibility for a new edition which will make available material not included in earlier editions, and other papers to which earlier editors did not have access. Among the new materials will be official correspondence during the period when Hamilton, as Secretary of the Treasury, was laying the foundations of public credit and creating the organization and discipline of his department. The new edition will provide the critical annotation necessary to link Hamilton's writings with the events that called them forth.

To assist Columbia University in the preparation of this new edition, The Rockefeller Foundation has appro-

priated \$40,000, payable when publication of the volumes is assured.

UNIVERSITY OF CHICAGO

LAFAYETTE STUDIES

For twenty years Professor Louis Gottschalk has been engaged in a detailed study of the Marquis de Lafayette, whose career is of particular interest because of his association, despite aristocratic birth, with liberal and revolutionary movements of his time in Europe, the United States, and Latin America. Professor Gottschalk's studies, in addition to providing factual information on the period spanned by Lafayette's life (1757-1834), offer illuminating observations on Franco-American relations, military history and institutions, and the history of the liberal movement.

Two preliminary volumes, and four volumes in a projected nine-volume series dealing with Lafayette, his contemporaries, and the events of his age, have already been published. A fifth volume has been completed in first draft with the assistance of a Foundation grant in aid of \$8,000 made in 1952. To ensure the continuation of Professor Gottschalk's Lafayette studies during the next three years, the Foundation in 1954 made a grant of \$15,000, primarily for research assistance, to the University of Chicago.

AMERICAN PHILOSOPHICAL ASSOCIATION

WESTERN DIVISION

Prompted by the conviction that philosophy should play a more active role in American thought, life, and education, members of the American Philosophical Association, Western Division, have launched two programs directed toward the encouragement of original philosophical work in fields now regarded as particularly fertile and significant.

In the first program, the Western Division will make six awards over a four-year period to free selected philosophers from some of their normal duties in order that they may complete work in progress in four major fields: the philosophy of values; the theory of knowledge; the philosophy of language; and the theories of existence. These awards will be restricted to philosophers in the Western region, three to mature scholars and three to younger men of exceptional promise. One objective of this program is to stimulate new perspectives on, and orientation in, the work philosophers might undertake. Toward support of this program, The Rockefeller Foundation has appropriated \$40,800, available during the period ending December 31, 1958.

The second program, nation-wide in scope, will explore the possibilities of increasing substantial contributions by philosophers to political and social theory, mainly through conferences on salient problems and through consultation with interested scholars in other fields. It is hoped that an organized program for new work in political and social philosophy will emerge from the discussions. For the expenses of conferences and related planning activities during the period ending December 31, 1955, the Foundation has appropriated \$11,000.

KYUSHU UNIVERSITY AND INTERNATIONAL  
CHRISTIAN UNIVERSITY

PHILOSOPHY OF EDUCATION

Far-reaching changes that have occurred in Japanese political and religious life as the result of war, defeat, occupation, and renewed independence, have created critical problems concerning the role of ethical and moral values in education. In an effort to find satisfactory solutions to these problems, two leading Japanese educational institutions are undertaking major programs for the study of

educational philosophy, which The Rockefeller Foundation has assisted with two grants totaling \$121,900.

At Kyushu University in Fukuoka, a national institution, members of the Institute of Comparative Education have already initiated comparative studies of moral education. Among the subjects of study are Christian educational philosophy, personality development as seen through cultural anthropology, adult education, and the contributions of group dynamics to practical training in democratic procedures. To aid the institute in securing the first-hand knowledge of educational thought and practice in other countries which it deems essential to its own work, the Foundation has made available the sum of \$55,800. These funds will enable Kyushu University to send abroad for study during the next four years approximately twelve members of the institute staff and to arrange, during the same period, for visits to the Kyushu campus by approximately six educational leaders from other countries.

International Christian University in Tokyo, established after the Second World War through joint Japanese-American efforts, is also engaged, through its Institute of Educational Research and Service, in research toward the development of a more vital educational philosophy for Japan. During the next three years the institute plans to supplement and extend its work, first, by bringing to Japan approximately four experts in the field of education to contribute ideas, suggestions, and new perspectives for periods of approximately six months each; second, by inviting discussion of draft statements of educational policy by a panel of outstanding Japanese leaders in education, business, and public affairs; and, third, in the final two years of the project, by holding an extensive series of workshop conferences in which the concepts and proposals thus worked out can be discussed with educational leaders at all levels in the various Japanese prefectures. Toward the expenses of this program, The Rockefeller Foundation has

contributed 12,194,600 yen and \$29,600 (about \$66,100), available during the three years ending December 31, 1958.

#### SMALLER GRANTS

**Yale University, New Haven, Connecticut:** a study of the characteristics of history in the twentieth century, by Professor Ralph E. Turner; \$3,500;

**Washington and Lee University, Lexington, Virginia:** continuation of his work on the philosophy and interpretation of recent history, by Professor Edward D. Myers; \$2,200;

**University of Birmingham, England:** studies of California, Texas, and New Mexico as a disputed frontier area between European and American powers, 1821-1850, to be undertaken by Professor J. A. Hawgood; \$2,350;

**University of London, England:** Royal Holloway College; a study in the United States on "British Policy Towards a Settlement with America, 1865-1872," by Miss Maureen M. Bullen; \$850;

**State Historical Society, Madison, Wisconsin:** a study of the goals and problems of work in local history; \$4,500;

**Colegio de México, Mexico City:** research and a training seminar on contemporary Mexican history, under the direction of Dr. Daniel Cosío Villegas; \$5,000;

**Chin-Tan Society, Seoul, Korea:** preparation of a history of Korea; \$10,000;

**Korea University, Seoul:** Professor Zo Kiz-Jun; travel from Seoul to Berlin to take up an appointment as lecturer in history at the Free University; \$1,100;

**Koh Byongik, Seoul, Korea:** travel by this student of history to the University of Munich, Germany; \$1,075;

**Stanford University, California:** continued support for a study of Asian philosophy and religions by Professor Hideo Kishimoto, visiting professor of philosophy; \$4,670;

Kokugakuin University, Tokyo, Japan: purchase of books and magazines on religion and philosophy; \$3,000;

Kyushu University, Fukuoka, Japan: Miss Masuko Otake, Faculty of Education; to spend a month in the Philippines to study comparative education; \$900.

## The Arts

### MEXICAN-AMERICAN CULTURAL INSTITUTE, MEXICO CITY CREATIVE WRITING PROJECT

The Foundation's interest in the encouragement of creative writing has found expression in recent years through grants for fellowships to a number of institutions acquainted with the work of young writers and in a position to assist them with professional guidance as well as financial support. One of these institutions, the Writing Center sponsored by the Mexican-American Cultural Institute, has seemed doubly worthy of support, because it contributes to the development of writing in both Mexico and the United States.

Organized in 1951 by Miss Margaret Shedd, its present director, the Writing Center is international and bilingual in character. Its program, and the selection of fellows, are guided by an Honorary Committee of Mexicans distinguished in the field of literature.

The work of the Writing Center has three principal aspects. The fellowships it offers enable young Mexican writers of short stories, novels, poetry, drama, and criticism, and young American writers resident in Mexico, to devote one year to the development of their writing ability. At weekly seminars conducted by Miss Shedd and Ramón Xirau, the center's assistant director, the fellows meet for reading, discussion, and mutual criticism of their work. Often, former fellows and other leading young Mexican authors participate in the seminars. Finally, the center

has sought to assist writers in Mexico by encouraging a series of studies on the problems of the writer in Mexico, the relationships between writing and other aspects of Mexican life, and the possible outlets for publication abroad. Approximately 80 per cent of the writing done under center fellowships has been published, and fellows have won many Mexican literary honors.

Since 1951 The Rockefeller Foundation has given annual support to the work of the Writing Center. In 1954 it renewed its assistance with a grant of \$123,000 for the continuation of the program through July, 1959. Of the funds supplied by the Foundation, \$50,000 is contingent upon the center's securing an equal amount from Mexican sources, and the balance of \$73,000 is payable in decreasing annual units during the next five years.

#### AMERICAN SHAKESPEARE FESTIVAL THEATRE AND ACADEMY OF CONNECTICUT

Because Shakespearean drama and the tradition of Shakespearean acting are such vital foundations for all work in drama in the English-speaking world, it is only natural that many citizens of the United States have followed with deep interest the Shakespearean theatre at Stratford-on-Avon in England, and the Shakespearean Festival which was developed in the summer of 1953 at Stratford, Ontario. It is less understandable that the United States has itself lacked a continuing center for training in the techniques of acting and producing Shakespearean drama.

The American Shakespeare Festival Theatre and Academy, chartered as a nonprofit institution in 1951 by a special Act of the State Legislature of Connecticut, was organized by a group of leaders in the theatre, business, and the professions for the purpose of establishing a permanent theatrical company and school devoted primarily to the

Shakespearean repertory. Its objective is to erect at Stratford, Connecticut, a theatre incorporating some of the desirable dramatic features of the original Globe Theatre, in which a festival program of Shakespeare's plays will be given through the summer months by actors of the classical tradition. Plans have been made to maintain, in association with the theatre, a summer school offering courses and seminars to professional actors as well as students, in classical acting, speech, direction, and production methods. Students of the academy will have the opportunity of participating also in the summer productions.

The American Shakespeare Festival Theatre and Academy expects to be able to put its program, once launched, on a self-sustaining basis. As a contribution toward the initial budget of \$500,000 estimated for construction and preparatory costs, The Rockefeller Foundation has appropriated \$200,000, payable in units of \$40,000 when matching units of \$60,000 have been secured from other sources. In order to assure maintenance of a reserve for construction purposes, the grant provides that not more than \$75,000 of Foundation and matching funds be used for recurring expenses.

STRATFORD SHAKESPEAREAN FESTIVAL OF CANADA  
FOUNDATION

During the summer of 1953 the community of Stratford, Ontario, with the encouragement of many other Canadians interested in the cultural development of Canada, and with distinguished professional participation from England, initiated an annual Shakespearean festival. The first summer's productions, *Richard III* and *All's Well That Ends Well*, aroused highly favorable critical comment, and the interest shown by both Canadians and visitors from the United States was such that the festival was able to end the summer with only a small deficit in its operating budget. The second

season's plays, *Measure for Measure*, *The Taming of the Shrew*, and *Oedipus Rex*, proved even more successful, and served further to establish the Stratford Shakespearean Festival as a valuable addition to the dramatic scene in Canada.

Funds raised from Canadian sources provided for the original investment in a concrete foundation and stage sheltered by a tent. Working capital was needed, however, to ensure the continuation of the festival during coming years, a continuation which, because of the importance of Shakespearean drama, and the standards of excellence to which the festival is committed, seems in the interest of the development of the theatre in Canada. Toward the establishment of a working capital fund, the Foundation in 1954 contributed C\$40,000 (about \$42,000), payable on the basis of one dollar for every two secured from Canadian sources during the period ended June 30, 1954.

#### AMERICAN SYMPHONY ORCHESTRA LEAGUE, INC.

#### WORKSHOPS FOR CONDUCTORS AND MUSIC CRITICS

The American Symphony Orchestra League, Inc., is an organization through which the numerous symphony orchestras of the United States work together to enrich their contribution to the development of music in this country, as well as to resolve their common problems of public service and support. Founded in 1944 as a nonprofit association of all types of symphony orchestras, the league has devoted itself to efforts to clarify the problems and potentialities of community orchestras, and to raise the level of their artistic standards. Believing that cultural advance must spring from the resources of each individual community, the league has always sought to assist its member orchestras, which now number nearly 300, at the local level.

Several years ago the league, in cooperation with some of the major symphony orchestras of the country,

inaugurated a series of workshops at which the conductors of community orchestras have been given the opportunity of preparing short orchestral works under the guidance of leading conductors, participating as a group in their rehearsal, and leading the orchestra in their performance. Because intelligent criticism is also a constructive component in musical progress, the league arranged a similar workshop for music critics, particularly for those outside the metropolitan centers, at which, in cooperation with some of the prominent critics of the country, the tasks and responsibility of the critic were discussed. In 1954 The Rockefeller Foundation appropriated \$83,150 to enable the league to arrange three conductors' workshops, and one critics' workshop, yearly during the next three years.

A portion of the Foundation's grant will be used for a continuing study of the various ways in which American communities organize support for the arts. There are now some 950 orchestral groups in the country, and the manner in which they derive local backing may be a significant indication of how the arts in general can obtain the public support that is essential to their growth.

#### KARAMU HOUSE, CLEVELAND

#### MUSIC BUILDING

In 1955 Karamu House will mark the 40th anniversary of its work with Negroes and whites in Cleveland. Under the enlightened leadership of Rowena and Russell Jelliffe, its founders, it has become known as a distinguished example of the way in which activities in drama, music, the dance, painting, and ceramics can be employed to stimulate individual development and cooperative group action involving both whites and Negroes. Karamu House is financed by contributions from many persons interested in its program, and is under the general guidance of a Board of Directors composed of leading Negro and white citizens of Cleveland.

While the theatrical program maintained at Karamu House is perhaps its best-known project, work done in music and the dance has also been noteworthy. The Karamu Quartet, a vocal unit, gives regular Sunday morning broadcasts, and other choral groups have also given performances in Cleveland. Recently a chamber orchestra was formed. Although these activities have achieved a high standard of quality, and performed a valuable function in offering members of the community the opportunity to develop their individual talent and to experience the continuing satisfaction of musical expression, lack of space has seriously limited their further expansion.

In order better to serve the needs of the approximately 4,000 persons who participate annually in its activities, Karamu House plans the addition to its present plant of a music building, a building for educational activities and administration, rehearsal rooms for its theatre, and extended parking facilities, which, with equipment and furnishings, will cost a total of \$500,000. Because of the quality and integrated nature of Karamu's program in the arts, The Rockefeller Foundation in 1954 made a grant of \$100,000 toward construction and equipping of the music building, payable when Karamu House secures \$100,000 from other sources for the same purpose.

#### UNIVERSITY OF BRISTOL

##### DRAMA PROGRAM

The University of Bristol is unusual among British universities in offering drama as a degree subject and in maintaining a Department of Drama. The department now has a staff of four members, stage facilities for the performance of all types of drama from the Greco-Roman to the modern revival of the arena style, and a lecture series given by members of the professional theatre. In addition, it holds conferences periodically which are attended by

visitors from outside the university, and enjoys close working relations with the Bristol Old Vic Theatre and Theatre School, and Dartington Hall, a privately operated theatre school.

Undergraduate work in drama has progressed steadily over the past years, in part through the assistance of a \$20,000 grant from The Rockefeller Foundation in 1949. Experiments undertaken during the winter of 1953, in collaboration with the Old Vic Theatre School and Dartington Hall, strongly indicated the desirability of the expansion of the Department of Drama's program to include work at the graduate level. To aid the university in this development, the Foundation in 1954 renewed its support with a grant of \$15,300, available during the next five years. A small part of this sum will be used for the further strengthening of the undergraduate drama program.

#### MASSACHUSETTS INSTITUTE OF TECHNOLOGY

##### CITY PLANNING

In the United States today both opportunities and needs are great for farsighted planning in urban redevelopment, and in the development of new suburban areas. In recent decades, however, city planners have been, understandably, preoccupied with technical and sociological problems, to the frequent exclusion of aesthetic considerations. As a result, there is still a dearth of knowledge concerning the visual aspects of city forms, which must be judged in three dimensions, and which are, perhaps, more important than has generally been realized in making urban areas stimulating, pleasant, and satisfying places in which to live and work.

Increasing attention has been given to the aesthetic problems of city planning at the Massachusetts Institute of Technology, where a distinguished group of architects and city planners have cooperated in drawing up a project

for the study of the perceptual form of the city. During the next three years, the Departments of Architecture and of Planning of the institute propose to make a special effort to develop better techniques for the analysis of city forms and for the development of new designs. Beginning with careful examination of the changing character of such cities as Boston and Cambridge, the study will employ film, models, and other methods designed to obtain more effective three-dimensional impressions of the urban environment. The work will be carried on under the joint direction of Professors Gyorgy Kepes and Kevin A. Lynch, and will utilize the assistance of graduate students and occasional consultants in other fields, including sociology, history, and psychology.

Because urban design is one of the fields in which the arts have most direct impact on the quality of human life, The Rockefeller Foundation has made available \$85,000 toward the costs of the institute's study during the three-year period ending August 31, 1957.

#### NATIONAL MUSEUM OF KOREA

#### CONTEMPORARY WORK IN THE ARTS

Following the truce in Korea, the National Museum in Seoul, under the direction of Dr. Kim Chewon, a former Foundation fellow, resumed its exhibition and educational activities. To enable the museum also to give some assistance to the work of Korea's contemporary artists during the next three years, The Rockefeller Foundation has made an appropriation of \$14,760.

The bulk of the funds provided by the Foundation will be utilized for the experimental development of cooperative ateliers in several of the arts, which it is hoped can be subsequently maintained through the work of the cooperating artists. It is particularly appropriate that the museum, which contains the best collection of Korea's work in the fine arts, should contribute to the maintenance of the country's

important artistic tradition through the present period of crisis.

#### SMALLER GRANTS

University of New Mexico, Albuquerque: Kenneth Lash, editor, *New Mexico Quarterly*; for travel in Latin America; \$3,000;

University of Hawaii, Honolulu: Professor Yukuo Uyehara; to visit Japan for work on contemporary Japanese literature; \$3,000;

National Association of Educational Broadcasters, Urbana, Illinois: an experiment in the technique of broadcasting poetry, under the direction of Lewis Hill; \$9,970;

Harvard University, Cambridge, Massachusetts:

A study of the role of the fine arts in higher education; \$10,000;

A study of the training of actors in the United States and Great Britain, by Professor Robert Chapman, Department of English; \$5,000;

The Religious Drama Society of Great Britain, London: assistance in the international phases of its activities; £2,400 (about \$7,200);

Sarah Lawrence College, Bronxville, New York: to enable Louis MacNeice to spend two months at the college to teach playwriting in verse, and to advise on new work in drama, literature, and music; \$2,000;

David Sheppard and Paul Sills, Playwrights Theatre Club, Chicago, Illinois: to consult with playwrights and producers in New York on ways to promote new playwriting; \$420;

Waseda University, Tokyo, Japan: a program of lecture seminars in the field of drama; 200,000 yen (about \$600);

Columbia University, New York: Bureau of Applied Social Research; a study of the potential audience for the performing arts in the New York metropolitan area; \$6,000;

Ballet Society, Inc., New York:

Preparation of a revised and definitive bibliography of dancing, by Paul Magriel; \$6,000;

Preparation of a history of dance in the American theatre, by Miss Lillian Moore, teacher of dance in the New York High School of the Performing Arts; \$5,000;

Bennington College, Vermont: general expenses of the Bennington Composers' Conference in 1954, 1955, and 1956; \$4,500;

A study of the availability of qualified instrumentalists for the symphony orchestras of the United States and Canada, by George E. Judd, former manager, Boston Symphony Orchestra; \$4,200;

University of Michigan, Ann Arbor: a study of the education of European composers, by Professor Ross Lee Finney; \$3,700;

Yoshinobu Ashihara, Tokyo, Japan: to enable him to gain a direct acquaintance with current architecture in Europe; \$1,000;

International House of Japan, Inc., Tokyo: additional expenses in connection with the visit to Japan of Dr. and Mrs. Walter Gropius; \$1,975;

The City College, New York: a study of how the work of contemporary artists is exhibited and marketed in the New York metropolitan area; \$2,000;

#### Museum of Modern Art, New York:

Preparation of a book on the experience of the Museum in widening public appreciation of modern art during its 25 years of existence; \$4,500;

Completion of a bibliography on modern art by Bernard Karpel; \$1,500;

University of Indonesia, Djakarta: S. Sumardja, director, Department of Art Education, Technical Faculty of Bandung; to observe art education in other countries; \$5,000;

University of Malaya, Singapore: purchase of teaching materials in art; \$1,000;

National Gallery of Victoria, Melbourne, Australia: Gordon A. Thomson, assistant director and curator; to gain a direct acquaintance with museum building and practice in the United States; \$3,100.

## Special Projects

### MODERN LANGUAGE ASSOCIATION OF AMERICA FOREIGN LANGUAGE PROGRAM

The interdependence of cultural life and the language through which it is largely expressed, as well as the increasingly active role the United States has assumed in world affairs, have given heightened emphasis to the importance of foreign language study by Americans. Recognition of this fact led the Modern Language Association of America to initiate, in 1952, an inquiry into the role which foreign languages and literatures should play in American life.

Under the guidance of Dr. William R. Parker, the project in its early stages was directed toward an analysis of the existing situation in the teaching and study of foreign languages at the elementary school and university level. Carried on by means of conferences and regional committees, the association's Foreign Language Program has proven highly effective in stimulating reconsideration of aims and techniques, the use of new aids to instruction, and the inclusion of cultural material in foreign language courses.

In the nonacademic world, the program has had a less tangible but no less real effect. Articles and editorials on the association's work have had wide circulation, and considerable interest has been aroused in the value of foreign language study.

In order to benefit from the momentum which the inquiry has acquired during its first two years, the Modern Language Association has evolved plans for extending it into the area of secondary education and into nonacademic circles. The major objectives of the expanded program are: to achieve an understanding of high school needs for foreign languages and means by which high school language instruction can be improved; to study ways in which the training

of language teachers can be improved; to continue the association's efforts to further public recognition of the importance of foreign language study; and, finally, to prepare for the steady continuation of the program by language organizations throughout the country after the termination of Foundation support.

The Rockefeller Foundation assisted in the establishment of the Foreign Language Program with a grant of \$120,000 in 1952. To enable the association to broaden the scope and effects of its inquiry during the three-year period ending in 1958, the Foundation in 1954 made an additional grant of \$115,000.

#### MUSEUM OF MODERN ART

#### FILM LIBRARY

The Film Library of the Museum of Modern Art, New York, now has the largest collection of motion pictures of artistic worth in institutional hands. Its present holdings include about 10,000,000 feet of film representing more than 1,000 subjects. These films are used by hundreds of societies in colleges, universities, and institutions throughout the country in their study of the history, technique, and art of the motion picture, and their daily showings at the museum attract many visitors.

During its earlier years, the Film Library gave highest priority to the acquisition of films, many of which it found to be in imminent danger of loss and destruction. It was realized even then that a large part of this material was subject to deterioration, and it is now apparent that some of the library's most valuable films will soon no longer be usable unless immediately transferred from perishable nitrate stock to the new and more durable acetate stock.

The estimated cost of the transfer of the most important films is \$50,000. The Rockefeller Foundation, which since 1935 has contributed a total of \$283,000 toward the organiza-

tion and operation of the Film Library, in 1954 made a grant of \$25,000 to assist in the transfer of some of its holdings, payable in units of \$5,000 as equal amounts are secured from other sources.

#### AMERICAN COUNCIL ON EDUCATION

##### STUDENT PERSONNEL SERVICES IN JAPAN

Japanese educational leaders in the postwar period have become increasingly aware of the need for more adequate student personnel services in the newly-reorganized Japanese universities. The development of Japanese leadership in this field was stimulated by an American mission, recruited by the American Council on Education, which held in Japan in 1950 and 1951 a series of workshops on student personnel services administration. Japanese work in student personnel services has advanced steadily, and a National Federation of Student Personnel Services Associations has been formed.

As a first step toward the establishment of a permanent program for the training of student personnel workers, the National Federation, in collaboration with Tokyo University and the Japanese Ministry of Education, plans to organize at Tokyo University in the spring and summer of 1955 a special seminar on student personnel services. The three sponsoring organizations have requested the assistance of the American Council on Education in providing three American experts in the field to participate both in planning and instruction at the seminar. To make this cooperation possible, The Rockefeller Foundation in 1954 appropriated \$39,612 to the American Council on Education.

#### SMALLER GRANTS

Fund for grants of amounts not exceeding \$500 for allocation under the supervision of the Director of the Division; \$2,000;

National Diet Library, Tokyo, Japan: to enable an architect and a librarian to visit the United States in connection with the construction of the proposed new National Diet Library; \$2,340;

University of Tübingen, Germany: Professor Paul Ohlmeyer; travel in the United States and Great Britain in connection with the university's general education program; \$2,650;

University of Hamburg, Germany: Dr. Bruno Snell; to visit centers of linguistic study and to observe university administration in Europe and the United States; \$300;

University of Cambridge, England: S. C. Roberts, master, Pembroke College; to visit American academic and intellectual centers; \$500;

The Summer Institute of Linguistics, Inc., Glendale, California: continuation of a book on the structure of language and behavior, by Dr. Kenneth L. Pike; \$1,500;

Library of Congress, Washington, D. C.: to enable the library to give to the College of Science and Letters, Baghdad, Iraq, a tape recorder and accessories; \$400.



## **Other Appropriations**

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## OTHER APPROPRIATIONS

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GRANTS which fall somewhat outside the specific divisional programs or include elements relating to more than one aspect of the Foundation's work are taken from general funds. In 1954 five appropriations and three smaller grants were of this character.

### UNION THEOLOGICAL SEMINARY

#### PROGRAM OF ADVANCED RELIGIOUS STUDIES

In all areas of human endeavor there is today an urgent need for leaders with broad intellectual training and with knowledge of cultures other than their own. Perhaps, however, there is no field in which this need is greater than in the field of religion, where all too often the education of the younger generation of leaders is circumscribed by doctrinal bounds or by financial considerations which make international experience difficult, if not impossible.

Through a fellowship program formulated in 1954 by the Union Theological Seminary in New York, a group of potential religious leaders from all parts of the world will be given the opportunity to meet at a single center for advanced study, and for discussion and exchange of ideas and experiences drawn from their richly varied traditions. Nominated by religious leaders in their own countries, fellows will be chosen on the basis of ability, educational background, and proven practical competence by a Board of Advisers composed of prominent churchmen and laymen. While it is ex-

pected that a majority of the fellows will be Protestants or Orthodox Christians, Roman Catholics and adherents of non-Christian faiths are also eligible.

In addition to specialized preparation for their specific vocations, fellows at the Center for Advanced Religious Studies will engage in cooperative examination of the nature of contemporary society, its moral and spiritual problems, the religious beliefs of non-Christian faiths, the present realities of the Christian world movement, and the challenge of secular beliefs and totalitarian ideologies. A distinctive feature of the program is the communal life which the fellows will share in a special residence center. During the course of their fellowships, they will be encouraged to visit and observe different areas of North America, as well as various types of churches.

Union Theological Seminary, because of its excellent facilities and library resources, its interdenominational reputation, its recent establishment of an unusual group of visiting professorships, and its close association with such educational institutions as Columbia University, the Jewish Theological Seminary, and St. Vladimir's Russian Orthodox Seminary and Academy, is in an unusually favorable position to offer the diversified training envisaged in the program.

To make possible the inauguration of the Program of Advanced Religious Studies, and its maintenance during an initial period of five years, The Rockefeller Foundation in 1954 appropriated \$525,000 to the Union Theological Seminary. This sum will provide for 20 to 25 fellowships yearly, and will cover necessary administrative expenditures.

#### NEW YORK COMMUNITY TRUST

The New York Community Trust has been a part of the philanthropic picture in New York City for more than thirty years. The function of such a trust is to administer, for a time or forever, multiple funds of varying size from any number of

donors. Receipts come from individuals, from corporations, and from other foundations.

A person creating such a fund places it in a bank or trust company selected by himself from among the eligible "trustee" banks of the Community Trust. That bank becomes responsible for the safekeeping and investment of the fund. Expenditures of income (or of principal if the donor so indicates) are authorized periodically by the Central Distribution Committee of the trust for such charitable purposes as the founder specified when establishing his fund.

The office of the trust assists the founder's counsel in formulating the instrument of gift, transmits initial and yearly records to the Internal Revenue Bureau, investigates charitable payees before and after their receipts of appropriations, authorizes disbursements, and prepares annual reviews.

Aid to the New York Community Trust, during the initial stages of its development, was provided by the former Laura Spelman Rockefeller Memorial to encourage gifts of new funds for charitable purposes. Because of this earlier interest, and with a view to stabilizing the budget of an important community service, The Rockefeller Foundation appropriated in 1954 the sum of \$100,000 toward the administrative budget of the trust. These funds will be available during the next five years at an annual rate of \$20,000.

#### INDONESIAN TRAVEL PROGRAM

A few Indonesians of outstanding ability will be offered a period of study and travel abroad under a temporary program established by the Foundation in 1954. The Republic of Indonesia is a newly independent country which has great promise and at the same time faces during the next few years many critical difficulties, not the least of which is the shortage of leaders with adequate training and international experience. In order to permit experimentation in meeting

training needs, \$75,000 was appropriated in 1954 for allocation by the officers for study and travel grants for Indonesians during the period ending June 30, 1956.

AMERICAN LIBRARY ASSOCIATION

INTERNATIONAL YOUTH LIBRARY

The International Youth Library in Munich, Germany, has made remarkable progress since its establishment in 1949 under the able direction of Mrs. Jella Lepman. With a collection of more than 20,000 children's books in a score of languages, it has become the center of activities for children and young people from six to twenty, and is a recognized training center for children's librarians from Germany and other countries.

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) has accepted the library as an affiliated organization, and Mrs. Lepman has participated in international seminars on children's books and activities in France and Germany.

The Foundation, which since 1949 has made grants totaling \$58,700 in support of the International Youth Library, in 1954 appropriated \$31,000 toward the salary, travel, and professional expenses of Mrs. Lepman during a three-year period. The American Library Association has accepted administrative responsibility for the grant.

SALZBURG SEMINAR IN AMERICAN STUDIES, INC.

Since its organization in the summer of 1947, the Salzburg Seminar in American Studies, Inc., has afforded more than 1,600 Europeans the opportunity of working with American professors in the scholarly and objective study of the United States. Each summer a six-week session, attended by about ten American professors and 100 European students, has been held for the study of such subjects

as American literature, philosophy, foreign policy, sociology, music, and art. In addition, four or more sessions of one month each, focusing on a single topic, have been held annually since 1950. Lectures, seminars, discussions, both formal and informal, are all employed as methods of instruction.

Much of the benefit to both European and American participants comes from the daily contacts of living together at Schloss Leopoldskron, a baroque eighteenth-century castle located about one mile from the center of Salzburg. The seminar is particularly well designed to serve the large number of mature Europeans who wish to learn about American life and thought but who are unable to visit this country.

Foundation support of the Salzburg Seminar has amounted to \$178,000 since 1948. A 1954 grant of \$25,000 continues this aid through May, 1955.

#### SMALLER GRANTS

National Research Council, Conference Board of Associated Research Councils: expenses of the Commission on Human Resources and Advanced Training; \$12,000, available during the period ending September 30, 1954;

Columbus School, Medellín, Colombia: as a contribution toward its general budget; \$3,250;

New Granada School, Bogotá, Colombia: as a contribution toward its general budget; \$3,000.



Fellowships for 1954



## FELLOWSHIPS

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**T**HE Foundation's fellowship appointments are integrated with the programs of its several divisions.

Through fellowships for postdoctoral study the Foundation seeks to advance knowledge in a wide variety of fields in medicine and public health, the natural sciences and agriculture, the social sciences, and the humanities. The 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 in their native countries.

During 1954, a total of 334 persons held Foundation fellowships. This number includes 165 fellowships awarded in previous years and continued into 1954, and 169 new awards. Their distribution by division is as follows:

	Number of fellows in 1954	Awards made in 1954	Awards continued into 1954
Medicine and Public Health	149	71	78
Natural Sciences and Agriculture	96	58	38
Social Sciences	41	18	23
Humanities	48	22	26
	—	—	—
	334	169	165

The fellows in 1954 came from 44 different countries. Countries represented by three or more fellows were:

Australia	7
Austria	3
Brazil	29
Canada	3
Chile	14
Colombia	15
Denmark	9
Finland	5
Formosa	3
France	13
Germany	17
Great Britain	17
India	22
Italy	12
Japan	36
Lebanon	6
Mexico	9
Netherlands	6
New Zealand	3
Norway	3
Pakistan	3
Peru	14
Philippines	3
Sweden	16
Switzerland	4
Turkey	5
United States	23
Uruguay	6

Fellowships were also held during 1954 by individuals from the following countries: Argentina (2); Belgium (1); British West Indies (1); Ceylon (1); Costa Rica (1); Cuba (1); Ecuador (1); El Salvador (2); Honduras (2); Indonesia (1); Iraq (2); Korea (1); Portugal (2); Spain (2); Syria (1); and the Union of South Africa (2). Five fellows during 1954 were appointed from the World Health Organization.

The Rockefeller Foundation made available a total of \$1,025,000 for its fellowship activities during 1954, allocated for use by the Divisions as follows: Medicine and Public Health, \$400,000; Natural Sciences and Agriculture, \$300,000; Social Sciences, \$175,000; and Humanities, \$150,000. To support the fellowship program during 1955, the Foundation has again appropriated \$1,025,000.

In addition to the fellowships awarded and administered directly by the Foundation, national agencies have awarded fellowships with funds contributed in 1954 and previous years by the Foundation. These agencies administered a total of 124 fellowships during 1954:

British Medical Research Council	12
National Research Council	
Medical Sciences	13
Welch Fellows	1
Natural Sciences	6
Social Science Research Council	61
Canadian Social Science Research Council	<u>31</u>
	<u>124</u>

Grants made in 1954 to other agencies for fellowship awards included \$150,000 to the National Research Council for fellowships in the medical sciences, available during a three-year period, and \$125,000 to the Medical Research Council of Great Britain for use during the period ending August 31, 1959.

Below is a listing of the 169 individuals who in 1954 were awarded fellowships by The Rockefeller Foundation, and the six fellows appointed during 1954 by the Medical Research Council of Great Britain. The fellowships awarded by the BMRC 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 division, institution with which fellow was affiliated when appointed, principal countries of fellowship study, and dates of fellowship.

- ACOSTA-SANCHEZ, YOLANDA (Peru)** b. 1926. Cert., Syracuse Univ. 1952. Nursing Education (DMPH). Appointed from Central de Asistencia Social, Lima. *Place of Study:* Canada, 1954-.
- AKMAN, ALI MUVAFFAK (Turkey)** b. 1923. M.D., Univ. of Istanbul 1947. Bacteriology (DMPH). Appointed from Refik Saydam Central Inst. of Hygiene, Ankara. *Place of Study:* U.S.A., 1954-.
- ALLELA, ALFREDO (Italy)** b. 1917. M.D., Univ. of Turin 1942. Physiology (DMPH). Appointed from Univ. of Turin. *Place of Study:* U.S.A., 1954-.
- ANDERSEN, OTTO (Brazil)** b. 1916. B.S., Rural Univ. of Minas Gerais, Viçosa, 1940. Agriculture — Horticulture (DNSA). Appointed from Rural Univ. of Minas Gerais. *Place of Study:* U.S.A., 1954-.
- ARAS, KAZIM (Turkey)** b. 1908. M.D., Univ. of İstanbul 1933. Biochemistry (DMPH). Appointed from Univ. of Ankara. *Place of Study:* Canada, 1954-.
- ARDAO, MARIA ISABEL (Uruguay)** b. 1908. Chemist, Univ. of Montevideo 1930. Experimental Biology — Biochemistry (DNSA). Appointed from Inst. of Investigations of Biological Sciences, Montevideo. *Place of Study:* U.S.A., 1954-.
- AZOURY, BAHIJ SAID (Lebanon)** b. 1923. M.D., American Univ. of Beirut 1948. Urology (DMPH). Appointed from Francis Delafield Hosp., New York. *Place of Study:* U.S.A., 1954-.
- BADDILEY, JAMES (England)** b. 1918. D.Sc., Victoria Univ. of Manchester 1953. Biochemistry — Enzymes (DNSA). Appointed from Lister Inst., London. *Place of Study:* U.S.A., 1954-.
- BAEZ MENDOZA, JOSÉ (Mexico)** b. 1928. M.D., Univ. of Guanajuato, León, 1954. Pathology (DMPH). *Place of Study:* Mexico, 1954-.
- BAGIOTTI, TULLIO (Italy)** b. 1921. Dr. Econ., Luigi Bocconi Univ. of Commerce, Milan, 1949. Economics (DSS). Appointed from Luigi Bocconi Univ. of Commerce. *Place of Study:* U.S.A., 1954-.
- BALAGOPAL RAJU, VARADHARAJU (India)** b. 1921. M.B.B.S., Univ. of Madras 1946. Pediatrics (DMPH). Appointed from Univ. of Madras. *Place of Study:* U.S.A., 1954-.
- BANO, SOOK (Korea)** b. 1923. M.D., Severance Union Med. Coll., Seoul, 1944. Public Health (DMPH). Appointed from Ministry of Health, Seoul. *Place of Study:* U.S.A., 1954-.
- BARÚA, JAVIER (Peru)** b. 1922. D.V.M., Univ. of San Marcos, Lima, 1952. Agriculture — Veterinary Biochemistry (DNSA). Appointed from Univ. of San Marcos. *Place of Study:* U.S.A., 1954-.
- BEGG, CHARLES MICHAEL MACINTYRE (Scotland)** b. 1919. Ph.D.

- Univ. of Birmingham 1945. Biology—Genetics (DNSA). Appointed from Univ. of Aberdeen. *Place of Study:* U.S.A., 1954–.
- BERRILL, KENNETH ERNEST (England)** b. 1920. M.A., Univ. of Cambridge 1947. Economics and Economic History (DSS). Appointed from Univ. of Cambridge. *Place of Study:* U.S.A., 1954–.
- BHARGAVA, KRISHNA PRASAD (India)** b. 1925. M.D., King George's Med. Coll., Lucknow, 1950. Pharmacology (DMPH). Appointed from King George's Med. Coll. *Place of Study:* U.S.A., 1954–.
- BHATT, KANTILAL KUBERJI (India)** b. 1910. M.S., Seth Gordhandas Sunderdas Med. Coll., Bombay, 1948. Human Anatomy (DMPH). Appointed from Baroda Univ. *Place of Study:* U.S.A., 1954–.
- BLOOMFIELD, LINCOLN P. (U.S.A.)** M.A., Harvard Univ. 1952. International Relations (DSS). Appointed from U.S. State Dept. *Place of Study:* U.S.A., 1954–.
- BOLLACK, CLAUDE (France)** b. 1925. M.D., Univ. of Strasbourg 1952. Medicine (DMPH). Appointed from Univ. of Strasbourg. *Place of Study:* U.S.A., 1954–.
- BORGONÓ DOMÍNGUEZ, JOSÉ MANUEL (Chile)** b. 1924. M.D., Univ. of Chile, Santiago, 1950. Epidemiology (DMPH). Appointed from Jefatura Sanitaria Provincial, Santiago. *Place of Study:* U.S.A., 1954–.
- BORGSTRÖM, ERNST BENGT GUNNAR (Sweden)** b. 1922. M.D., Univ. of Lund 1952. Biochemistry (DNSA). Appointed from Univ. of Lund. *Place of Study:* U.S.A., 1954–.
- Boss, JEFFREY MARK NEWMAN**
- (England) b. 1926. Ph.D., Univ. of Cambridge 1953. Cytology (BMRC). Appointed from Middlesex Hosp. Med. School, London. *Place of Study:* U.S.A., 1954–.
- BUFFA, PAOLO (Italy)** b. 1913. M.D., Univ. of Rome 1946. Biochemistry—Microbiology (DNSA). Appointed from Univ. of Rome. *Place of Study:* England, 1954–.
- CAMPOS TIERRAFRÍA, ALFREDO (Mexico)** b. 1925. M.S., Univ. of Minnesota 1950. Agriculture—Plant Parasitology (DNSA). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1954–.
- CARDONA A., CANUTO (Colombia)** b. 1919. M.S., Univ. of California 1954. Agriculture—Plant Parasitology (DNSA). Appointed from 1) Nat'l Univ. of Colombia; 2) Ministry of Agric., Medellín. *Place of Study:* U.S.A., 1950–51; 1954–.
- CASTRO, EDIN RAÚL (Uruguay)** b. 1918. D.V.M., Univ. of Montevideo 1944. Veterinary Parasitology (DNSA). Appointed from Ministry of Animal Industry and Agric., Montevideo. *Place of Study:* U.S.A., 1954–.
- CAVALLI-SFORZA, LUIGI LUCA (Italy)** b. 1922. M.D., Univ. of Pavia 1944. Biology—Chemical Genetics (DNSA). Appointed from Istituto Sieroterapico Milanese, and Univ. of Parma. *Place of Study:* U.S.A., 1954–.
- CAZENEUVE, JEAN PAUL LUCIEN (France)** b. 1915. Agrégation, Ecole Normale Supérieure, Paris, 1946. Social Anthropology (DSS). Appointed from Centre National de la Recherche Scientifique,

- Paris. *Place of Study:* U.S.A., 1954-.
- CHAKRAVARTY, NIRMAL KUMAR (India)** b. 1919. M.D., Calcutta Univ. 1952. Pharmacology (DMPH). Appointed from School of Tropical Med., Calcutta. *Place of Study:* U.S.A., 1954-.
- CLOSE, GEORGE LEONARD (England)** b. 1931. LL.M., Yale Univ. 1954. Law (DSS). Appointed from Yale Univ. *Place of Study:* U.S.A., 1954-.
- COHEN, ANTONIE (Netherlands)** b. 1922. Ph.D., Univ. of Amsterdam 1952. Linguistics (DH). Appointed from The Hague Gymnasium. *Place of Study:* U.S.A., 1954-.
- CONTRERAS VILU, VICENTE (Chile)** b. 1922. M.D., Univ. of Chile, Santiago, 1947. Rheumatoid Diseases (DMPH). Appointed from San Borja Hosp., Santiago. *Place of Study:* U.S.A., 1954-.
- COOKSON, JOYCE (Scotland)** b. 1907. M.A., Univ. of Edinburgh 1949. Child Psychology (DMPH). Appointed from Univ. of Edinburgh. *Place of Study:* U.S.A., 1954-.
- CORNET, FRANÇOISE (WHO)** b. 1920. State Cert. in Nursing, Grenoble, 1945. Public Health Nursing and Nursing Education (DMPH). Appointed from World Health Organization. *Place of Study:* Canada, 1954-.
- COUTO, FLAVIO AUGUSTO D'ARAUJO (Brazil)** b. 1925. Ing. Agr., Escola Superior de Agric., Viçosa, 1947. Agriculture—Horticulture (DNSA). Appointed from Escola Superior de Agric. *Place of Study:* U.S.A., 1954-.
- CUBA CAPARO, ALBERTO DIOMEDES (Peru)** b. 1915. M.D., Univ. of San Marcos, Lima, 1944. Veterinary Medicine — Pathology (DNSA). Appointed from Univ. of San Marcos. *Place of Study:* Brazil, 1954-.
- DANÖ, SVEN (Denmark)** b. 1922. M.Sc., Univ. of Copenhagen 1947. Economics (DSS). Appointed from Univ. of Copenhagen. *Place of Study:* U.S.A., 1954-.
- DE CAPRARIIS, VITTORIO (Italy)** b. 1924. LL.D., Univ. of Naples 1945. History (DH). Appointed from 1) Italian Inst. of Historical Studies, Naples; 2) Paris. *Place of Study:* France, 1948-49; 1954-.
- DIMOCK, EDWARD C., JR. (U.S.A.)** b. 1929. S.T.M., Harvard Univ. 1954. South Asian Studies (DH). Appointed from First Parish Unitarian Church, East Bridgewater, Mass. *Place of Study:* U.S.A., 1954-.
- DINIZ, CARLOS RIBEIRO (Brazil)** b. 1919. M.D., Univ. of Minas Gerais, Belo Horizonte, 1943. Experimental Biology—Biochemistry (DNSA). Appointed from Univ. of São Paulo. *Place of Study:* U.S.A., 1954-.
- DODT, ERNST FRIEDRICH EBERHARD (Germany)** b. 1923. M.D. thesis, Univ. of Freiburg 1950. Neurophysiology (DMPH). Appointed from Univ. of Freiburg. *Place of Study:* Sweden, 1954-.
- DUARTE, GERALDO GARCIA (Brazil)** b. 1919. Cert., Univ. of São Paulo 1954. Biostatistics (DMPH). Appointed from Univ. of São Paulo. *Place of Study:* U.S.A., 1954-.
- DUBE, KALIKA CHARAN (India)** b. 1913. D.P.M., Univ. of London 1950. Psychiatry (DMPH). Appointed from Mental Hosp.,

- Nagpur, and Med. Coll., Nagpur.  
*Place of Study:* U.S.A., 1954-.
- DUTRA DE OLIVEIRA, JOSÉ EDUARDO (*Brazil*) b. 1927. M.D., Univ. of São Paulo 1951. Nutrition (DMPH). Appointed from Vanderbilt Univ. *Place of Study:* U.S.A., 1954-.
- EFFENBERGER, ERNST (*Germany*) b. 1916. M.D., Univ. of Kiel 1950. Industrial Hygiene (DMPH). Appointed from Inst. of Hygiene, Hamburg. *Place of Study:* Switzerland, 1954-.
- EGLI, ROBERT E. (*Switzerland*) b. 1920. M.D., Univ. of Zurich 1946. Industrial Medicine (DMPH). Appointed from Inst. of Industrial Hygiene & Physiology of Effort, Zurich. *Place of Study:* U.S.A., 1954-.
- ELKINS, STANLEY M. (*U.S.A.*) b. 1925. M.A., Columbia Univ. 1951. History (DH). Appointed from Fieldston School, Riverdale, New York. *Place of Study:* U.S.A., 1954-.
- FADEL-KHOURY, JAMILA (*Syria*) b. 1922. Dipl., Amer. Univ. of Beirut 1941. Nursing Education (DMPH). Appointed from Syrian Univ. Hosp., Damascus. *Place of Study:* U.S.A., 1954-.
- FERNANDES, JOSÉ FERREIRA (*Brazil*) b. 1923. M.D., Univ. of Minas Gerais, Belo Horizonte, 1949. Experimental Biology — Biochemistry (DNSA). Appointed from Univ. of São Paulo. *Place of Study:* U.S.A., 1954-.
- FOGG, GORDON ELLIOTT (*England*) b. 1919. Ph.D., Univ. of Cambridge 1943. Biochemistry — Photosynthesis (DNSA). Appointed from Univ. of London. *Place of Study:* U.S.A., 1954-.
- FREIRE, JOAO RUY JARDIM (*Brazil*) b. 1923. Ing. Agr., Rural Univ., Rio de Janeiro, 1946. Agriculture — Microbiology (DNSA). Appointed from Secretariat of Agric., Pôrto Alegre. *Place of Study:* U.S.A., 1954-.
- FRYCKSTEDT, OLOV WILHELM (*Sweden*) b. 1920. Fil. lic., Univ. of Uppsala 1950. Literature, Criticism (DH). Appointed from 1) Columbia Univ.; 2) Norrea Real, Stockholm. *Place of Study:* U.S.A., 1948-49; 1954-.
- FUKUOKA, MASAO (*Japan*) b. 1924. Ph.D., Keio Univ., Tokyo, 1952. Economics (DSS). Appointed from Keio Univ. *Place of Study:* U.S.A., 1954-.
- GARCÉS ORJUELA, CARLOS (*Colombia*) b. 1915. M.S., Cornell Univ. 1944. Biology (DNS); Agriculture — Plant Parasitology (DNSA). Appointed twice from Nat'l Univ. of Colombia, Medellín. *Place of Study:* U.S.A., 1943-44; 1954-.
- GIARRIZZO, GIUSEPPE (*Italy*) b. 1927. Ph.D., Univ. of Catania 1950. History (DH). Appointed from Univ. of Rome. *Place of Study:* England, 1954-.
- GOROSCH, MAX (*Sweden*) b. 1912. Ph.D., Univ. of Stockholm 1953. Language, Logic, and Symbolism (DH). Appointed from Univ. of Stockholm. *Place of Study:* U.S.A., 1954-.
- GRELL, KARL GOTTLIEB (*Germany*) b. 1912. Dr.rer.nat., Univ. of Bonn 1937. Biology — Protozoology (DNSA). Appointed from Max Planck Inst. for Biology, and Univ. of Tübingen. *Place of Study:* U.S.A., 1954-.

- GROS, FRANÇOIS (*France*) b. 1925. D.Sc., Pasteur Inst., Paris, 1953. Biochemistry (DNSA). Appointed from Pasteur Inst. *Place of Study:* U.S.A., 1954-.
- GUARDIOLA, JAIME EDUARDO (*Colombia*) b. 1926. Ing. Agr., Nat'l Univ. of Colombia, Medellín, 1952. Irrigation (DNSA). Appointed from Nat'l Univ. of Colombia. *Place of Study:* U.S.A., 1954-.
- GUILER, ERIC ROWLAND (*Australia*) b. 1922. Ph.D., Univ. of Tasmania, Hobart, 1953. Experimental Biology—Marine Ecology (DNSA). Appointed from Univ. of Tasmania. *Place of Study:* Chile, 1954-.
- GÜRSON, CIHAT TAHSIN (*Turkey*) b. 1916. M.D., Univ. of Istanbul 1940. Pediatrics (DMPH). Appointed from Univ. of Istanbul. *Place of Study:* U.S.A., 1954-.
- HAMDAN, WADAD (*Lebanon*) b. 1925. B.S., Amer. Univ. of Beirut 1952. Nursing Education (DMPH). Appointed from Amer. Univ. of Beirut. *Place of Study:* U.S.A., 1954-.
- HASHIMOTO, MICHIO (*Japan*) b. 1924. M.D., Osaka Univ. 1948. Public Health Administration (DMPH). Appointed from Toyonaka Health Center, Osaka. *Place of Study:* U.S.A., 1954-.
- HERVOUET, YVES M. (*France*) b. 1921. Dipl. in Chinese, Ecole des Langues Orientales, Paris, 1950. Far Eastern Studies (DH). Appointed from Ecole Française d'Extrême-Orient, Paris. *Place of Study:* France, 1954-.
- HOFFMEYER, ERIK (*Denmark*) b. 1924. Cand. polit., Univ. of Copenhagen 1951. Economics (DSS). Appointed from Nat'l Bank of Denmark, Copenhagen. *Place of Study:* U.S.A., 1954-.
- HÖFKELT, BERNT MAGNUS (*Sweden*) b. 1923. M.D., Karolinska Inst., Stockholm, 1951. Endocrinology (DMPH). Appointed from Karolinska Inst. *Place of Study:* U.S.A., 1954-.
- HOVNANIAN, AUGUST PHILIP (*Lebanon*) b. 1915. M.D., Amer. Univ. of Beirut 1938. Cancer Surgery (DMPH). Appointed from Amer. Univ. of Beirut. *Place of Study:* U.S.A., 1954-.
- HÜBENER, HANS JOACHIM (*Germany*) b. 1925. M.D., Univ. of Frankfurt 1950. Biochemistry (DMPH). Appointed from Univ. of Frankfurt. *Place of Study:* U.S.A., 1954-.
- INOUE, YUKIKO (*Japan*) b. 1925. Dipl., St. Luke's Coll. of Nursing, Tokyo, 1945. Public Health Nursing (DMPH). Appointed from Fukuoka Prefectural Public Health Nursing School, Fukuoka City. *Place of Study:* U.S.A., 1954-.
- ISHII, MOMOKO (*Japan*) b. 1907. Dipl., Japan Women's Univ., Tokyo, 1928. Literature (DH). Appointed from Iwanami Shoten, Tokyo. *Place of Study:* U.S.A., 1954-.
- IZQUIERDO, LUIS (*Chile*) b. 1928. M.D., Univ. of Chile, Santiago, 1953. Embryology (DMPH). Appointed from Catholic Univ. of Chile, Valparaiso. *Place of Study:* Belgium, 1954-.
- JOAQUIN Y MARQUES, NICK (*Philippines*) b. 1917. Literature (DH).

- Appointed from the *Free Press* magazine, Manila. *Place of Study:* Spain, 1954-.
- KAMIYA, TOYOKO (*Japan*) b. 1921. Dipl., St. Luke's Coll. of Nursing, Tokyo, 1941. Nursing Education (DMPH). Appointed from Fukui Prefectural School of Nursing, Fukui City. *Place of Study:* U.S.A., 1954-.
- KAPOOR, SITA RAM (*India*) b. 1922. M.D., King George's Med. Coll. Lucknow, 1951. Experimental Physiology (DMPH). Appointed from King George's Med. Coll. *Place of Study:* U.S.A., 1954-.
- KAPRIO, LEO ARTUR (*Finland*) b. 1918. M.P.H., Johns Hopkins Univ. 1948. Public Health Administration (IHD; DMPH). Appointed from 1) Nat'l Population League, Helsinki; 2) Finnish State Med. Board, Helsinki. *Place of Study:* U.S.A. and Canada, 1947-48; U.S.A., 1954-.
- KARLI, PIERRE CAMILLE (*France*) b. 1926. M.D., Univ. of Strasbourg 1952. Biology (DMPH). Appointed from Univ. of Strasbourg. *Place of Study:* U.S.A., 1954-.
- KATO, HIDETOSHI (*Japan*) b. 1930. M.A., Hitotsubashi Univ., Tokyo, 1953. Social Psychology (DSS). Appointed from Kyoto Univ. *Place of Study:* U.S.A., 1954-.
- KEHL, ROBERT RICHARD ARTHUR FRIEDRICH (*Germany*) b. 1920. M.D., Univ. of Innsbruck 1945. Medicine (DMPH). Appointed from Univ. of Marburg/Lahn. *Place of Study:* U.S.A., 1954-.
- KELLEY, GERALD BAPTISTE (*U.S.A.*) b. 1928. Ph.D., Univ. of Wisconsin 1954. Indian Lan-
- guages (DH). Appointed from Univ. of Wisconsin. *Place of Study:* U.S.A., 1954-.
- KNAPP, ELISA PEREIRA (*Brazil*) b. 1923. Ph.D., Univ. of São Paulo 1953. *Drosophila* genetics (DNSA). Appointed from Univ. of São Paulo. *Place of Study:* U.S.A., 1954-.
- KOBAYASHI, YOTARO (*Japan*) b. 1917. B.Eng., Univ. of Tokyo 1941. Architectural Hygiene (DMPH). Appointed from Inst. of Public Health, Tokyo, *Place of Study:* U.S.A., 1954-.
- KUNJAMMA, AVICOTU GEEVURGESE (*India*) b. 1919. Dipl., Lady Hope School of Nursing, Madras, 1949. Nursing Education (DMPH). Appointed from School of Nursing, Trivandrum. *Place of Study:* U.S.A., 1954-.
- LILJESTRAND, ÅKE (*Sweden*) b. 1917. M.D., Karolinska Inst., Stockholm, 1954. Physiology (DMPH). Appointed from Karolinska Hosp. *Place of Study:* U.S.A., 1954-.
- LIMA, ELON LAGES (*Brazil*) b. 1929. Bacharel de Matematica, Univ. of Brazil, Rio de Janeiro, 1953. Mathematics (DNSA). Appointed from fellowship of the Conselho Nacional de Pesquisas, Brazil. *Place of Study:* U.S.A., 1954-.
- LINDAUER, MARTIN (*Germany*) b. 1918. Dr. Nat. Sci., Univ. of Munich 1948. Biology — Animal Behavior (DNSA). Appointed from Univ. of Munich. *Place of Study:* Ceylon, 1954-.
- LORDELLA, LUIZ GONZAGA ENGELBERG (*Brazil*) b. 1926. Agr. Eng., Univ. of São Paulo, Piracicaba, 1948. Zoology (DNSA). Appointed from Luiz de Queiroz

- School of Agric., Piracicaba.  
*Place of Study:* U.S.A., 1954-.
- LOVELOCK, JAMES EPHRAIM (*England*) b. 1920. Ph.D., Univ. of London 1948. Chemistry (BMRC). Appointed from Med. Research Council, London. *Place of Study:* U.S.A., 1954-.
- LUDWIG, FRIEDRICH KARL (*Germany*) b. 1924. M.D., Univ. of Tübingen 1949. Pathology (DMPH). Appointed from Univ. of Paris. *Place of Study:* U.S.A., 1954-.
- MACKAY, JAMES FREDRIK (*Sweden*) b. 1919. Agr. Lic., Royal Agric. Coll. of Sweden, Uppsala, 1953. Plant Science (DNSA). Appointed from Swedish Seed Assoc., Svalof. *Place of Study:* U.S.A. and Canada, 1954-.
- MARTHINSEN, ARNE (*Norway*) b. 1926. M.D., Univ. of Oslo 1950. Social Medicine (DMPH). Appointed from Univ. of Oslo. *Place of Study:* U.S.A., 1954-.
- MATALLANA, ALFONSO (*Colombia*) b. 1923. M.D., Nat'l Univ. of Colombia, Bogotá, 1950. Pharmacology (DMPH). Appointed from Harvard Univ. *Place of Study:* U.S.A., 1954-.
- MATURANA ROMECIN, HUMBERTO (*Chile*) b. 1928. Univ. of Chile 1950-53. Experimental Biology (DNSA). Appointed from Inst. of Biol., Santiago. *Place of Study:* England, 1954-.
- McCRAY, WILLIE LOUISE (*U.S.A.*) b. 1929. B.S.N., Dillard Univ. 1952. Nursing Education (DMPH). Appointed from Dillard Univ. *Place of Study:* U.S.A., 1954-.
- McKITTRICK, ERIC LOUIS (*U.S.A.*) b. 1919. M.A., Columbia Univ. 1951. History (DH). Appointed from Columbia Univ. *Place of Study:* U.S.A., 1954-.
- MCLEAN, DONALD MILLIS (*Australia*) b. 1926. M.B.B.S., Univ. of Melbourne 1950. Virology (DMPH). Appointed from Nat'l Health and Med. Research Council, Melbourne. *Place of Study:* U.S.A., 1954-.
- MEGALE, FRANCISCO (*Brazil*) b. 1914. D.V.M., School of Veterinary Science of the State of Minas Gerais, Belo Horizonte, 1939. Agriculture-Veterinary Obstetrics (DNSA). Appointed from School of Veterinary Science of the State of Minas Gerais. *Place of Study:* U.S.A., 1954-.
- MEZZACAPPA, MARIO PONT (*Brazil*) b. 1919. Dr. Agr., Luiz de Queiroz School of Agric., Piracicaba, 1951. Plant Breeding (DNSA). Appointed from Luiz de Queiroz School of Agric. *Place of Study:* Mexico, 1954-.
- MICHEL CASTEÑEDA, JUAN MANUEL (*Mexico*) b. 1915. D.V.M., Nat'l Univ. of Mexico 1944. Animal Husbandry (DNSA). Appointed from Inst. Tecnológico y de Estudios Superiores de Monterrey. *Place of Study:* U.S.A., 1954-.
- MIELKE, FRED (*Germany*) b. 1922. M.D., Univ. of Heidelberg 1951. Medicine (DMPH). Appointed from Univ. of Heidelberg. *Place of Study:* Switzerland, 1954-.
- MOGEY, JOHN McFARLAND (*Great Britain*) b. 1915. D.Sc., The Queen's Univ. of Belfast 1950. Sociology (DSS). Appointed from Univ. of Oxford. *Place of Study:* U.S.A., 1954-.
- MØLLER, KARL HERBERT (*WHO*) b. 1919. M.D., Univ. of Copenhagen 1946. Public Health Admin-

- istration (DMPH). Appointed from World Health Organization. *Place of Study:* England, 1954-.
- MORCILLO DOSMAN, LUIS EDUARDO (*Honduras*) b. 1915. Ing. Agr., School of Agric., Cali, Colombia, 1939. Agronomy (DNSA). Appointed from Pan-American Agric. School, Tegucigalpa. *Place of Study:* U.S.A., 1954-.
- MORENO, VIRGINIA REYES (*Philippines*) b. 1925. M.A., Univ. of the Philippines, Quezon City, 1952. Literature (DH). Appointed from Univ. of Kansas. *Place of Study:* U.S.A., 1954-.
- MORITA, SHUJI (*Japan*) b. 1909. D.Agric., Kyoto Univ. 1945. Soils Science (DNSA). Appointed from Saikyo Univ., Kyoto. *Place of Study:* U.S.A., 1954-.
- MÜLLER, EDITH (*Switzerland*) b. 1917. Nursing Dipl., La Source School of Nursing, Lausanne, 1944. Nursing Administration (DMPH). Appointed from Hôpital Cantonal, Geneva. *Place of Study:* U.S.A., 1954-.
- MUNAKATA, PETER FRANCIS IWAQ (*Japan*) b. 1933. M.A., Fordham Univ. 1952. Social Sciences (DSS). Appointed from Sophia Univ., Tokyo. *Place of Study:* U.S.A., 1954-.
- NASHABI, HISHAM ABDUL-WAHAB (*Lebanon*) b. 1931. M.A., Amer. Univ. of Beirut 1952. Near Eastern Studies (DH). Appointed from Makassed al-Islamiya Coll., Beirut. *Place of Study:* Canada, 1954-.
- NARVÁEZ MORALES, IGNACIO (*Mexico*) b. 1924. M.S., Kansas State Coll. 1951. Agriculture-Plant Breeding (DNSA). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1954-.
- OCHWADT, BRUNO K. H. (*Germany*) b. 1920. M.D., Univ. of Göttingen 1945. Physiology (DMPH). Appointed from Univ. of Göttingen. *Place of Study:* U.S.A., 1954-.
- OHIRA, MASAHICO (*Japan*) b. 1914. M.D., Kyushu Univ., Fukuoka, 1939. Industrial Hygiene (DMPH). Appointed from Kyushu Univ. *Place of Study:* U.S.A., 1954-.
- ORJUELA-NAVARRETE, JUAN E. (*Colombia*) b. 1917. Ing. Agr., Nat'l Univ. of Colombia, Medellín, 1952. Agriculture (DNS); Agriculture—Plant Parasitology (DNSA). Appointed from 1) Ministry of Agric.; 2) Nat'l Center of Agric. Investigations of Tibayatá, Bogotá. *Place of Study:* U.S.A., 1947-48; 1954-.
- PALACIOS LOPEZ, BASILIO (*Chile*) b. 1919. Engineer, Univ. of Chile, Santiago, 1949. Sanitary Engineering (DMPH). Appointed from Ministry of Health, Santiago. *Place of Study:* U.S.A., 1954-.
- PANSE, VASANT NARAYAN (*India*) b. 1921. M.D., Seth Gordhandas Sunderdas Med. Coll., Bombay, 1951. Social Medicine (DMPH). Appointed from B.Y.L. Nair Charitable Hosp., Bombay. *Place of Study:* U.S.A., 1954-.
- PAUL, KARL-GUSTAV (*Sweden*) b. 1919. M.D., Karolinska Inst., Stockholm, 1951. Biochemistry-Enzymes (DNSA). Appointed from Med. Nobel Inst., Stockholm. *Place of Study:* England, 1954-.
- PEMBERTON, JOHN (*England*) b. 1912. M.D., Univ. of London

1940. Epidemiology (BMRC). Appointed from Univ. of Sheffield. *Place of Study:* U.S.A., 1954~.
- PHILIPPS V., LUIS AUGUSTO (Peru)**  
*b. 1918.* D.V.M., Nat'l School of Vet. Science, Lima, 1945. Agriculture — Veterinary Virology (DNSA). Appointed from Ministry of Agric., Lima. *Place of Study:* Chile, 1954~.
- PILKINGTON, THOMAS ROGER EDWARD (England)** *b. 1921.* M.D., Univ. of London 1949. Metabolism (BMRC). Appointed from St. George's Hosp., London. *Place of Study:* U.S.A., 1954~.
- POHOWALLA, JAMSHED NARIMAN (India)** *b. 1915.* M.B.B.S., Grant Med. Coll., Bombay, 1939. Pediatrics (DMPH). Appointed from King Edward Med. Coll., Indore. *Place of Study:* U.S.A., 1954~.
- QUIEVREUX, GENEVIEVE (France)**  
*b. 1924.* Dipl., Ecole Professionnelle d'Assistance aux Malades, Paris. Nursing Education (DMPH). Appointed from Ecole Professionnelle d'Assistance aux Malades. *Place of Study:* U.S.A., 1954~.
- RALL, WILFRID (New Zealand)** *b. 1922.* S.M., Univ. of Chicago 1948. Biophysiology (DMPH). Appointed from Univ. of Otago, Dunedin. *Place of Study:* England, 1954~.
- RAMIREZ ARAYA, IGNACIO (Chile)**  
*b. 1925.* Agr., Univ. of Chile, Santiago, 1948. Agriculture-Plant Breeding (DNSA). Appointed from Chilean Dept. of Agric., Santiago. *Place of Study:* Mexico, 1954~.
- RAMIREZ ESTRADA, RICARDO (Colombia)** *b. 1921.* Ing. Agr., Nat'l Univ. of Colombia, Medellin, 1952. Plant Breeding (DNSA). Appointed from Ministry of Agric., Medellin. *Place of Study:* U.S.A., 1954~.
- RICHTER, RUDOLF KARL-HEINZ (Germany)** *b. 1926.* Dr. rer. pol., Univ. of Frankfurt 1951. Economics (DSS). Appointed from Univ. of Frankfurt. *Place of Study:* U.S.A., 1954~.
- ROBERTS, LAWRENCE ORRED (WHO)** *b. 1909.* M.D., Univ. of London 1936. Public Health (DMPH). Appointed from World Health Organization. *Place of Study:* U.S.A., 1954~.
- RODRIGUEZ ESTRADA, CARLOS (Mexico)** *b. 1931.* M.D., Univ. of Guadalajara 1953. Physiology and Pharmacology (DMPH). Appointed from Univ. of Guadalajara. *Place of Study:* Mexico, 1954~.
- RODRIGUEZ VILLEGRAS, CARLOS (Peru)** *b. 1925.* D.V.M., Univ. of San Marcos, Lima, 1948. Agriculture — Animal Sterility (DNSA). Appointed from Ministry of Agric., Lima. *Place of Study:* U.S.A., 1954~.
- Rosado Espinosa, Humberto (Mexico)** *b. 1919.* Ing. Agr., Escuela Nacional de Agric., Chapingo, 1948. Agriculture — Extension Methods (DNSA). Appointed from Dept. of Agric., State of Mexico, Toluca. *Place of Study:* U.S.A., 1954~.
- ROSE, ARTHUR JAMES (Australia)**  
*b. 1927.* M.A., Canterbury Univ. Coll., Christchurch, New Zealand, 1949. Geography (DSS). Appointed from New England Univ. Coll. of the Univ. of Sydney, Armidale. *Place of Study:* England, 1954~.

- Rosselli Quijano, Andres (Colombia) b. 1921.** M.D., Nat'l Univ. of Colombia, Bogotá, 1948. Neurology (DMPH). Appointed from Nat'l. Univ. of Colombia. *Place of Study:* U.S.A., 1954-.
- Russi, Antonio (Italy) b. 1916.** D.Litt., Univ. of Pisa 1940. Literature (DH). Appointed thrice from Univ. of Pisa. *Place of Study:* U.S.A., 1949-50; Italy, 1951-52; Italy, 1954-.
- Saito, Hikaru (Japan) b. 1915.** B.A., Tokyo Imperial Univ. 1939. American Studies (DH). Appointed from Univ. of Tokyo. *Place of Study:* U.S.A., 1954-.
- Sánchez, Alberto (Colombia) b. 1924.** Ing. Agr., Nat'l Univ. of Colombia, Palmira, 1949. Plant Pathology (DNSA). Appointed from Nat'l Univ. of Colombia. *Place of Study:* U.S.A., 1954-.
- Sánchez Díaz, Celestino (Peru) b. 1927.** M.D., Univ. of San Marcos, Lima, 1954. Hematology (DMPH). Appointed from Inst. of Andean Biol., Lima. *Place of Study:* U.S.A., 1954-.
- Sanmartin-Barberi, Carlos (Colombia) b. 1922.** M.D., Nat'l Univ. of Colombia, Bogotá, 1948. Medicine and Viruses (DMPH). Appointed from Carlos Finlay Inst. for Special Studies, Bogotá. *Place of Study:* U.S.A., 1954-.
- Sheppard, Philip Macdonald (England) b. 1921.** Ph.D., Univ. of Oxford 1951. Biology — Genetics (DNSA). Appointed from Univ. of Oxford. *Place of Study:* U.S.A., 1954-.
- Shimada, Johei (Japan) b. 1924.** Bungakushi Degree, Univ. of Tokyo 1947. Near Eastern Studies (DH). Appointed from Univ. of Tokyo. *Place of Study:* Eng-land, 1954-.
- Silva, Ady Raúl da (Brazil) b. 1917.** M.S., Univ. of Minnesota 1946. Plant Breeding (DNSA). Appointed from Eliseu Maciel School of Agron., and Agron. Inst. of the South, Pelotas. *Place of Study:* U.S.A., 1954-.
- Sinisterra, Leonardo (Colombia) b. 1924.** M.D., Univ. of Madrid 1951. Clinical Endocrinology and Nutrition (DMPH). Appointed from Univ. del Valle, Cali. *Place of Study:* U.S.A., 1954-.
- Siswadji (Indonesia) b. 1923.** Dipl., Univ. of Police Science, Djakarta 1952. International Relations (DH). Appointed from Central Nat'l Police Dept., Djakarta. *Place of Study:* U.S.A., 1954-.
- Sobue, Itsuro (Japan) b. 1921.** M.D., Nagoya Nat'l Univ. 1943. Neurology (DMPH). Appointed from Nagoya Nat'l Univ. *Place of Study:* U.S.A., 1954-.
- Sofue, Takao (Japan) b. 1926.** B.S., Univ. of Tokyo 1949. Cultural Anthropology (DSS). Appointed from Univ. of Tokyo. *Place of Study:* U.S.A., 1954-.
- Sotelo, José Roberto (Uruguay) b. 1915.** M.B., Univ. of the Republic, Montevideo, 1934. Experimental Biology — Cytology (DNSA). Appointed from Instituto de Investigación de Ciencias Biológicas, Montevideo. *Place of Study:* U.S.A., 1954-.
- Souza Santos, Helena Lopes de (Brazil) b. 1923.** Lic. in Math., Univ. of São Paulo 1945. Biophysics (DNSA). Appointed from Univ. of São Paulo. *Place of Study:* U.S.A., 1954-.
- Souza Santos, Persio de (Brazil) b. 1928.** Chem. Eng., Univ. of

- São Paulo 1952. Biophysics (DNSA). Appointed from Secretaria da Saude do Estado de São Paulo. *Place of Study:* U.S.A., 1954-.
- TAKATSU, TADASU (Japan) b. 1913. M.D., Kyoto Univ. 1936. Medicine (DMPH). Appointed from Kyoto Univ. *Place of Study:* U.S.A., 1954-.
- TELLO GARUST, ARTURO (Peru) b. 1930. D.V.M., Univ. of San Marcos, Lima, 1952. Agriculture—Poultry Pathology (DNSA). Appointed from Univ. of San Marcos. *Place of Study:* Chile, 1954-.
- THOMAS, THOMAS (India) b. 1917. M.B.B.S., Univ. of Madras 1945. Thoracic Surgery (DMPH). Appointed from Christian Med. Coll. and Hosp., Vellore. *Place of Study:* U.S.A., 1954-.
- TOINETTI, CIRO (Italy) b. 1928. Dr.rer.pol., Univ. of Pisa 1951. Economics (DSS). Appointed from Univ. of Pisa. *Place of Study:* U.S.A., 1954-.
- TORIELLO SOTO, LUCIA (Chile) b. 1925. M.D., Univ. of Chile, Santiago, 1951. Internal Medicine (DMPH). Appointed from Univ. of Chile. *Place of Study:* U.S.A., 1954-.
- TÖRNQVIST, KURT LENNART (Sweden) b. 1919. Fil. Lic., Univ. of Lund 1952. Sociology (DSS). Appointed from Univ. of Lund. *Place of Study:* U.S.A., 1954-.
- TOYOKAWA, KOHEI (Japan) b. 1914. M.D., Univ. of Tokyo 1938. Microbiology (DMPH). Appointed from Univ. of Tokyo. *Place of Study:* U.S.A., 1954-.
- USUI, TAKEJIRO (Japan) b. 1914. M.D., Keio Univ. 1939. Public Health Statistics (DMPH). Appointed from Inst. of Public Health, Tokyo. *Place of Study:* U.S.A., 1954-.
- VAN HET REVE, KAREL (Netherlands) b. 1921. Ph.D., Univ. of Amsterdam 1954. Slavic Literature (DH). Appointed from Univ. of Amsterdam. *Place of Study:* U.S.A., 1954-.
- VARMA, HARISH CHANDRA (India) b. 1923. Ch.M., King George's Med. Coll., Lucknow, 1951. Anatomy and Embryology (DMPH). Appointed from King George's Med. Coll. *Place of Study:* U.S.A., 1954-.
- VEGA, VICTOR M. (Colombia) b. 1918. Ing. Agr., Nat'l Univ. of Colombia, Medellín, 1941. Agriculture—Soils Science (DNSA). Appointed from Ministry of Agric., Bogotá. *Place of Study:* U.S.A., 1954-.
- VELEZ-GIL, ADOLFO (Colombia) b. 1920. M.D., Nat'l Univ. of Colombia, Bogotá, 1948. Surgery (DMPH). Appointed from Surgical Clinic, Cali. *Place of Study:* U.S.A., 1954-.
- VERHOEVEN, WILLEM (Netherlands) b. 1918. Dr. Tech. Sc., Technological Univ., Delft, 1952. Microbiology (DNSA). Appointed from Technological Univ. *Place of Study:* U.S.A., 1954-.
- VERUCCI, GUIDO (Italy) b. 1929. Ph.D., Univ. of Rome 1951. History (DH). Appointed from Italian Inst. of Historical Studies, Naples. *Place of Study:* France, 1954-.
- VIANNA, EDUARDO VARGAS BARBOSA (Brazil) b. 1916. M.D., Univ. of Brazil, Rio de Janeiro,

1941. Experimental Biology—Mathematical Genetics (DNSA). Appointed from Univ. of Brazil. *Place of Study:* U.S.A., 1954~.
- VICTORIANO, PROCOPIO BUMAGAT (*Philippines*) b. 1908. M.B.A., Univ. of Washington 1933. Economics (DSS). Appointed from Univ. of the Philippines. *Place of Study:* U.S.A., 1954~.
- VIEBROCK, HELMUT (*Germany*) b. 1912. Dr. Habil., Philipp Univ. at Marburg 1943. Literature (DH). Appointed from Univ. of Cologne. *Place of Study:* U.S.A., 1954~.
- VILLAVICENCIO NUÑEZ, MARINO (*Peru*) b. 1922. M.D., Univ. of San Marcos, Lima, 1950. Biochemistry (DNSA). Appointed from Univ. of San Marcos. *Place of Study:* U.S.A., 1954~.
- WADE, OWEN LYNDON (*England*) b. 1921. M.D., Univ. of Cambridge, 1951. Hematology (BMRC). Appointed from Univ. of Birmingham. *Place of Study:* U.S.A., 1954~.
- WALLS ARMIJO, FERNANDO (*Mexico*) b. 1931. Chem., Nat'l Univ. of Mexico 1952. Organic Chemistry (DNSA). Appointed from Nat'l Univ. of Mexico. *Place of Study:* U.S.A., 1954~.
- WALTON, KENNETH WALTER WILLIAM HENRY (*England*) b. 1919. M.D., Univ. of London 1949. Pathology (BMRC). Appointed from Univ. of Birmingham. *Place of Study:* U.S.A., 1954~.
- WANG, HAO (*U.S.A.*) b. 1921. Ph.D., Harvard Univ. 1948. Philosophy (DH). Appointed from Harvard Univ. *Place of Study:* England, 1954~.
- WEBER, WILHELM (*Austria*) b. 1916. Dr. der Rechts-und Staatswissenschaft, Univ. of Vienna 1939. Economics (DSS). Appointed from Univ. of Vienna. *Place of Study:* U.S.A., 1954~.
- WEIS-FOOGH, TORKEL (*Denmark*) b. 1922. Ph.D., Univ. of Copenhagen 1952. Biology—Physiology (DNSA). Appointed from Univ. of Copenhagen. *Place of Study:* England, 1954~.
- WHYTE, LANCELOT LAW (*England*) b. 1896. M.A., Univ. of Cambridge, 1923. Physics (IEB); Biomathematics (DNSA). Appointed from 1) Univ. of Cambridge; 2) London. *Place of Study:* Germany, 1928~29; U.S.A., 1954~.
- WILKINSON, JOHN FROME (*Scotland*) b. 1925. Ph.D., Univ. of Cambridge. Biochemistry—Microbiology (DNSA). Appointed from Univ. of Edinburgh. *Place of Study:* U.S.A., 1954~.
- WÖIEN, PER REIDAR (*Norway*) b. 1918. M.D., Univ. of Oslo 1947. Public Health Administration (DMPH). Appointed from The Health Service of Norway, Oslo. *Place of Study:* U.S.A., 1954~.
- WRIGHT, JAMES WESTLAND (*WHO*) b. 1913. Dipl. Trop. Hyg., Witwatersrand Tech. Coll., Johannesburg, 1938. Environmental Sanitation (DMPH). Appointed from World Health Organization. *Place of Study:* U.S.A., 1954~.
- YAO, KUAN-MU (*Taiwan*) b. 1923. B.S.C.E., National Pei-Yang Univ., Tientsin, China, 1947. Sanitary Engineering (DMPH). Appointed from Dept. of Reconstruction, Taipeh. *Place of Study:* U.S.A., 1954~.

YEMM, EDMUND WILLIAM (*England*) b. 1909. Ph.D., Univ. of Oxford, 1934. Biochemistry — Microbiology (DNSA). Appointed from Univ. of Bristol. *Place of Study:* U.S.A., 1954~.

YUDELEVICH KACHENOWSKY,  
MOISES (*Chile*) b. 1924. Ing. Agr.  
Univ. of Chile, Santiago, 1949.  
Agriculture — Forestry (DNSA).  
Appointed from Corporación de Fomento, Santiago. *Place of Study:* U.S.A., 1954~.

## **Report of the Treasurer**



## REPORT OF THE TREASURER

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**I**N THE FOLLOWING PAGES is submitted a report of the financial transactions of The Rockefeller Foundation for the year ended December 31, 1954.

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SQUIRES & COMPANY

CERTIFIED PUBLIC ACCOUNTANTS

101 PARK AVENUE, NEW YORK 17

*February 18, 1955*

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, 1954, 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, 1954, 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, 1954, 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, 1954

*ASSETS*

SECURITIES (Ledger value)	\$187,459,726.15
(Market value \$474,101,366.50)	
<b>CURRENT ASSETS:</b>	
Cash on deposit	2,768,123.41
Advances and deferred charges	\$409,192.62
Sundry accounts receivable	89,436.46
	<hr/>
	498,629.08
<b>EQUIPMENT:</b>	
In New York	93,626.90
	<hr/>
	\$190,820,105.54
	<hr/>

*FUNDS AND OBLIGATIONS*

PRINCIPAL FUND	\$156,316,804.76
<b>COMMITMENTS:</b>	
Unpaid appropriations	\$27,694,853.86
Unappropriated authorizations	1,949,960.00
	<hr/>
	29,644,813.86
INCOME AVAILABLE FOR COMMITMENT	4,728,128.16
<b>CURRENT LIABILITIES:</b>	
Accounts payable	36,731.86
EQUIPMENT FUND	93,626.90
	<hr/>
	\$190,820,105.54
	<hr/>

## PRINCIPAL FUND

Balance, December 31, 1953		\$141,969,594.95
Add:		
Amount by which the proceeds of securities sold during the year exceeded their ledger value		\$14,322,709.81
Gifts received:		
Estate of Charles A. Hutchins	\$12,500.00	
Anonymous	12,000.00	
	24,500.00	14,347,209.81
Balance, December 31, 1954		<u>\$156,316,804.76</u>

## APPROPRIATIONS AND PAYMENTS

Upaid appropriations, December 31, 1953		\$26,843,350.59
Appropriations during the year 1954 (For detail see pages 308 to 370):		
Medicine and Public Health	\$5,102,796.00	
Natural Sciences and Agriculture	4,830,220.00	
Social Sciences	3,041,530.00	
Humanities	3,335,267.00	
General	818,000.00	
Administration	1,979,852.00	
	\$19,107,665.00	
Unused balances of appropriations allowed to lapse	1,057,265.41	18,050,399.59
		<u>\$44,893,750.18</u>
Payments on 1954 and prior years' appropriations (For detail see pages 308 to 370):		
Medicine and Public Health	\$4,236,837.57	
Natural Sciences and Agriculture	4,178,458.45	
Social Sciences	3,873,173.66	
Humanities	2,695,490.05	
General	312,198.41	
Administration	1,902,738.18	
		17,198,896.32
Unpaid appropriations, December 31, 1954		<u>\$27,694,853.86</u>

## UNAPPROPRIATED AUTHORIZATIONS

Balance, December 31, 1953	\$2,046,418.00
Authorizations made during the year	<u>303,542.00</u>
	\$2,349,960.00

Less:	
Appropriations for which funds were previously authorized	400,000.00
Balance, December 31, 1954	<u>\$1,949,960.00</u>

## INCOME AVAILABLE FOR COMMITMENT

Balance, December 31, 1953	\$4,748,844.92
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Add:	
Income and refunds:	
Income from securities	\$17,820,713.85
Refunds	112,510.98
Unused balances of appropriations allowed to lapse	<u>1,057,265.41</u> 18,990,490.24
	\$23,739,335.16

Deduct:	
Appropriations	\$19,107,665.00
Authorizations	<u>303,542.00</u>
	\$19,411,207.00
Less:	
Appropriations for which funds were previously authorized	400,000.00
Income available for commitment, December 31, 1954	<u>\$4,728,128.16</u>

## APPROPRIATIONS AND UNAPPROPRIATED AUTHORIZATIONS

Commitments, December 31, 1953:

Unpaid appropriations	\$26,843,350.59		
Unappropriated authorizations	2,046,418.00		\$28,889,768.59

Add:

Appropriations	\$19,107,665.00		
Authorizations	303,542.00		
			\$19,411,207.00

Less:

Appropriations for which funds were previously authorized	\$ 400,000.00		
Appropriations lapsed during the year	1,057,265.41	1,457,265.41	17,953,941.59
			\$46,843,710.18

Deduct:

Payments on 1954 and prior years' appropriations			17,198,896.32
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Commitments, December 31, 1954:

Unpaid appropriations	\$27,694,853.86		
Unappropriated authorizations	1,949,960.00		\$29,644,813.86

## EQUIPMENT FUND

	BALANCE	CHANGES DURING 1954		BALANCE
	DEC. 31, 1953	ADDITIONS	DEPRECIATION	DEC. 31, 1954
Library Equipment	\$10,087.00	\$1,401.68	\$ 1,518.68	\$ 9,970.00
	86,216.48	7,553.46	10,113.04	83,656.90
	<u>\$96,303.48</u>	<u>\$8,955.14</u>	<u>\$11,631.72</u>	<u>\$93,626.90</u>

APPROPRIATIONS DURING 1954, UNPAID BALANCES OF PRIOR YEAR APPROPRIATIONS,  
AND PAYMENTS THEREON IN 1954

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		APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
<b>MEDICINE AND PUBLIC HEALTH</b>				
<i>Control and Investigation of Specific Diseases and Deficiencies</i>				
<b>MALARIA</b>				
Europe				
Italy	Sardinia Anopheles Eradication Program. 1950-1953 (IH 50126)	\$3,686.54	\$.....	\$724.14
Far East				
India, Mysore	Studies and Control Demonstration. 1952-1954 (GA 52119)	3,865.15	.....	2,457.05
<b>NUTRITION</b>				
Far East				
India, Mysore	Anemia Studies. 1952-1953 (GA 51114, 52123)	2,072.01	.....	1,218.55
<b>TUBERCULOSIS</b>				
United States				
Tennessee. 1953-1954 (RF 53151)		21,000.00	.....	21,000.00
<b>VIRUS DISEASES</b>				
Central Laboratory in New York				
Maintenance. 1953-1955 (RF 52177, 53164, 54165)	172,328.41	170,000.00	160,373.76	
Field Laboratories				
Brazil. 1953-1955 (RF 52177, 53164, 54165)	22,000.00	14,000.00	12,508.96	
Egypt, Cairo. 1953-1954 (RF 52177, 53164)	14,564.45	.....	9,496.39	
India, Poona. 1953-1955 (RF 52177, 53164, 54165)	28,676.03	26,500.00	19,707.97	

THE ROCKEFELLER FOUNDATION

Johannesburg, Union of South Africa. 1953-1955 (RF 52177, 53164, 54165)	\$ 26,000.00	\$22,000.00	\$15,331.28
Trinidad, Port of Spain. 1953-1955 (RF 52177, 53164, 54165)	102,949.19	60,000.00	83,361.19
California. 1954-1955 (RF 53164, 54165)	11,800.00	44,500.00	6,953.97
Contingent, 1953-1955 (RF 52177, 53164, 54165)	5,000.00	23,000.00	.....
<b>France</b>			
Pasteur Institute, Paris			
To purchase equipment for Virus Research Division (RF 52088)	7,761.47	.....	7,681.54
<b>YELLOW FEVER</b>			
United States			
Book on Yellow Fever. 1950-1954 (GA 5001, RF 51098)	6,040.31	.....	5,922.33
Africa			
Uganda. 1949 (IH 48016)	1,056.03	.....	Cr. 24.31
West Africa. 1954 (GA 5498)	894.79	.....	894.79
<i>Development of the Health Sciences</i>			
<b>UNITED STATES</b>			
Child Research Center of Michigan, Detroit			
Genetics of sickle cell anemia and allied disorders (RF 54185)	.....	66,000.00	.....
Child Research Council of Denver, Colorado			
Studies in child growth and development (RF 49116, 50068, 51154)	62,500.00	.....	25,000.00
Georgia State College for Women, Milledgeville			
Research in medical genetics (RF 52042)	363.16	.....	.....
Harvard University, Cambridge, Massachusetts			
Research on physiological aspects of the development of behavior patterns at the Laboratory of Social Relations (RF 51179)	29,073.64	.....	11,001.67
Investigation of personality (RF 52093)	15,000.00	.....	15,000.00

**MEDICINE AND PUBLIC HEALTH — *continued******Development of the Health Sciences — *continued******UNITED STATES — *continued***

	PRIOR YEARS	1954	1954 PAYMENTS
Teaching and research in psychiatry in the Harvard Medical School (RF 48055)	\$ 6,548.30	\$.....	\$ 6,283.89
Field study of population problems in India (RF 53173)	50,450.00	.....	18,000.00
Indiana University, Bloomington			
Research in psychotherapy (RF 52113)	24,577.50	.....	15,143.23
Massachusetts General Hospital, Boston			
Research in endocrinology and metabolism (RF 52129)	4,000.00	.....	2,000.00
National Research Council, Washington, D. C.			
Committee for Research in Problems of Sex (RF 51063, 54036)	40,000.00	150,000.00	87,656.96
New England Medical Center, Boston, Massachusetts			
Research in endocrinology (RF 50076)	16,000.00	.....	.....
New York University, New York			
Interdepartmental project on the rehabilitation of neurological patients (RF 51169)	47,382.75	.....	27,259.96
Research in Pharmacology (RF 54082)	.....	6,000.00	6,000.00
Princeton University, New Jersey			
Work of the Department of Psychology (RF 53057)	75,000.00	.....	75,000.00
Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine			
Studies of genetic factors of intelligence and emotional variation in mammals (RF 52080, 53074)	100,000.00	.....	50,000.00
University of California, Berkeley			
Establishment of an Institute for Personality Assessment and Research (RF 53092)	33,236.00	.....	33,234.64
University of Illinois, Urbana			
Research in brain chemistry (RF 51090)	4,992.59	.....	2,832.46

<b>University of Minnesota, Minneapolis</b>			
Research in human genetics at The Dight Institute of Human Genetics (RF 51016, 54076)	\$1,655.26	\$19,400.00	\$.....
Salary of a physiologist in the Department of Physiology (RF 54106)	.....	19,500.00	6,000.00
<b>University of Oregon Medical School, Portland</b>			
For work in constitutional medicine (RF 51004)	54,628.76	.....	11,412.60
<b>Washington University, St. Louis, Missouri</b>			
School of Medicine			
Research and training in disorders of the skin (RF 54177)	.....	400,000.00	400,000.00
<b>Yerkes Laboratories of Primate Biology, Orange Park, Florida</b>			
Building and general budget (RF 50073, 51121)	60,006.04	.....	60,000.00
<b>CANADA</b>			
<b>Dalhousie University, Halifax</b>			
Joint study by the Department of Obstetrics and Gynecology and by the Department of Psychiatry of psychological factors in pregnancy and childbirth (RF 51007)	7,500.00	.....	1,375.17
<b>McGill University, Montreal</b>			
Maintenance of Department of Psychiatry (RF 49033, 54043)	6,765.85	47,250.00	25,158.28
Research on physiological basis of behavior (RF 51172, 54058)	13,824.01	60,900.00	13,824.01
<b>University of Saskatchewan</b>			
Studies of schizophrenia (RF 54100)	.....	121,275.00	39,573.24

		APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS	312
<b>MEDICINE AND PUBLIC HEALTH — <i>continued</i></b>					
<i>Development of the Health Sciences — <i>continued</i></i>					
<b>MEXICO</b>					
National Institute of Cardiology, Mexico City					
Research in neurophysiology and pharmacology (RF 49036)	\$ 5,000.82	\$.....	\$1,310.86		
<b>CARIBBEAN AREA</b>					
Dominican Republic					
Endemic Disease Control Service, 1953-1954 (GA 52118, 53116)	2,007.44	.....	1,836.38		
<b>SOUTH AMERICA</b>					
Chile					
Local Health Work, 1954 (GA 53128)	1,000.00	.....	918.41		
National Department of Sanitary Engineering, 1953 (RF 52190)	11,388.61	.....	11,234.85		
Peru					
Division of Development of Program of Ministry of Health, 1948-1953 (IH 48036, 50170)	39,484.19	.....	38,670.79		
<b>EUROPE</b>					
Belgium					
University of Brussels					
Research in neurophysiology (RF 50088)	13,328.60	.....	4,133.50		
University of Liège					
Development of the Laboratory of Neuroanatomy (RF 50143)	2,783.99	.....	.....		
Denmark					
National Health Department, 1952-1954 (RF 52017)	1,289.50	.....	.....		

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University of Aarhus			
Development of research and teaching in psychiatry (RF 49004)	\$ 6,592.74	\$.....	\$1,765.28
University of Copenhagen			
Establishment of a Child Guidance Clinic (RF 50009)	17,157.51	.....	7,770.86
Research in genetics of mental defect (RF 54105)	.....	14,200.00	1,396.80
France			
Collège de France, Paris			
Equipment for an experimental monkey station in Algeria (RF 49001)	1,057.14	.....	.
University of Aix-Marseilles			
Equipment for research in neurophysiology (RF 54010)	.....	30,000.00	10,977.51
Germany			
University of Heidelberg			
Institute of Psychosomatic Medicine. Establishment and support (RF 53099)	9,457.13	.....	.....
University of Würzburg (Julius-Maximilians-Universität)			
Neurological research (RF 52041)	2,726.39	.....	2,726.39
Great Britain			
Burden Neurological Institute, Bristol			
Research in neurophysiology (RF 52122)	17,986.00	.....	9,167.79
St. Thomas' Hospital Medical School, London			
Research on relationship between physical form and physiological function in man and their development during growth (RF 52096)	9,370.56	.....	6,631.86
Tavistock Institute of Human Relations, London			
General Support (RF 52001)	65,775.93	.....	19,709.38
University of Birmingham			
Research in psychiatry and in the biochemistry and pharmacology of the nervous system (RF 53104)	86,400.00	.....	19,076.60

		APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
<b>MEDICINE AND PUBLIC HEALTH — <i>continued</i></b>				
<i>Development of the Health Sciences — <i>continued</i></i>				
<b>EUROPE — <i>continued</i></b>				
University of Cambridge				
Research in neurophysiology (RF 50024)	\$5,734.80	\$.....		\$2,767.04
University of London				
Galton Laboratory				
Research in problems of human heredity (RF 50085)	14,695.68	.....		8,525.11
Maudsley Hospital				
Psychological effects of frontal-lobe operations in the Institute of Psychiatry (RF 53131)	23,400.00	.....		11,175.01
University of Oxford				
Neurohistological research in the Department of Hu- man Anatomy (RF 48058, 53105)	64,632.12	.....		16,323.63
Welsh Regional Hospital Board, Cardiff				
Support of the Neuropsychiatric Research Centre at Whitchurch Hospital, Cardiff, Wales (RF 53027)	20,931.50	.....		3,358.00
Italy				
Institute of Experimental Psychology, Florence				
Research on the psychological aspects of school-child health and development (RF 52163)	11,721.87	.....		7,458.06
Superior Institute of Public Health, Rome				
Research on the biology of the housefly (RF 52144)	36,362.41	.....		23,479.62
University of Pavia				
Institute of Zoology. Research on the cytogenetics of anopheline mosquitoes (GA 5010, RF 52147, 54133)	4,172.66	21,600.00		6,475.00

University of Pisa			
Support of teaching and research in the Department of Physiology (RF 51100, 54108)	\$1,986.81	\$25,000.00	\$3,311.53
Netherlands			
University of Amsterdam			
Support of the Psychosomatic Unit at the Wilhelmina Hospital (RF 51153)	33,474.05	.....	10,274.51
University of Utrecht			
Support of teaching and research at the Institute of Clinical and Industrial Psychology (RF 54109)	.....	8,875.00	.....
Norway			
University of Oslo			
Institute of Respiratory Physiology. Research (RF 54007)	.....	31,950.00	10,973.06
Investigation of the incidence of mental disease (RF 51026)	570.00	.....	.....
Research in the epidemiology of mental disease (RF 54107)	.....	17,225.00	4,917.50
Sweden			
University of Lund			
Research in endocrinology (RF 53032)	3,468.10	.....	3,055.72
Switzerland			
University of Geneva			
Support of an Institute of Human Genetics (RF 54017)	.....	10,000.00	4,666.00
University of Zurich			
Psychiatric research (RF 50144)	6,963.89	.....	3,253.10
AUSTRALIA			
Walter and Eliza Hall Institute, Melbourne			
Equipment for research on virus diseases (RF 51064)	1,952.69	.....	1,444.33

	APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
<b>MEDICINE AND PUBLIC HEALTH — <i>continued</i></b>			
<i>Development of the Health Sciences — <i>continued</i></i>			
<b>FAR EAST</b>			
India			
Indian Cancer Research Centre, Bombay			
Operation of a laboratory for studies on human variation (RF 52192)	\$14,349.61	\$.....	\$3,834.96
Mysore State Department of Public Health			
Improvement of laboratory services. 1953-1954 (GA 52138)	6,000.00	.....	5,546.65
<b>Medical Care</b>			
<b>UNITED STATES</b>			
American Psychiatric Association, New York			
Study of mental hospital design, construction and equipment (RF 53060)	76,100.00	.....	76,100.00
American Public Health Association, Washington, D. C.			
Support of Subcommittee on Medical Care. 1952-1956 (RF 52055)	72,591.41	.....	32,591.41
Health Insurance Plan of Greater New York			
Study of the recorded experience of the Plan (RF 54020)	.....	20,500.00	20,500.00
Study to determine the type of worker, or workers, required to provide certain basic health and social welfare services within the family (RF 51152)	4,426.86	.....	4,426.86
University of North Carolina, Chapel Hill			
Division of Health Affairs, Study of general medical practice (RF 53050, 54186)	9,390.00	15,000.00	4,695.00
<b>CANADA</b>			
University of Toronto			
Faculty of Medicine and the School of Hygiene. Teaching in medical care (RF 5406S)	.....	29,150.00	8,590.07

**FRANCE**

Social Hygiene Association of the Aisne, Soissons  
 Support of Soissons Centre de la Santé Publique (RF  
 53090)

\$124,391.68 \$..... \$35,511.27

**GREAT BRITAIN**

Victoria University of Manchester  
 Development of an experimental Health Center (IH  
 50101)

\$7,500.00 ..... 45,845.67

**WEST INDIES**

Department of Health, Puerto Rico  
 Survey of the medical and public health facilities in the  
 Bayamón region (RF 54102)

..... 63,500.00 31,750.00

*Professional Education***UNITED STATES**

Cornell University, Ithaca, New York

Statistical consultant in the Department of Preventive  
 Medicine at the Medical College (RF 51119)

14,784.03 ..... 7,286.23

Harvard University, Cambridge, Massachusetts

Support of School of Public Health (RF 45109)

200,000.00 ..... 100,000.00

Development of legal medicine (RF 44001, 52075)

62,111.73 ..... 24,187.18

Development of the Department of Dermatology of  
 Harvard Medical School (RF 48039)

50,876.17 ..... 9,803.75

Research and teaching of complete family medical care  
 (RF 54092)

..... 275,000.00 54,803.74

Johns Hopkins University, Baltimore, Maryland

Institute of the History of Medicine, Support (RF 53085)

..... 200,000.00\* .....

School of Hygiene and Public Health

For developmental purposes (RF 48037)

305,000.00 ..... 75,000.00

\* Appropriation for which funds were previously authorized.

MEDICINE AND PUBLIC HEALTH — *continued**Professional Education — continued**UNITED STATES — continued*

	PRIOR YEARS	1954	1954 PAYMENTS
Salaries of temporary staff to replace regular staff assigned to Institute of Hygiene of the University of the Philippines (RF 53068)	\$ 8,000.00	\$.....	\$.....
National League for Nursing, Inc., New York For program of the National Nursing Accrediting Service (RF 54127)	.....	63,771.00	22,357.00
New England Center Hospital, Boston, Massachusetts Postgraduate medical education in certain rural areas and towns in Massachusetts (RF 50100)	10,730.47	.....	1,974.71
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)	26,550.00	.....	11,618.66
Teachers College, Columbia University, New York Nursing education research, experimentation and field service (RF 52103)	76,771.40	.....	11,299.54
Vanderbilt University, Nashville, Tennessee For use by the Department of Pediatrics of the School of Medicine in the exchange of senior assistants (RF 53157)	3,000.00	.....	500.00
Washington University, St. Louis, Missouri School of Medicine. Teaching of preventive medicine (RF 52111)	47,300.00	.....	14,900.00
Yale University, New Haven, Connecticut Work in the history of medicine (RF 51065)	6,000.00	.....	3,000.00

## CANADA

University of Toronto

School of Nursing. Construction of new building (RF  
45037)

\$45,364.01 \$..... \$45,364.01

## MEXICO

National Institute of Cardiology, Mexico City

Equipment (RF 52082)

9,878.61 ..... 8,159.97

Support of the Laboratories of Physiology and Pharma-  
cology. Outright grant (RF 54005)

..... 50,000.00 50,000.00

Children's Hospital, Mexico City

Toward development of a research and training program  
(RF 54180)

..... 150,000.00 .....

## WEST INDIES

Puerto Rico

University of Puerto Rico, San Juan. Development of the  
Medical School Library (RF 54021)

..... 25,000.00 10,000.00

## SOUTH AMERICA

Brazil

Araraquara Rural Health Training Center. 1953-1955  
(GA 52114, RF 53155)

12,095.67 ..... 3,937.26

Chile

Catholic University of Chile, Santiago

Apparatus and research expenses of the Departments  
of Physiology, Neurophysiology, and Physiopathol-  
ogy of the Medical School (RF 51131)

2,839.58 ..... 2,307.50

Department of Neurosurgery. Salary and equipment  
(RF 53013)

7,500.00 ..... 6,600.00

	APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
<b>MEDICINE AND PUBLIC HEALTH — <i>continued</i></b>			
<i>Professional Education — <i>continued</i></i>			
<b>SOUTH AMERICA — <i>continued</i></b>			
School of Public Health, University of Chile, Santiago	\$558.41	\$.....	\$505.23
Courses for sanitary engineers (GA 51121)			
Colombia			
National University of Colombia, Bogotá			
Faculty of Medicine. Purchase of equipment (RF 54044)		60,000.00	.....
University of Valle, Cali			
Faculty of Medicine. Development of the Department of Preventive Medicine and Public Health and associated activities (RF 54179)		504,000.00	.....
Uruguay			
University Nursing School, Montevideo			
General budget (IH 47054)	12,671.51	.....	2,527.04
<b>EUROPE</b>			
<b>Austria</b>			
University of Vienna			
Local fellowships for training in child psychiatry (RF 52162)	12,692.95	.....	5,482.51
Belgium			
University of Brussels			
Support of the Department of Social Medicine (RF 52034)	18,999.37	.....	3,636.06

<b>Finland</b>				
Helsinki Institute of Industrial Hygiene				
Scientific equipment (IH 49026)	\$1,261.77	\$.....	\$.....	
University of Helsinki, Medical School				
Research and teaching positions for assistants in basic science institutes (RF 53054)	67,500.00	.....	11,340.00	
State Medical Board of Finland, Helsinki				
Support of training program of the Uusimaa field demonstration and teaching area (RF 54009)	.....	32,500.00	13,050.00	
<b>France</b>				
Association for the Mental Health of Children, Paris				
Development of child mental health teaching and research (RF 52158)	89,367.82	.....	24,955.48	
<b>Germany</b>				
Health Authority of The Free Hanseatic City of Hamburg. Teaching program (RF 53147)	35,000.00	.....	11,691.89	
Technical Institute, Stuttgart				
Education and research in sanitary engineering (RF 53094)	39,498.08	.....	9,158.00	
University of Heidelberg				
School of Nursing. Teaching material and equipment and travel of staff (RF 52123)	5,570.81	.....	4,573.44	
Teaching and research at the Physiological Institute (RF 52097)	3,114.54	.....	2,487.70	
<b>Great Britain</b>				
Institution of Civil Engineers, London				
Bursaries for graduate training and research in public health engineering in universities in the United Kingdom (RF 52086, 54181)	13,543.78	48,000.00	11,181.15	

**MEDICINE AND PUBLIC HEALTH — *continued****Professional Education — *continued***EUROPE — *continued**

	PRIOR YEARS	1954	1954 PAYMENTS
London School of Hygiene and Tropical Medicine Public health practice experiments (RF 53026)	\$49,490.80	\$.....	\$24,504.03
Royal Technical College, Glasgow, Scotland Support of postgraduate training and research facilities (RF 54124)	.....	82,000.00	.....
University of Durham King's College, Newcastle-upon-Tyne. Toward program in public health engineering (RF 54104)	.....	48,000.00	10,318.05
University of Edinburgh, Scotland Faculty of Medicine. Teaching of family practice (RF 52140)	75,000.00	.....	29,606.98
University of London University College. Study of medical student selection (RF 48008, 52160)	35,165.01	.....	12,268.97
Italy University of Naples Education and research in sanitary engineering (RF 53095)	44,922.50	.....	5,260.71
Netherlands Institute of Preventive Medicine, Leiden Development of Institute (IH 49035)	32,119.00	.....	17,029.31
University of Utrecht Teaching and research at the Institute of Clinical and Industrial Psychology (RF 51132)	1,953.14	.....	1,953.14

<b>Sweden</b>				
Karolinska Institute, Stockholm				
Construction of a laboratory for the department of experimental surgery (RF 52004)	\$200,000.00	\$.....	\$193,400.00	
<b>Switzerland</b>				
Le Bon Secours School of Nursing, Geneva				
Development of graduate and undergraduate nursing education programs (RF 52187)	25,494.75	.....	12,842.68	
<b>Yugoslavia</b>				
Institute of Hygiene and School of Engineering, Zagreb				
Development of School of Public Health Engineering (IH 50127)	3,994.71	.....	2,646.03	
<b>Miscellaneous</b>				
European symposia on medical education (RF 52024)	9.27	.....	Cr. 41.95	
<b>FAR EAST</b>				
<b>India</b>				
Indian Council of Medical Research, New Delhi				
Fellowships (RF 53044)	97,729.16	.....	14,272.42	
Sawai Man Singh Medical College, Jaipur				
Research equipment (RF 53115)	18,523.64	.....	11,500.42	
<b>Japan</b>				
Institute of Public Health, Tokyo				
For equipment, teaching, and field training facilities (RF 53098)	57,304.84	.....	36,756.42	
Keio University, Tokyo				
For equipment for cardio-pulmonary research laboratory in the Department of Medicine (RF 52095)	270.40	.....	20.27	

	APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
<b>MEDICINE AND PUBLIC HEALTH — <i>continued</i></b>			
<i>Professional Education — continued</i>			
<b>FAR EAST — <i>continued</i></b>			
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)	\$12,210.00	\$.....	\$4,192.50
<b>NEAR EAST</b>			
Lebanon			
American University of Beirut			
For development and operation of its medical division (RF 53001)	300,000.00	.....	.....
<b>AUSTRALIA</b>			
University of Melbourne			
Equipment and supplies for the Department of Physiology (RF 51162)	4,841.19	.....	430.17
<b>AFRICA</b>			
South Africa			
University of Natal, Durban			
For the development of a department of family practice (RF 54121)	.....	127,200.00	.....
<i>Fellowships and Grants in Aid</i>			
<b>FELLOWSHIPS</b>			
Administered by The Rockefeller Foundation (RF 50153, 51220, 52146, 52194, 53182, 54162)	671,372.69	400,000.00	347,803.61
Medical Library Association, Detroit, Michigan			
Fellowships in medical librarianship (RF 51075, 54081)	6,150.00	15,000.00	5,800.00

Medical Research Council of Great Britain, London (RF 52008, 54003)	\$23,409.09	\$125,000.00	\$25,696.06
National Research Council, Washington, D. C.			
Medical Sciences (RF 51151, 54035)	50,000.00	150,000.00	40,312.00
Welch Fellowships in internal medicine (RF 41028)	6,615.97	.....	2,615.44
GRANTS IN AID			
Administered by The Rockefeller Foundation (RF 47089, 47138, 48142, 50090, 51159, 51224, 52198, 53106, 53183, 54163)	697,001.82	350,000.00	361,512.45
Special Emergency Grant in Aid Fund			
Scientific equipment for medical science laboratories of universities and technical schools in the Netherlands (RF 45089)	6,382.45	.....	.....
Field Service			
FIELD STAFF			
Salary, Travel and Other Expenses, 1953-1955 (RF 52176, 53163, 54164)	769,082.82	660,000.00	654,909.72
Miscellaneous			
Department of Public Health, Sacramento, California			
Toward support of a chronic disease epidemiology center (RF 54152)	.....	150,000.00	.....
Exchange Fund (IH 33077)	14,161.66	.....	.....
Revolving Fund to provide working capital (RF 29093)	200,000.00	.....	.....
Rockefeller Institute for Medical Research, New York			
General expense of administration and operation (RF 53165, 54166)	50,000.00	50,000.00	50,000.00
TOTALS -- MEDICINE AND PUBLIC HEALTH	<u>\$6,642,606.55</u>	<u>\$5,102,796.00</u>	<u>\$4,236,837.57</u>

## NATURAL SCIENCES AND AGRICULTURE

*Experimental Biology*

	PRIOR YEARS	APPROPRIATIONS 1954	1954 PAYMENTS
Amherst College, Massachusetts Research in biology (RF 51110)	\$18,600.00	\$.....	\$9,300.00
California Institute of Technology, Pasadena Research programs in biology and chemistry (RF 48030, 53176)	1,716,877.55	.....	59,207.55
Carlsberg Foundation, Copenhagen, Denmark Research in biochemistry (RF 51157)	22,290.87	.....	8,627.39
Collège de France, Paris Research in biochemistry (RF 53154)	15,000.00	.....	8,826.56
Columbia University, New York Research on enzymes in the Department of Medicine, College of Physicians and Surgeons (RF 52040)	6,000.00	.....	6,000.00
Research in immunochemistry (RF 51018, 54113)	16,000.00	7,500.00	14,000.00
Research in genetics and experimental zoology (RF 48076, 51069, 54063)	19,712.11	50,000.00	11,260.94
Research in marine biology (RF 54087)	.....	90,000.00	1,500.00
Research in the Department of Biochemistry, College of Physicians and Surgeons (RF 50078, 51006, 51186, 52104)	110,324.14	.....	40,997.80
Connecticut Agricultural Experiment Station, New Haven Research in genetics (RF 48018, 54074)	1,798.45	25,000.00	863.22
Cornell University, Ithaca, New York Research in biochemistry (RF 53178)	150,000.00	.....	10,000.00
Research in enzyme chemistry (RF 49082)	4,380.78	.....	Cr. 10.44
To assist in establishing an Electron Microscope Labora- tory (RF 49069)	2,500.00	.....	2,500.00

Duke University, Durham, North Carolina				
Research on physical biochemistry of proteins (RF 49070)	\$97,995.98	\$.....	\$.....	
Federal Technical Institute, Zurich, Switzerland				
Research on chemistry of physiologically important compounds (RF 51058)	15,169.74	.....	12,214.31	
Gordon Research Conferences of the American Association for the Advancement of Science				
Expenses of foreign scientists at conferences (RF 52018, 54132)	11,055.00	30,000.00	10,000.00	
Harvard University, Cambridge, Massachusetts				
Research in the Medical School on problems of tissue structure (RF 51052)	33,421.50	.....	5,818.45	
Research in enzyme chemistry (RF 50020)	4,950.21	.....	1,462.35	
Research on the biochemistry of vision (RF 52068)	11,689.50	.....	5,917.54	
Haskins Laboratories, New York				
Research in protozoological chemistry (RF 52145)	5,000.00	.....	5,000.00	
Indiana University, Bloomington				
Research in genetics (RF 51051)	89,692.20	.....	39,809.94	
Iowa State College, Ames				
Research in physiological genetics (RF 49028)	3,000.00	.....	3,000.00	
Research in protein chemistry (RF 51028)	2,054.22	.....	1,963.22	
Johns Hopkins University, Baltimore, Maryland				
Biochemical research (RF 50105, 53022)	103,500.16	.....	34,500.00	
Protein biochemistry research (RF 54110)	.....	5,000.00	5,000.00	
Karolinska Institute, Stockholm, Sweden				
Anatomical Institute. Research in electron microscopy (RF 53135, 54134)	24,000.00	6,000.00	395.14	
Institute of Chemistry. Research in biochemistry (RF 47100)	8,035.74	.....	991.69	

**NATURAL SCIENCES AND AGRICULTURE — *continued****Experimental Biology — *continued**

	APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
Department of Physical Cell Research. Equipment for biophysics research (RF 54153)	\$.....	\$15,000.00	\$14,000.00
Institute for Cell Research. Research in biophysics (RF 54022)	.....	30,000.00	.....
Medical Nobel Institute, Department of Biochemistry. Research (RF 50017)	7,090.63	.....	5,884.70
McMaster University, Hamilton, Canada			
Research in the Department of Chemistry (RF 54115)	.....	6,300.00	6,168.75
Marine Biological Laboratory, Woods Hole, Massachusetts			
General Budget (RF 54099)	.....	100,000.00	20,000.00
Massachusetts General Hospital, Boston			
Research in enzyme chemistry (RF 52003)	53,650.00	.....	8,999.94
Massachusetts Institute of Technology, Cambridge			
Research in physical chemistry of protein solutions (RF 52157)	36,797.33	.....	12,750.29
Research in X-ray crystallography (RF 53081)	5,000.00	.....	2,975.00
Ministry of Public Health, Montevideo, Uruguay			
Equipment and expenses of the Institute of Biological Research (RF 49008, 52011)	60,515.07	.....	13,917.98
Montreal General Hospital, Canada			
Biochemical research (RF 53076)	19,000.00	.....	11,018.00
National Research Council, Washington, D. C.			
Support of American Institute of Biological Sciences (RF 51117)	5,000.00	.....	5,000.00
Support of program of Committee on Development of Biology (RF 51123)	1,427.06	.....	1,427.06

National University of Mexico, Mexico City			
Institute of Chemistry, Equipment and supplies (RF 52189)	\$50,000.00	\$.....	\$38,028.37
New York Botanical Garden, New York			
For research in basic plant biochemistry (RF 54066)	.....	35,000.00	.....
New York University, New York			
Research in enzyme chemistry (RF 54150)	.....	100,000.00	47,125.00
Northwestern University, Evanston, Illinois			
Research in the physical chemistry of proteins (RF 52066)	14,000.00	.....	9,428.41
Pasteur Institute, Paris, France			
Research in microbial chemistry (RF 54126)	.....	50,000.00	514.82
Pennsylvania State University, University Park			
Biophysical research (RF 51124)	7,352.00	.....	7,303.93
Polytechnic Institute of Brooklyn, New York			
Research on protein structure (RF 51180, 52083, 53063)	130,000.00	.....	32,500.00
Purdue University, Lafayette, Indiana			
Research in genetics (RF 52038)	11,250.00	.....	11,090.26
Royal Institution of Great Britain, London			
Toward expenses of research on the structure of proteins (RF 54136)	.....	15,000.00	.....
Smith College, Northampton, Massachusetts			
Work in genetics (RF 53120, 54155)	4,500.00	10,000.00	3,097.97
Society for Experimental Biology, London, England			
Expenses of American delegates to annual conferences on biological subjects (RF 52043)	7,500.00	.....	2,373.50

NATURAL SCIENCES AND AGRICULTURE — *continued**Experimental Biology — continued*

	APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
Stanford University, Palo Alto, California			
Biochemical research (RF 51076)	\$8,160.23	\$.....	\$3,244.97
Research in biochemistry of nucleic acids (RF 51077)	5,290.63	.....	4,280.16
Research in biology (RF 53020)	250,000.00	.....	100,000.00
Research in physical biochemistry (RF 51102)	2,425.21	.....	.....
State University of Iowa, Iowa City			
Research in genetics (RF 53071)	14,880.00	.....	6,746.58
Strangeways Research Laboratory, Cambridge, England			
For the purchase of an electron microscope for research in experimental biology (RF 54128)	.....	30,000.00	.....
Tokugawa Institute for Biological Research, Tokyo, Japan			
Equipment and research expenses (RF 53174)	25,000.00	.....	4,850.29
Tufts College, Medford, Massachusetts			
Program on nucleic acid chemistry (RF 51021, 54018)	3,761.18	3,000.00	2,240.77
University College, Dublin, Ireland			
Research in biochemistry in the Department of Bio- chemistry and Pharmacology (RF 51029, 54027)	103.38	12,000.00	3,794.93
University of Aarhus, Denmark			
Research in biochemistry (RF 52148)	7,817.50	.....	2,241.59
University of Amsterdam, Netherlands			
Research in experimental embryology at the Laboratory of Anatomy and Embryology (RF 53139)	15,000.00	.....	9,783.85
Research on tissues in the Laboratory of Histology (RF 50095)	18.00	.....	.....
University of Basel, Switzerland			
Research in organic chemistry (RF 54151)	.....	21,000.00	.....

University of Bern, Switzerland				
Theodor Kocher Institute. Equipment and assistance to foreign guests (RF 50074, 54075)	\$ .05	\$25,000.00	\$4,756.90	
Institute of Botany. Research in plant physiology (RF 54156)	.....	8,500.00	8,500.00	
University of Birmingham, England				
Research in biochemistry (RF 51137, 54137)	9,521.09	15,000.00	8,151.55	
University of Brazil, Rio de Janeiro				
Institute of Biophysics Research (RF 49020, 52012)	6,326.74	.....	3,910.04	
Research expenses in the Center of Genetics Research, Faculty of Philosophy (RF 53122)	7,500.00	.....	.....	
University of California, Berkeley				
Research in biochemistry (RF 51078, 52044)	5,060.00	.....	4,891.56	
Research in the comparative biochemistry of marine organisms (RF 49009)	172.23	.....	Cr. 163.23	
Research on the biochemistry of marine microorganisms (RF 52059)	17,708.93	.....	11,457.26	
Research in photosynthesis (RF 54001)	.....	18,500.00	7,000.00	
Research in the Virus Laboratory (RF 54095) (Joint Project with Medicine and Public Health)	.....	210,000.00	40,000.00	
University of Cambridge, England				
Cavendish Laboratory. X-ray crystallography research equipment (RF 53156)	4,000.00	.....	4,000.00	
Molteno Institute of Biology and Parasitology. Equipment for research (RF 54157)	.....	7,500.00	.....	
Equipment for research in biochemistry (RF 51138, 53127)	25,269.30	.....	23,260.59	
Research on biologically important materials (RF 51112)	53,631.05	.....	33,046.54	
University Chemical Laboratory. Research equipment and supplies (RF 50112)	783.17	.....	37.43	

		APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
NATURAL SCIENCES AND AGRICULTURE — <i>continued</i>				
<i>Experimental Biology — continued</i>				
University of Chicago, Illinois				
Research in experimental ecology (RF 50094, 53015)	\$6,501.92	\$.....		\$3,204.42
University of Chile, Santiago				
Research in experimental cytology in the Juan Noe Institute of Biology (RF 53016)	6,545.71	.....		2,687.53
University of Copenhagen, Denmark				
Research on the biological uses of isotopes (RF 51158)	12,000.00	.....		6,000.00
Research in biochemistry (RF 52045)	4,500.00	.....		4,496.64
Research in physiology in the Institute of Neurophysiology (RF 52133)	11,108.58	.....		4,091.49
University of Edinburgh, Scotland				
Department of Animal Genetics. Establishment of several studentships for young scientists (RF 50116)	1,499.06	.....		1,406.25
Department of Chemistry Equipment (RF 51033)	260.37	.....		68.76
Toward expenses of structural investigations in the field of natural high polymers (RF 54125)	.....	45,000.00		.....
University of Florida, Gainesville				
Research in ecology (RF 53035)	3,000.00	.....		3,000.00
University of Geneva, Switzerland				
Research in Organic Chemistry (RF 50081)	1,099.00	.....		.....
University of Glasgow, Scotland				
Toward expenses of conferences of European scientists interested in genetic problems (RF 54138)	.....	7,500.00		.....
University of Illinois, Urbana				
Program of research in entomology (RF 53070)	20,705.00	.....		4,295.00

Program of research and advanced training in microbiology in the Department of Bacteriology (RF 53096)	\$27,000.00	\$.....	\$4,000.00
Research on the biochemistry of insects (RF 54038)	.....	75,000.00	13,389.00
University of Leiden, Netherlands			
Purchase of equipment for the Laboratory of Experimental Histology (RF 53014)	1,000.00	.....	1,000.00
University of London, England			
King's College			
Research in biophysics (RF 50065, 54130)	15,522.50	30,000.00	12,155.09
Purchase of an electron microscope for research in biophysics (RF 54006, 54112)	.....	30,000.00	.....
Imperial College of Science and Technology. Research on the organic chemistry of biologically important molecules (RF 52046)	11,039.32	.....	2,782.96
University College. Research in mammalian genetics in the Department of Eugenics, Biometry and Genetics (RF 53107)	21,000.00	.....	3,272.16
University of Louvain, Belgium			
Research in biochemistry (RF 54154)	.....	15,000.00	3,800.00
Victoria University of Manchester, England			
Equipment for Department of Organic Chemistry (RF 50058)	338.31	.....	.....
Research on the chemistry of biologically important materials (RF 53132)	45,000.00	.....	7,601.90
University of Miami, Florida			
Support of research in marine biology (RF 53089)	65,000.00	.....	29,410.21
University of Munich, Germany			
Research in experimental zoology (RF 52062)	10,000.00	.....	6,500.00

NATURAL SCIENCES AND AGRICULTURE — *continued**Experimental Biology* — *continued*

University of Naples, Italy

Institute of Genetics Research (RF 54072) (Joint Project  
with Medicine and Public Health)

University of Oslo, Norway

Research in plant physiology and X-ray crystallography  
(RF 51190)

University of Oxford, England

Department of Human Anatomy. Development of new  
methods in microscopy and microspectroscopy and  
their application to biological problems (RF 52167)Dyson Perrins Laboratory of Organic Chemistry. Re-  
search in organic chemistry (RF 51155)Sir William Dunn School of Pathology. Equipment for  
research (RF 53141)Chemical Crystallography Laboratory. Research in X-ray  
crystallography (RF 52149)

University of Paris, France

Research in biochemistry in the Laboratory of Biological  
Chemistry (RF 51187)Research in the Laboratory of Physical Chemistry (RF  
53140)

University of Pennsylvania, Philadelphia

Research in zoology (RF 53053)

University of Pittsburgh, Pennsylvania

Research on the chemistry of fats and proteins (RF 49019,  
52065)

	APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
	3.....	\$28,000.00	\$2,437.50
	25.40	.....	.....
	8,421.77	.....	6,263.46
	12,721.26	.....	6,748.65
	7,500.00	.....	6,450.85
	3,720.75	.....	3,367.88
	11,715.73	.....	5,363.46
	15,000.00	.....	5,809.50
	123,000.00	.....	19,976.11
	9,173.15	.....	5,496.34

University of São Paulo, Brazil			
Faculty of Medicine			
Research in Laboratory of Histology and Embryology (RF 51103, 53119)	\$12,876.05	\$.....	\$9,142.39
Research expenses at Ribeirão Preto (RF 53145)	50,000.00	.....	20,048.57
University Radiochemistry Laboratory. Work with radioactive isotopes in experimental biology and medicine (RF 50146)	3,297.35	.....	1,091.05
Faculty of Philosophy. Equipment for research in the De- partment of Physics (RF 45061)	858.90	.....	35.80
University of Sheffield, England			
Research in biochemistry (RF 51114, 54050)	10,852.24	80,000.00	11,583.97
University of Stockholm, Sweden			
Research in radiobiology (RF 53036)	4,200.00	.....	2,875.41
University of Texas, Austin			
Research in genetics (RF 51089, 54045)	422.03	100,000.00	20,422.03
University of Uppsala, Sweden			
Researches in Institute of Physical Chemistry (RF 53126)	35,000.00	.....	7,691.63
Researches in Institute of Physiology (RF 49126)	1,651.21	.....	1,336.66
Equipment for research on proteins and polysaccharides (RF 49142)	4,593.25	.....	.....
Research in biochemistry (RF 52141)	35,014.98	.....	9,828.24
University of Utah, Salt Lake City			
Research in enzyme chemistry (RF 52090)	24,000.00	.....	10,048.07
University of Utrecht, Netherlands			
Research in biophysics and biochemistry (RF 49113)	2,685.93	.....	1,000.00

NATURAL SCIENCES AND AGRICULTURE — *continued**Experimental Biology — continued*

University of Washington, Seattle

Research in physical biochemistry of proteins (RF 51091,  
53062)APPROPRIATIONS  
PRIOR YEARS

1954

1954  
PAYMENTS

\$389,873.08 \$..... \$6,500.00

University of Wisconsin, Madison

Research in biochemistry (RF 51171)

22,500.00 ..... 12,311.67

Research in genetics (RF 53108)

21,500.00 ..... 3,500.00

Research in metabolism of plant tissues (RF 51009)

32,830.00 ..... 21,195.19

Research in physical chemistry of the proteins (RF  
50059)

5,352.00 ..... 2,500.00

Research in cytogenetics (RF 53097)

25,000.00 ..... 4,784.93

Research in enzyme chemistry (RF 50047, 52064)

23,878.86 ..... 18,439.55

Washington University, St. Louis, Missouri

Research in experimental embryology (RF 50037)

1,062.46 ..... Cr. 120.89

Research in biochemistry (RF 49117)

7,901.66 ..... 6,958.56

Research in plant physiology and plant biochemistry (RF  
54046)

..... 75,000.00 19,245.00

Research in enzyme chemistry (RF 54149)

..... 50,000.00 4,887.00

Wayne University, Detroit, Michigan

Research on natural plant products (RF 54023)

..... 30,000.00 .....

Woods Hole Oceanographic Institution, Massachusetts

Support of two major appointments in marine biology  
(RF 52078)

37,500.00 ..... Cr. 1,611.16

THE ROCKEFELLER FOUNDATION

<b>Yale University, New Haven, Connecticut</b>			
Biochemical research (RF 51168)	\$43,891.67	\$.....	\$11,218.83
Research in the physical chemistry of proteins (RF 52029)	59,347.21	.....	3,788.72
<b>Zoological Station of Naples, Italy</b>			
General expenses and equipment (RF 51059)	6,000.00	.....	3,000.00
<b>Agriculture</b>			
<b>CENTRAL AMERICA AND MEXICO</b>			
Central America			
Establishment of a corn improvement project (RF 53170, 54172)	30,000.00	50,000.00	16,584.61
Costa Rica			
Inter-American Institute of Agricultural Sciences, Turrialba			
Development of library resources and a scientific communication program (RF 49077)	20,983.06	.....	16,944.02
Development of a tropical dairy cattle project (RF 50057)	1,800.00	.....	1,800.00
Latin American Agricultural Information Center, Turrialba			
Establishment and support (RF 52109)	40,000.00	.....	.....
Honduras			
Pan American Agricultural School, Tegucigalpa Scholarships (RF 54070)	.....	30,000.00	7,500.00
Mexico			
Latin American Scholarships (RF 50151, 51120, 54103)	55,062.12	70,000.00	27,917.75
Mexican Agricultural Program			
Additional greenhouse and farm building facilities at La Piedad, Guanajuato (RF 52180)	771.36	.....	771.36

NATURAL SCIENCES AND AGRICULTURE — *continued**Agriculture — continued*CENTRAL AMERICA AND MEXICO — *continued*

Agricultural Research Centers. For establishment of centers in the states of Sonora and Vera Cruz (RF 54169)

General expenses (RF 51044, 51205, 52179, 53161, 53166, 54168)

Mexican Ministry of Agriculture. Toward costs of an agricultural extension service (RF 53045, 53167)

## Mexico Agricultural Education

To improve agricultural education in Mexico (RF 52108)

Technological Institute, School of Agriculture, Monterrey, Nuevo León (RF 52108, 54140)

Antonio Narro College of Agriculture, Saltillo, Coahuila

National College of Agriculture, Chapingo, State of

Mexico

Research, demonstration and extension program, State of Mexico (RF 51210, 54141)

APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
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\$.....	\$150,000.00	\$.....
254,525.97	209,620.00	163,986.14
117,997.52	.....	54,599.97
26,350.00	.....	.....
21,965.09	60,000.00	8,380.08
3,357.17	.....	3,236.65
34,923.61	.....	10,539.46
24,532.74	30,000.00	16,204.37

## SOUTH AMERICA

## Brazil

Gammon Institute, Lavras, Minas Gerais

College of Agriculture. Development of the College Farm (RF 53110)

Institute of Agronomy, Campinas

Equipment for climatological research (RF 53010)

17,000.00	.....	7,198.22
841.18	.....	289.17

Rural University of the State of Minas Gerais			
Equipment and supplies for the Schools of Agriculture and Veterinary Medicine (RF 52016)	\$2,128.81	\$.....	\$91.39
Equipment for the Department of Domestic Science and materials for the library of the College of Agriculture (RF 54011)	.....	30,000.00	13,567.85
University of Rio Grande Do Sul, Pôrto Alegre			
Equipment supplies and library materials (RF 53149)	25,000.00	.....	15,929.23
University of São Paulo			
Equipment and supplies for work in the Faculty of Veterinary Medicine (RF 51163, 53144, 54114)	32,435.10	5,800.00	23,024.92
Institute of Agronomy, Campinas (RF 50148)	2,552.96	.....	2,080.78
Biological Institute, São Paulo (RF 50149)	647.81	.....	.....
School of Agriculture, Piracicaba (RF 50147)	5,556.08	.....	2,626.38
Chile			
Bacteriological Institute of Chile, Santiago			
Equipment and supplies for work in animal viruses (RF 52007)	5,705.84	.....	2,298.15
Equipment and supplies for the Institute farm and animal colonies (RF 54013)	.....	15,000.00	11,963.15
Operating Program in Agriculture (RF 54173)	.....	60,000.00	.....
Colombia			
Agricultural Experiment Station, El Rubí			
Furnishing expert advice and service in connection with its development (RF 52126)	17,245.16	.....	2,011.98
Agricultural Research Centers			
To strengthen centers at Medellín, Armero, Montería and Palmira (RF 54171)	.....	40,000.00	.....

**NATURAL SCIENCES AND AGRICULTURE — *continued****Agriculture — continued**SOUTH AMERICA — continued*

	APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
Collaborative Operating Program in Agriculture (RF 51206, 52175, 52181, 53162, 53168, 54170)	\$128,524.12	\$100,500.00	\$81,794.46
Inter-American Society of Plant Breeders, Plant Pathologists, and Entomologists			
Expenses of conference to be held in 1955 (RF 53007)	21,685.70	.....	.....
Ministry of Agriculture of Colombia			
Experimental greenhouse (RF 53169)	50,000.00	.....	27,214.92
National University of Colombia			
Faculty of Agronomy, Medellín			
Equipment (RF 47117)	710.13	.....	.....
Teaching and research facilities, study trips of staff members, and to assist in bringing foreign visiting professors to the Faculty (RF 49031)	200.00	.....	.....
Faculties of Agronomy at Palmira and Medellín			
Toward cost of student dormitory at each of these agricultural colleges (RF 50102)	11,803.46	.....	8,027.24
Faculty of Agronomy, Palmira			
Teaching and research facilities, study trips of staff members, and to assist in bringing foreign professors to the Faculty (RF 51085)	10,409.90	.....	5.06
Ecuador			
Ministry of Economy			
Equipment and supplies for use in forestation and re-forestation programs (RF 52021)	5,254.01	.....	.....

<b>Peru</b>				
National School of Agriculture, La Molina				
Equipment, supplies, and library materials for a college of advanced and postgraduate studies (RF 52139)	\$6,858.15	\$.....	\$4,515.12	
University of San Marcos, Lima				
Faculty of Veterinary Medicine. Equipment and sup- plies (RF 50150)	44,822.96	.....	1,569.03	
<b>EUROPE</b>				
England				
Marine Biological Association of the United Kingdom, Plymouth				
Development and continuation of special projects in marine biology and oceanography (RF 54122)	.....	30,000.00	3,750.00	
University of London				
Imperial College of Science and Technology. Research program on the physical and chemical properties of water (RF 54057)	.....	18,000.00	2,819.38	
Sweden				
University of Lund				
Institute of Genetics. Research in genetics and plant breeding (RF 52142)	26,000.60	.....	19,500.00	
<b>FAR EAST</b>				
India				
Allahabad Agricultural Institute, Board of Founders, Inc.				
Purchase of agricultural equipment (RF 54014)	.....	12,000.00	12,000.00	
Government of Uttar Pradesh				
Physical Plant (RF 53180)	35,000.00	.....	.....	
Pilot Development Project at Etawah (RF 52053)	100,000.00	.....	9,191.02	341

NATURAL SCIENCES AND AGRICULTURE — *continued**Agriculture — continued*

## UNITED STATES

Alabama Polytechnic Institute, Auburn

Training and research in the field of nematology (RF 54142)

APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
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\$.....	\$45,000.00	\$.....
28,400.00	.....	9,938.64
70,000.00	.....	20,000.00
.....	8,500.00	8,500.00
10,000.00	.....	10,000.00
1,589.98	15,000.00	1,589.98
.....	1,000,000.00	1,000,000.00
11,193.27	.....	5,000.00
.....	100,000.00	15,550.00
15,980.40	.....	13,991.88

California Institute of Technology, Pasadena

Earhart Plant Research Laboratory, Research on the water relations of plants (RF 53051)

Cornell University, Ithaca, New York

Research in the Department of Agronomy of the New York State College of Agriculture (RF 53042)

New York Botanical Garden, New York

Purchase of Carey Recording Spectrophotometer (RF 54016)

Society of American Foresters, Washington, D. C.

Expenses of a survey of forestry research (RF 53003)

University of California, Berkeley

Citrus Experiment Station, Riverside. Research on the mode of action of insecticides (RF 52033, 54111)

Development of a research program in marine biology at the Scripps Institution of Oceanography (RF 54174)

University of Florida, Gainesville

Expenses of a counselor to Latin American students enrolled in agricultural courses (RF 52035)

University of Illinois, Urbana

Research in experimental biology (RF 54037)

Research on the mode of action of insecticides (RF 52032)

University of Minnesota, Minneapolis			
Research in the Departments of Plant Pathology and Botany and of Agronomy and Plant Genetics (RF 53043)	\$60,000.00	\$.....	\$35,414.05
University of North Carolina, Chapel Hill			
Research in mathematical and experimental genetics un- der the auspices of the Institute of Statistics (RF 52186)	136,000.00	.....	34,000.00
<i>Field Service</i>			
<b>FIELD STAFF</b>			
Salary, Travel and Other Expenses, 1953-1955 (RF 52182, 53030, 53171, 54167)	469,572.89	460,000.00	386,599.42
<i>Fellowships and Grants in Aid</i>			
<b>FELLOWSHIPS</b>			
Administered by The Rockefeller Foundation (RF 48139, 49145, 50154, 51221, 52195, 53182, 54162)	626,094.31	300,000.00	229,037.61
National Research Council, Washington, D. C. (RF 50054, 51150)	64,269.10	.....	54,294.73
<b>GRANTS IN AID</b>			
Administered by The Rockefeller Foundation (RF 48143, 49149, 50159, 51225, 52199, 53183, 54163)	879,793.28	450,000.00	402,915.44
<i>Special Projects</i>			
American Academy of Arts and Sciences, Boston, Massa- chusetts			
Interrelationships between Natural Sciences, Social Sci- ences, and Humanities (RF 52020)	5,007.51	.....	5,007.51
National Center for Scientific Research, Paris, France			
Travel of non-French delegates to conferences of scientists (RF 52058)	37,318.96	.....	13,633.20
Conservation Foundation, New York			
Research and general administrative expenses (RF 53091)	63,312.74	.....	23,000.00

**NATURAL SCIENCES AND AGRICULTURE — *continued****Special Projects — continued*

Institute of Biology and Technological Research, Curitiba,  
Brazil

Equipment for a new biological laboratory building (RF  
52009)

National Research Council, Washington, D. C.

Division of Biology and Agriculture. Support of the ac-  
tivities of the Committee on Educational Policies (RF  
54059)

Princeton University, New Jersey

Research in social physics (RF 50167)

University of California, Berkeley

White Mountain Research Station. Support (RF 52117)

University of Chicago, Illinois

Advanced training in applied statistics (RF 51087) (Joint  
project with Social Sciences)

University of Iceland, Reykjavik

Building and equipping an Institute of Experimental  
Pathology (RF 48110)

University of Rio Grande Do Sul, Brazil

For research expenses in the Faculty of Philosophy (RF  
53148)

University of São Paulo, Brazil

Research expenses, equipment and supplies for science  
departments (RF 50145, 53143)

**TOTALS — NATURAL SCIENCES AND AGRI-  
CULTURE**

	PRIOR YEARS	1954	1954 PAYMENTS
	\$40,000.00	\$.....	\$16,761.93
	.....	50,000.00	.....
	3,000.00	.....	3,000.00
	12,008.75	.....	11,999.56
	37,259.75	.....	15,439.88
	21,202.63	.....	21,202.63
	50,000.00	.....	16,226.08
	50,202.94	.....	19,866.25
<b>TOTALS — NATURAL SCIENCES AND AGRI- CULTURE</b>	<b>\$8,259,902.76</b>	<b>\$4,830,220.00</b>	<b>\$4,178,458.45</b>

**SOCIAL SCIENCES**

American Law Institute, Philadelphia, Pennsylvania Preparation of model criminal code with commentaries (RF 51213, 53066)	\$177,999.20	\$.....	\$42,353.32
American Museum of Natural History, New York Study of social change in the Admiralty Islands (RF 52143)	3,550.00	.....	933.45
Bennington College, Vermont Study of interest-group interaction in the political process (RF 51083)	6,433.94	.....	Cr. 1,977.70
Brookings Institution, Washington, D. C. Research and education (RF 52185, 54032)	150,000.00	375,000.00	449,841.56
Preparation of a history of the Federal Reserve System (RF 54061)	.....	310,000.00	53,325.00
Canadian Institute of International Affairs, Toronto General budget (RF 46036)	3,965.56	.....	.....
Clay, Sir Henry For assistance and compensation in a program of study and writing (RF 54079)	.....	15,000.00	.....
Columbia University, New York Development of a program of Far Eastern Studies through the various social sciences departments (RF 48041, 54073)	15,209.22	25,000.00	27,280.00
Program of training in the social sciences (RF 51170)	15,677.46	.....	15,677.46
School of International Affairs General support of the Russian Institute (RF 50133)	160,000.00	.....	100,000.00
Research program of the Russian Institute (RF 54031)	.....	375,000.00	375,000.00
Study of British-Soviet-American relations from 1940 to 1947 (RF 54145)	.....	15,000.00	6,070.00

**SOCIAL SCIENCES — *continued***

	<b>APPROPRIATIONS</b>	<b>1954</b>	<b>PAYMENTS</b>
	<b>PRIOR YEARS</b>	<b>1954</b>	
Columbia University Press, New York			
Toward publication costs of book <i>On Social Survival</i> (RF 52134)	\$2,200.00	\$.....	\$2,200.00
Cornell University, Ithaca, New York			
Development and testing of improved research methods for studies in underdeveloped areas (RF 53002)	43,700.00	.....	25,844.72
Program of research on community action and intergroup relations (RF 50104)	30,639.88	.....	9,947.81
Study of the relation of civil rights to the control of subversive activities in the United States (RF 52098)	9.25	.....	.....
Council on Foreign Relations, Inc., New York			
Study of the sterling area (RF 53101)	17,250.00	.....	17,250.00
Two research and publication projects in the field of international relations (RF 52092)	14,000.00	.....	4,000.00
Crete Survey			
Expenses of a survey in Crete as a means of exploring ways of raising the standard of living in undeveloped countries (RF 48102)	53.47	.....	48.72
Dartmouth College, Hanover, New Hampshire			
Pilot study of the relation of overseas transport to the development of underdeveloped areas (RF 53152)	12,120.00	.....	3,000.00
German School for Political Science, Berlin, Germany			
Preparation of source books and outline manuals in political science (RF 53114)	13,643.80	.....	8,233.10
Dortmund Center for Social Science Research, Germany			
Study of social relations in a steel mill (RF 52159)	11,613.71	.....	10,431.62

Duke University, Durham, North Carolina			
Studies of differences in state per capita incomes (RF 51072)	\$24,936.09	\$.....	\$4,623.16
Research on the history of socio-economic thought (RF 54071)	.....	33,000.00	.....
Polytechnic Institute, Paris, France			
Research and training program of the Econometric Laboratory (RF 53133)	35,997.95	.....	16,582.08
Economic Commission for Europe, United Nations, Geneva, Switzerland			
Study of long-run tendencies in the European economy (RF 52150)	73.15	.....	.....
Fellowships			
Administered by The Rockefeller Foundation (RF 51222, 52196, 53182, 54162)	318,486.88	175,000.00	103,267.69
Australian-New Zealand Social Science Fellowship Committee, Melbourne, Australia			
Administrative expenses (RF 52168)	1,573.12	.....	1,058.44
Canadian Social Science Research Council, Montreal			
For special fellowship assistance (RF 53087)	68,125.00	.....	15,393.75
Program of research and publication and for awards of fellowships and professorial leaves (RF 52112)	117,098.44	.....	88,813.11
Economic Commission for Europe, United Nations, Geneva, Switzerland			
In-service training scholarships (RF 52120)	20,000.00	.....	20,000.00
Social Science Research Council, New York (RF 51054, 53023, 53181)	428,750.00	.....	107,500.00
Fletcher School of Law and Diplomacy, Medford, Massachusetts			
Case Study of United States Commercial Policy (1933-1954) (RF 53128)	35,550.00	.....	21,806.92

SOCIAL SCIENCES — *continued*

	APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
Gokhale Institute of Politics and Economics, Poona, India Economic and demographic research program (RF 51094)	\$17,823.75	\$.....	\$9,016.50
Grants in Aid Administered by The Rockefeller Foundation (RF 46141, 48091, 48144, 50109, 51183, 51226, 52164, 52200, 53153, 53183, 54163)	708,112.32	400,000.00	431,157.48
Grant in Aid Fund for visiting Scholars at Harvard Research Center in Entrepreneurial History (RF 51127)	5,070.00	.....	3,600.00
Harvard University, Cambridge, Massachusetts Research Center in Entrepreneurial History. For research (RF 52081)	90,000.00	.....	29,993.60
Graduate School of Business Administration. Support of research on profits and the functioning of the economy (RF 52063)	45,074.95	.....	22,757.64
Laboratory of Human Development. Study of social and cultural factors in child development (RF 51173)	32,152.92	.....	32,152.92
Laboratory of Social Relations Research on the structure and functioning of working committees (RF 53048)	35,000.00	.....	17,500.00
Study of conflicts within occupational roles (RF 53049)	35,500.00	.....	20,021.85
Study of comparative values in five cultures (RF 51175)	41,571.07	.....	41,537.58
Program of Economic Research (RF 51071)	62,531.99	.....	50,031.99
Studies of state election statistics (RF 51082)	22,360.46	.....	55.94
The Law School Study of the ethical problems of representation (RF 53065)	15,300.00	.....	15,300.00

For the advancement of the status of legal and political philosophy (RF 54051)	\$.....	\$20,000.00	\$.....
Hunter College, New York Comparative study of union-management relations in the United States and Germany (RF 53073)	39,150.00	.....	26,405.54
IFO-Institute for Economic Research, Munich, Germany Research program in economics (RF 53146)	27,000.00	.....	14,056.22
Indian Council of World Affairs, Delhi Support of studies of Indian-United States relations in cooperation with Council on Foreign Relations, New York (RF 54089)	.....	20,050.00	5,520.00
Institute of Applied Economics, Paris, France Research on the methodology of social accounting (RF 52091)	11,169.98	.....	10,048.53
Research and analysis of National income and wealth (RF 54144)	.....	21,000.00	.....
Institute for European Politics and Economics, Frankfurt, Germany Research on problems of European integration (RF 53150)	10,449.88	.....	9,547.12
Institute for Political Science, Berlin, Germany Study of the consolidation of the Nazi totalitarian system (RF 53113)	16,056.28	.....	8,563.64
Institute for Advanced Study, Princeton, New Jersey Research in history and government (RF 53118, 54116) For assistance and compensation in a program of study and writing (RF 49064)	7,500.00 2,975.70	15,000.00 .....	14,820.04 .....
International African Institute, London, England Field studies of the Fulani-speaking peoples of West Africa (RF 51034)	2,965.94	.....	1,375.18

SOCIAL SCIENCES -- *continued*

	APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
International Bank for Reconstruction and Development, Washington, D. C.	\$.....	\$85,000.00	\$.....
Establishing and operating an Economic Development In- stitute (RF 54182)			
Johns Hopkins University, Baltimore, Maryland			
Salaries and travel expenses of European visiting professors in the Department of Political Economy (RF 51111)	12,885.95	.....	12,380.52
Research guidance program by the Department of Political Economy (RF 54069)	.....	39,000.00	5,525.00
London School of Economics and Political Science, England			
Purchase of land for expansion of school plant (RF 31028)	8,153.32	.....	.....
Department of Sociological and Demographic Research. General expenses (RF 49115)	15,593.10	.....	Cr. 27.26
Miami University, Oxford, Ohio			
Studies of population redistribution (RF 52028)	68,096.31	.....	37,804.50
National Bureau of Economic Research, New York			
General programs and special programs of research in fi- nance and fiscal policy (RF 47120, 49141, 50134)	840,000.00	.....	240,000.00
Study of Soviet economic growth (RF 53125)	275,000.00	.....	115,406.99
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)	90,000.00	.....	29,460.81
National Foundation of Political Sciences, Paris, France			
Study of changes in the structure of the French economy (RF 53025)	44,496.77	.....	20,929.39

National Institute of Economic and Social Research of Great Britain, London			
Expenses of the International Association for Research in Income and Wealth (RF 50006)	\$6,962.44	\$.....	\$3,075.06
Study of the economic experience of the United Kingdom (RF 54024)	.....	60,000.00	14,157.36
New School for Social Research, New York			
Institute of World Affairs. Research on <i>The Written and The Living Charter of the United Nations</i> (RF 54053)	.....	15,000.00	7,500.00
Northwestern University, Evanston, Illinois			
Costs of the study of the structure and functioning of industrial markets (RF 54101)	.....	59,000.00	.....
Princeton University, New Jersey			
Office of Population Research of the School of Public and International Affairs (RF 48105, 53077)	80,496.14	.....	80,000.00
Institute of International Studies. General support (RF 51017)	100,000.00	.....	60,000.00
Research on the origin of modern legal institutions, representative government and social philosophy in the West (RF 54078)	.....	17,945.00	1,055.55
Study of the relationship between the disciplines of geography and political science (RF 54040)	.....	22,500.00	6,200.00
Queen's University, Kingston, Canada			
Program of advanced training and research in fiscal, monetary and economic policy (RF 53055)	35,346.75	.....	8,501.21
Royal Institute of International Affairs, London, England (Chatham House)			
History of the war and peace settlement (RF 47071, 52002)	41,613.97	.....	21,490.63
Research on Europe, the Middle East, and Southeast and East Asia (RF 53046)	49,532.50	.....	22,480.00

**SOCIAL SCIENCES — *continued***

	APPROPRIATIONS	1954	1954 PAYMENTS
	PRIOR YEARS	1954	
Research on the Middle East, the Soviet Union and under-developed territories (RF 51062)	\$2,952.53	\$.....	\$.....
Study of <i>The Theory of International Economic Policy</i> (RF 52026, 53047)	3,108.20	.....	1,268.69
Support of a study of race relations in Central Africa (RF 54025)	.....	31,500.00	9,781.41
Royal Statistical Society, London, England			
Library facilities and additional secretarial and editorial assistance (RF 50087)	5,072.00	.....	4,427.76
Sixth Section of the Applied School of Higher Studies, Paris, France			
For expenses of seminars and program of research in economic history (RF 52136)	5,741.37	.....	5,164.38
Social Science Research Council, New York			
Administrative budget (RF 51053)	20,000.00	.....	20,000.00
Conferences and planning (RF 51204)	62,500.00	.....	37,500.00
Grants in aid of research (RF 51055, 54039)	28,000.00	170,000.00	28,000.00
Program of inter-university summer seminars (RF 53175)	100,000.00	.....	27,000.00
Support of the <i>Current Digest of the Soviet Press</i> (RF 51218, 54067) (Joint project with Humanities)	16,723.60	99,000.00	11,867.00
Study of <i>Economic Growth: The Problem and Its Setting</i> (RF 52105)	35,000.00	.....	7,000.00
Preparation of a series of monographs based on the 1950 census (RF 52118)	20,000.00	.....	10,000.00
Stanford University, Palo Alto, California			
Food Research Institute			
Program of predoctoral training in agricultural economics research (RF 50086)	20,816.70	.....	11,638.72
Research Program (RF 51060)	22,330.89	.....	17,923.80

State Historical Society of Colorado, Denver			
Study of the Western Range Cattle Industry (1865-1895) (RF 52099)	\$12,350.00	\$.....	\$8,233.32
University of Basel, Switzerland			
Development of research and training in monetary and credit economics (RF 52060)	119,752.15	.....	33,839.59
University of California, Berkeley			
Institute of Industrial Relations. Studies of the impact of an aging population on American Society (RF 49139)	16,984.89	.....	16,984.89
University of Cambridge, England			
History of English Criminal Law (RF 51096)	8,225.40	.....	1,762.11
Department of Applied Economics. Study of the Social Accounts of Cambridgeshire (RF 51177)	47,406.79	.....	19,787.78
University of Chicago, Illinois			
Toward the costs of establishing a Workshop in Money and Banking (RF 53179)	50,500.00	.....	16,500.00
Toward the costs of the fourth volume of <i>History of Public Administration in the United States</i> (RF 52039)	20,000.00	.....	7,852.59
Research into the relationship between large-scale industrial enterprise and the development and use of inventions (RF 54080)	.....	15,000.00	7,500.00
Research on John Law's system of managed currency (RF 54086)	.....	7,500.00	.....
Program of education, training and research in race rela- tions (RF 47031)	2,697.15	.....	2,697.15
Research on low productivity in American agriculture (RF 51088)	8,000.00	.....	6,736.81
Research in mathematical statistics (RF 53061)	135,000.00	.....	.....

	PRIOR YEARS	APPROPRIATIONS 1954	1954 PAYMENTS
<b>SOCIAL SCIENCES — <i>continued</i></b>			
Research in the field of public finance (RF 54052)	\$.....	\$50,000.00	\$7,000.00
Toward the costs of a study of the genesis and development of industrial civilization (RF 54117)	.....	7,500.00	2,500.00
University of Genoa, Italy	.....	79,200.00	.....
Research program (RF 54047)			
University of Heidelberg, Germany			
Alfred Weber Institute for Social and Political Sciences			
Research program on political parties (RF 53056)	9,017.88	.....	4,501.79
University of Manchester, England			
Faculty of Economic and Social Studies. Support of re- search in economics and government and in social anthro- pology (RF 51097)	10,647.69	.....	8,880.79
University of Michigan, Ann Arbor			
Program of methodological research in the field of human relations (RF 50019, 53093)	38,526.32	.....	17,629.98
Study of behavior in a small group (RF 53111)	18,275.00	.....	14,325.00
Survey Research Center. Study of population trends in the United States (RF 54064)	.....	91,835.00	83,280.00
University of Minnesota, Minneapolis			
Studies of social disorganization (RF 53112)	15,075.00	.....	7,623.00
University of Missouri, Columbia			
Study of the rural church as a social institution in Missouri (RF 51216)	29,738.00	.....	19,606.10
University of Notre Dame, South Bend, Indiana			
Research in international relations (RF 52084)	19,000.00	.....	19,000.00

University of Oxford, England			
Nuffield College			
Additional research faculty in the social sciences (RF 46132)	\$103,622.34	\$.....	\$22,412.50
Completion of volume of Reflections on International Administration (RF 54085)	.....	7,000.00	.....
Costs of a program of research and training in African studies (RF 54048)	.....	85,500.00	.....
University of Pennsylvania, Philadelphia			
Wharton School of Finance and Commerce. Research proj- ects (RF 53137)	15,625.00	.....	15,625.00
Studies on redistribution of population and economic growth in the United States (RF 52106)	72,000.00	.....	40,000.00
Studies in Labor Mobility (RF 54131)	.....	100,000.00	7,500.00
University of Puerto Rico, San Juan			
Publication of the integrated report of social anthropological studies of Puerto Rico (RF 53124)	2,500.00	.....	2,500.00
University of Toronto, Canada			
Development of Slavic studies (RF 49054)	2.39	.....	.....
Research on problems of Canadian development (RF 53086)	210,382.03	.....	41,050.00
University of Vienna, Austria			
Institute of Criminology. Research assistance (RF 53037)	500.00	.....	500.00
Study of the economic situation of Austrian peasants on small farms (RF 53084)	1,400.00	.....	380.00
University of Wisconsin, Madison			
Research in the field of legal history (RF 53052)	76,000.00	... . . .	7,241.00
Study of the Law and the Lumber Industry in Wisconsin (RF 48051)	8,487.50	.....	8,487.45

**SOCIAL SCIENCES — *continued***

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)

Yale University, New Haven, Connecticut

Studies of communication and attitude change (RF 51174,  
54178)

**TOTAL — SOCIAL SCIENCES**

	<b>APPROPRIATIONS</b>	<b>1954</b>	<b>PAYMENTS</b>
	<b>PRIOR YEARS</b>	<b>1954</b>	
	\$74,795.10	\$.....	\$15,000.00
	68,804.08	200,000.00	236,759.31
<b>TOTAL — SOCIAL SCIENCES</b>	<b>\$6,162,158.61</b>	<b>\$3,041,530.00</b>	<b>\$3,873,173.66</b>

**HUMANITIES***Intercultural Studies*American Board of Commissioners for Foreign Missions,  
Boston, Massachusetts

Studies in intellectual and cultural movements in Turkey  
(RF 49138)

American Council of Learned Societies, Washington, D. C.

Preparation of a revised edition of *Encyclopedia of Islam*  
under auspices of the Royal Netherlands Academy of  
Sciences (RF 52022)

Program of translations into English of modern materials  
in Near Eastern languages (RF 48125)

American University of Beirut, Lebanon

Interpretative studies of the modern Arab Middle East  
(RF 49071, 54004)

Translation from western languages into Arabic of books  
in the humanities (RF 52101)

\$6,551.76	\$.....	\$.....
9,000.00	.....	6,000.00
15,797.24	.....	Cr. 380.80
8,654.75	211,400.00	54,200.60
6,900.00	.....	Cr. 695.56

Austrian College Society, Vienna				
Institute for Current European Cultural Research.	\$26,670.00	\$.....	\$13,330.00	
Research program (RF 52188)				
Bibliothèque Nationale, Paris, France				
For completion of a union catalogue of the Slavic collections in the libraries of Paris (RF 54077)	.....	21,600.00	6,062.00	
Columbia University, New York				
Preparation of a new interpretative history of Japan (RF 54015)	.....	12,000.00	6,000.00	
Advanced study in the United States and Europe by journalists from Southeast Asia (RF 53009)	31,880.00	.....	31,880.00	
Conference on interpretation of Arab tradition, thought and outlook, to be held in the Near East (RF 51005)	19,800.40	.....	8,052.10	
Cornell University, Ithaca, New York				
Southeast Asian studies (RF 50139, 54175)	142,182.81	500,000.00	549,849.50	
Study of the contemporary role of the arts in Indonesia (RF 54056)	.....	31,720.00	15,370.00	
Deccan College, Poona, India				
Postgraduate and Research Institute. For studies of the principal languages of India (RF 54088)	.....	79,550.00	8,165.40	
Henry E. Huntington Library and Art Gallery, San Marino, California				
Program of regional studies (RF 50002)	4,463.64	.....	4,404.96	
Korean Language Research Society, Seoul				
Publication of its dictionary of the Korean language (RF 52191)	33,000.00	.....	.....	
Kyoto University, Japan				
Kyoto University-Doshisha University Committee. American studies at Kyoto (RF 53129, 54146) (Joint project with Social Sciences)	14,000.00	15,440.00	13,000.00	
Organization and reproduction of materials on the archaeology of Korea (RF 53082)	8,775.00	.....	3,547.70	

**HUMANITIES — *continued****Intercultural Studies — *continued**

	PRIOR YEARS	APPROPRIATIONS <sup>1</sup> 1954	1954 PAYMENTS
Library of Congress, Washington, D. C. American studies (RF 43095)	\$19,000.00	\$.....	\$19,000.00
McGill University, Montreal, Canada Expenses of an Institute of Islamic Studies (RF 51108)	160,881.58	.....	48,880.55
Modern Language Association of America, New York Inquiry into role which foreign languages and literatures should play in American life (RF 52116, 54143)	62,000.00	115,000.00	41,500.00
Occidental College, Los Angeles, California Developing humanistic studies on the Southwest area of the United States and of Northern Mexico (RF 53021)	40,000.00	.....	9,002.37
Philadelphia Museum of Art, Pennsylvania For interpretative studies of the arts of India (RF 54119)	.....	12,500.00	2,500.00
Princeton University, New Jersey Development of Near Eastern studies (RF 52005) (Joint Project with Social Sciences)	60,000.00	.....	20,000.00
Development of Near Eastern studies (RF 54176)	.....	500,000.00	500,000.00
St. Antony's College, Oxford, England Toward development of a program of European studies (RF 54184)	.....	123,000.00	.....
Tokyo University, Japan Seminars in American studies sponsored jointly by Tokyo University and Stanford University (RF 51211) (Joint project with Social Sciences)	102,183.66	.....	34,478.83
Toyo Bunko, Tokyo, Japan For research on modern China (RF 54120)	.....	33,640.00	3,896.23

## University of Ankara, Turkey

To enable its Faculty of Letters to appoint a professor of American literature and a professor of American history (RF 53072)

\$21,000.00 \$..... \$.....

## University of British Columbia, Vancouver, Canada

Development of a program in Slavic studies (RF 49080, 54135)

10,525.21 10,500.00 15,684.15

## University of Cologne, Germany

Development of a program of American studies (RF 51037)

8,076.57 ..... 7,469.59

## University of Durham, England

Study of materials available for an understanding of modern Near Eastern cultures (RF 51176)

7,788.96 ..... 5,857.80

## University of Illinois, Urbana

Program of American studies in Kyoto under the sponsorship of Kyoto University, Doshisha University and the University of Illinois (RF 53130) (Joint project with Social Sciences)

18,200.00 ..... 18,200.00

## University of Michigan, Ann Arbor

Program of American studies in Kyoto, and Japanese studies in Ann Arbor (RF 54147)

..... 28,000.00 .....

## University of Munich, Germany

Visiting professors from the United States or Canada and library materials for its American Institute (RF 49096)

441.35 ..... .....

Toward support of the American Institute (RF 54068)

..... 32,800.00 4,713.02

## University of Oxford, England

Research in American history and institutions (RF 53123)

3,500.00 ..... 3,105.75

		APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS	360
<b>HUMANITIES — continued</b>					
<i>Intercultural Studies — continued</i>					
University of Toronto, Canada					
Development of Slavic studies (RF 49054)	\$ 2.38	\$.....	\$.....		
Toward the budget of the department of Slavic studies (RF 54083) (Joint project with Social Sciences)	.....	9,450.00	9,250.31		
University of Washington, Seattle					
Purchase of the Joseph Rock Library of materials on East Asia (RF 54158)	.....	8,000.00	8,000.00		
<i>History</i>					
American Council of Learned Societies, Washington, D. C.					
Preparation of the supplementary volumes of the <i>Dictionary of American Biography</i> (RF 53134)	30,000.00	.....	13,583.34		
American University, Washington, D. C.					
Preparation of a history of the city of Washington (RF 54062)	.....	46,000.00	5,166.50		
City College, New York					
Development of materials for courses of study at the graduate level (RF 54002)	.....	107,500.00	24,308.00		
Colegio de México, Mexico City					
Research and a training seminar on contemporary Mexican history (RF 51219, 54028)	8,277.78	5,000.00	9,081.44		
Columbia University, New York					
Preparation of a biography of Booker T. Washington (RF 53012)	1,994.67	.....	1,994.67		
Toward cost of preparation for publication of the writings of Alexander Hamilton (RF 54097)	.....	40,000.00	.....		

Commission on History of the Pan American Institute of Geography and History, Mexico City			
Program of research in history of ideas (RF 51165)	\$5,000.00	\$.....	\$5,000.00
Cornell University, Ithaca, New York			
Development of methods, materials and personnel for the teaching of the history of modern science (RF 48124)	.94	.....	Cr. 4,308.11
Indian Council of World Affairs, Delhi			
Preparation of a history of India's attainment of independence (RF 53069)	35,869.92	.....	10,683.31
Italian Institute of Historical Studies, Naples (Istituto Italiano di Studi Storici)			
Library materials, fellowships, and general support (RF 52151)	5,419.93	.....	5,419.93
Lehigh University, Bethlehem, Pennsylvania			
Research on the British Empire before the American Revolution (RF 52061)	10,500.00	.....	10,500.00
McGill University, Montreal, Canada			
Studies in the public and private life of W. L. Mackenzie King (RF 53058)	70,000.00	.....	.....
National Institute of Economic and Social Research, London, England			
Editorial work on edition of complete works of Alexis de Tocqueville (RF 53136)	16,624.87	.....	4,746.49
New School for Social Research, New York			
Continuation of its study of religion in Germany since the end of World War II (RF 53024, 54129)	23,550.00	22,145.00	23,550.00
Royal Institute of International Affairs, London, England			
Travel preliminary to a revision of <i>A Study of History</i> (RF 53031)	10,448.07	.....	.....

**HUMANITIES — *continued****History — *continued**

University of Chicago, Illinois

Toward support of Lafayette studies (RF 54098)

	APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
University of Chicago, Illinois Toward support of Lafayette studies (RF 54098)	\$.....	\$15,000.00	\$.....
University of Delaware, Newark Development of a program in American studies (RF 52085)	44,000.00	.....	44,000.00
University of the Philippines, Manila Library development and research in Philippine history (RF 48111)	26.98	.....	.....
Yale University, New Haven, Connecticut Preparation of a study of the characteristics of the history of the twentieth century (RF 53033, 54084)	.....	3,500.00	3,500.00
<i>Philosophy</i>			
American Philosophical Association, Western Division, Gambier, Ohio			
Program of individual grants for original philosophical work (RF 54054)	.....	40,800.00	750.00
Exploring the possibilities of original work on political and social philosophy (RF 54055)	.....	11,000.00	1,725.00
International Christian University, Tokyo, Japan For a program of research and study in the philosophy of education (RF 54091)	.....	66,100.00	.....
Kyushu University, Fukuoka, Japan For comparative studies in the philosophy of education (RF 54090)	.....	55,800.00	150.00
University of Chicago, Illinois Work in philosophy (RF 53029)	14,000.00	.....	6,827.74

*Language, Logic and Symbolism*

Harvard University, Cambridge, Massachusetts

Preparation of a descriptive analysis of the contemporary  
Russian language (RF 50040)

\$14,694.99 \$..... \$9,342.56

University of Michigan, Ann Arbor

Cross-disciplinary studies in the theory of language and  
symbolism (RF 50140)

2,521.22 ..... Cr. 507.94

*General Education*

Harvard University, Cambridge, Massachusetts

Graduate School of Education. Support of program in  
history and philosophy (RF 52087)

21,100.00 ..... 13,450.00

Haverford College, Pennsylvania

Development of reading courses and a senior seminar  
(RF 53102)

25,225.00 ..... 11,521.18

Massachusetts Institute of Technology, Cambridge

Experiment in the use of French as a language of instruc-  
tion in basic humanities courses (RF 53078)

19,300.00 ..... 12,469.24

University of Wisconsin, Madison

Evaluation and future planning of its community cultural  
arts program (RF 53080)

15,000.00 ..... 14,737.33

*Literature*

Kenyon College, Gambier, Ohio

Fellowships in creative writing and criticism awarded by  
editors of "The Kenyon Review" (RF 52119)

22,026.12 ..... 17,026.12

Mexican-American Cultural Institute, Mexico City

For work of the Centro Mexicano de Escritores (Mexican  
Center of Writers) (RF 54042)

..... 123,000.00 26,000.00

Princeton University, New Jersey

Support of seminars in criticism (RF 52056)

70,000.00 ..... 20,000.00

	PRIOR YEARS	1954	1954 PAYMENTS
<b>HUMANITIES — <i>continued</i></b>			
<i>Literature — <i>continued</i></i>			
State University of Iowa, Iowa City	\$32,210.00	\$.....	\$18,500.00
For fellowships in creative writing (RF 53005)			
University of Cambridge, England	7,234.27	.....	4,294.81
Downing College. Salary of an assistant for Director of English studies (RF 49016, 51166)			
University of the South, Sewanee, Tennessee	30,500.00	.....	15,500.00
For fellowships in creative writing (RF 53004)			
<i>Drama</i>			
American Shakespeare Festival Theatre and Academy of Connecticut, Stratford			
Costs of building, equipping and initiating the operations of a theatre (RF 54008)	.....	200,000.00*	.....
New Dramatists Committee, Inc., New York	9,000.00	.....	9,000.00
General support of its program (RF 51156)			
Stratford Shakespearean Festival of Canada Foundation, Ontario			
General expenses (RF 54049)	.....	42,000.00	40,881.25
University of Bristol, England			
Development of program in drama (RF 49119, 54094)	1,269.58	15,300.00	1,269.50
<i>Music</i>			
American Symphony Orchestra League, Inc., Charleston, West Virginia			
Workshops for conductors and music critics, and studies of the organization and support of the arts in American communities (RF 54093)	.....	83,150.00	15,595.00

Appropriation for which funds were previously authorized.

City Center of Music and Drama, Inc., New York Creating new productions in opera and ballet (RF 53064)	\$130,000.00	\$.....	\$44,088.22
Karamu House, Cleveland, Ohio Construction and equipping of a music building (RF 54041)	.....	100,000.00	.....
Louisville Philharmonic Society, Inc., Kentucky Composition, performance and recording of new works by living composers (RF 53041)	378,455.00	.....	226,104.25
<i>Visual Arts</i>			
Massachusetts Institute of Technology, Cambridge Study of the aesthetic aspects of city planning (RF 54034)	.....	85,000.00	18,000.00
National Museum of Korea, Seoul For the encouragement of contemporary work in the arts (RF 54118)	.....	14,760.00	4,000.00
<i>Special Projects</i>			
American Council of Learned Societies, Washington, D. C. General support, planning, development and fellowships (RF 50033)	18,984.85	.....	18,984.85
Pacific Coast Committee for Humanities. General support (RF 51144)	74.39	.....	74.39
Study of personnel problems in the humanities (RF 51008)	8,815.77	.....	8,815.77
American Council on Education, Washington, D. C. Program of training for student personnel workers (RF 54148)	.....	39,612.00	19,806.00
<i>Fellowships</i>			
Administered by The Rockefeller Foundation (RF 49147, 51161, 51223, 52197, 53182, 54162)	270,131.84	150,000.00	127,540.49

**HUMANITIES — *continued****Special projects — continued*

## Grants In Aid

Administered by The Rockefeller<sup>2</sup> Foundation (RF 47109, 48145, 50089, 50161, 51227, 53138, 53183, 54163)

APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
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\$510,866.95	\$300,000.00	\$264,777.24
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## Special Grant In Aid Fund

To enable non-Muslem students of Islam, through visits to Islam, to gain a direct acquaintance with contemporary thought and movements within Islam (RF 51086)

11,990.18	.....	2,471.11
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1,377.62	.....	.....
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## Surveys, Studies and Conferences (RF 48083)

## Humanities Research Council of Canada, Toronto

Support of activities in planning and development (RF 51130, 53088)

52,693.83	.....	33,634.17
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## University of Toulouse, France

Development of work in the humanities (RF 47062)

7,327.38	.....	5,330.33
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*Earlier Interest*

## Association of Special Libraries and Information Bureaux, London, England

Completion of British *Union Catalogue of Periodicals* (RF 44004, 53011)

16,787.47	.....	8,426.88
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## 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)

44,623.07	.....	322.60
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## Keio University, Tokyo, Japan

Support of the Japan Library School (RF 52107)

67,384.81	.....	36,337.50
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Museum of Modern Art, New York Toward the cost of the transfer of the most important motion picture films to a more permanent stock (RF 54026)	\$.....	\$25,000.00	\$.....
National Diet Library, Tokyo, Japan Establishment of a microfilm laboratory (RF 52156)	12,119.78	.....	10,694.39
<b>TOTALS — HUMANITIES</b>	<b>\$2,918,702.59</b>	<b>\$3,335,267.00</b>	<b>\$2,695,490.05</b>

**GENERAL**

American Library Association, Chicago, Illinois			
Support of International Youth Library, Munich, Germany (RF 51020)	\$1.59	\$.....	Cr. \$122.98
Expenses of Director of the International Youth Library, Munich, Germany (RF 54019)	.....	31,000.00	11,000.00
European Rehabilitation (RF 49038)	27,339.40	.....	Cr. 1,854.58
Exchange Fund (RF 46123)	9,198.83	.....	.....
Free University of Berlin, Germany			
Work in the social sciences and the humanities (RF 50063)	2,430.87	.....	.....
Germanistic Society of America, Inc., New York			
American scholarly publications for libraries in Western Germany (RF 53121)	4,500.00	.....	4,500.00
Grants in Aid administered by The Rockefeller Foundation for allocation by the officers within categories described by Trustee action and within specified limitations of amount and duration (RF 51122, 52121, 52202, 53183, 54163)	70,852.98	50,000.00	19,750.00
History of the International Health Division For completion and publication (RF 52125)	17,181.90	.....	36.91
Institute of International Education, New York International student exchange (RF 53059)	75,000.00	.....	25,000.00

GENERAL — <i>continued</i>	APPROPRIATIONS PRIOR YEARS	1954	1954 PAYMENTS
Institute of Judicial Administration, Inc., New York Toward its expenses (RF 52073)	\$165,836.17	\$.....	\$55,336.39
International House of Japan, Inc., Tokyo Toward establishment and support of an international cultural center in Tokyo (RF 52102, 52183)	280,742.82	.....	74,308.56
Ministry of Education, Cairo, Egypt Expenses of a mission to study university practice and administration in the West (RF 53075)	17,500.00	.....	.....
National Research Council, Washington, D. C. Conference Board of the Associated Research Councils. Study of human resources and the fields of higher learning (RF 52074, 54060)	23,850.00	12,000.00	35,850.00
New York Community Trust, New York Operating expenses (RF 54123)	.....	100,000.00	11,750.00
Salzburg Seminar in American Studies, Inc., Austria General budget (RF 51073, 54012)	.....	25,000.00	25,000.00
Social Science Research Council, New York Committee on Cross-Cultural Education (RF 52067)	34,095.33	.....	34,095.33
Stanford University, Palo Alto, California Research in fields of communication and psychiatry (RF 52110)	9,500.00	.....	9,500.00
Temporary Indonesian Training Program Temporary program of study and travel grants for Indonesians (RF 54183)	.....	75,000.00	.....

Union Theological Seminary, New York Establishment and support of a program of advanced religious studies (RF 54033)	\$.....	\$525,000.00	\$.....
Yale University, New Haven, Connecticut Establishment and general support of a Carbon 14 dating laboratory (RF 50132)	8,217.97	.....	8,048.78
<b>TOTALS — GENERAL</b>	<b>\$746,247.86</b>	<b>\$818,000.00</b>	<b>\$312,198.41</b>
 <b>ADMINISTRATION</b>			
Home Office			
1953 (RF 2824, 52170, 53039, 53040)	\$83,111.05	\$.....	\$49,780.38
1954 (RF 53158, 54029, 54030, 54139)	1,752,801.00	35,000.00	1,684,923.57
1955 (RF 54159)	.....	1,767,550.00	.....
Treasurer's Office			
1953 (RF 52171)	16,284.06	.....	12,947.69
1954 (RF 53159)	62,859.00	.....	42,102.84
1955 (RF 54160)	.....	67,657.00	.....
Field Offices			
(RF 52172, 53160, 54161)			
Africa and Asia Minor			
Egypt, Cairo, 1953–1955	9,896.34	8,800.00	6,976.33
Canada, Toronto, 1953	1,986.46	.....	.....
Caribbean Region			
Dominican Republic, Ciudad Trujillo, 1953–1954	3,149.53	.....	2,925.12
Europe			
England, London, 1953–1955	15,333.05	9,110.00	10,348.25
France, Paris, 1953–1955	90,772.05	42,135.00	52,102.07

	PRIOR YEARS	APPROPRIATIONS 1954	1954 PAYMENTS
<b>ADMINISTRATION — <i>continued</i></b>			
<b>Field Offices — <i>continued</i></b>			
<b>Far East</b>			
India, Delhi and Bangalore. 1953-1955	\$26,062.96	\$21,000.00	\$20,968.55
Japan, Tokyo. 1953-1955	4,248.76	3,000.00	2,416.67
<b>South America</b>			
Bolivia, Cochabamba, La Paz. 1953	859.98	.....	.....
Brazil, Rio de Janeiro. 1953-1955	24,593.52	13,000.00	7,433.53
Chile, Santiago. 1953-1954	6,830.02	.....	2,861.47
Colombia, Bogotá. 1953	277.27	.....	88.29
Peru, Lima. 1953	.....	.....	Cr. 286.41
Mexico, Mexico City. 1953-1955	9,267.17	7,600.00	6,457.75
Miscellaneous. 1953-1955	5,400.00	5,000.00	692.08
<b>TOTALS — ADMINISTRATION</b>	<b>\$ 2,113,732.22</b>	<b>\$ 1,979,852.00</b>	<b>\$ 1,902,738.18</b>
<b>TOTALS</b>	<b>\$26,843,350.59</b>	<b>\$19,107,665.00</b>	<b>\$17,198,896.32</b>
<b>LESS:</b>			
Unused balances of appropriations allowed to lapse	1,057,265.41	.....	.....
<b>GRAND TOTALS</b>	<b>\$25,786,085.18</b>	<b>\$19,107,665.00</b>	<b>\$17,198,896.32</b>

## REFUNDS ON PRIOR YEAR CLOSED APPROPRIATIONS

American Library Association, Chicago, Illinois	(RF 47048)	\$63.71
Association of American Universities, New York	(RF 49065)	1,338.95
Colgate University, Hamilton, New York	(RF 52010)	2,827.58
Committee on Research in Economic History, Inc., Cambridge, Massachusetts	(RF 50103)	12.91
Conservation Foundation, New York	(RF 51229)	1,244.75
Cornell University, Ithaca, New York	(RF 48107)	1,120.36
Encyclopaedia of the Social Sciences, New York	(RF 32114)	1,943.29
Grants in Aid — Humanities	(RF 43125)	25.10
Grants in Aid — Social Sciences	(RF 38111)	998.42
Harvard University, Cambridge, Massachusetts	(RF 51013)	25.00
Health Insurance Plan of Greater New York, New York	(RF 46131)	91,000.00
Medical Research Council of Great Britain, London, England	(RF 47066)	4.97
National Foundation of Political Sciences, Paris, France	(RF 50029)	227.00
National Institute of Anthropology and History of Mexico City, Mexico	(RF 52049)	1,400.00
National Research Council, Washington, D. C.	(RF 49074)	1,698.59
New York Office Administration — 1952	(RF 53019)	8.10
Office of the United Nations, Geneva, Switzerland	(RF 52089)	2,631.47
Pan American Agricultural School, Tegucigalpa, Honduras	(RF 49157)	369.06
St. Vladimir's Orthodox Theological Seminary and Academy, New York	(RF 50031)	4.13
Stanford University, Palo Alto, California	(RF 49057)	48.00
Tennessee Department of Public Health	(RF 52193)	825.00
University of Alberta, Canada	(RF 51105)	4.87

REFUNDS ON PRIOR YEAR CLOSED APPROPRIATIONS — *continued*

University of California, Berkeley	(RF 53083)	\$51.21
University of Chicago, Illinois	(RF 50107)	1.76
University of Copenhagen, Denmark	(RF 48112)	3.09
University of Delaware, Newark	(RF 51178)	887.30
University of Oklahoma, Norman	(RF 44093)	600.00
University of Oslo, Norway	(RF 51011)	.05
University of Pennsylvania, Philadelphia	(RF 47129)	326.16
University of Pittsburgh, Pennsylvania	(RF 52019)	451.10
University of Rochester, New York	(RF 49114)	3.65
University of Toronto, Canada	(RF 49049)	2.68
University of Toronto, Canada	(RF 52130)	890.95
University of Wisconsin, Madison	(RF 50048)	25.32
University of Wisconsin, Madison	(RF 51191)	957.69
University of Wisconsin, Madison	(RF 49081)	420.62
Worcester Foundation for Experimental Biology, Shrewsbury, Massachusetts	(RF 50082)	68.14
		<hr/> <u>\$112,510.98</u>

FINANCE COMMITTEE'S STATEMENT OF TRANSACTIONS RELATING TO INVESTED FUNDS  
FOR THE YEAR ENDED DECEMBER 31, 1954

PURCHASED

	<b>USA Treasury Bills:</b>	
\$3,000,000	dated 3/25/54 due 6/24/54 @ 99.74	\$2,992,200.00
1,500,000	" 4/1/54 " 7/1/54 @ 99.7336	1,496,004.00
	<b>USA Treasury Bonds:</b>	
5,000,000	2s due 12/15/52-54 @ 100.265625	5,013,281.25
3,000,000	2s " 12/15/51-55 @ 100.265625	3,007,968.75
4,000,000	2½s " 6/15/52-55 @ 100.46875	4,018,750.00
6,000,000	2½s " 6/15/67-72 @ 100.703125	6,042,187.50
18,000,000	<b>USA Treasury Notes 1⅓s, 2/15/59 @ 100.29861</b>	<b>18,053,750.00</b>
1,500,000	<b>USA Treasury Certificates of Indebtedness "A" 2½s, 2/15/54 @ 100.546875</b>	<b>1,508,203.13</b>
5,300	shares American Gas & Electric Co. Common (Par \$5) @ \$34.6850264	183,830.64
5,000	" Canadian Industries Limited Common (No par) @ \$48.65456	243,272.80
13,500	" Canadian Industries (1954) Limited Common (No par) @ \$26.83704	362,300.05
2,500	" Corning Glass Works Common (Par \$5) @ \$89.068632	222,671.58
9,000	" Crown Zellerbach Corporation Common (Par \$5) @ \$42.05293	378,476.40
3,900	" Dow Chemical Co. Common (Par \$5) @ \$40.45306	157,766.93
9,200	" Fireman's Fund Insurance Co. Capital (Par \$5) @ \$68.1025	626,542.90
33%	" First National Bank of Chicago Common (Par \$100) @ \$315.4953	10,516.50
10,000	" Freeport Sulphur Co. Common (Par \$10) @ \$63.18779	631,877.90
1,100	" Goodrich, B. F., Co. Common (Par \$10) @ \$79.156	87,071.60
1,650	" International Business Machines Corporation Common (No par) @ \$320.6295	529,038.71
2,500	" International Nickel Co. of Canada Ltd. Common (No par) @ \$58.8134	147,033.53

**FINANCE COMMITTEE'S STATEMENT OF TRANSACTIONS  
RELATING TO INVESTED FUNDS — *continued***

**PURCHASED — *continued***

15,000	shares National Lead Co. Common (Par \$5) @ \$49.78701	\$746,805.13
5,316	" The Ohio Oil Co. Common (No par) @ \$67.522103	358,947.50
620	" Standard Oil Co. of California Capital (No par) @ \$72.98753	45,252.27
507	" Travelers Insurance Co. Capital (Par \$100) @ \$881.853	447,099.50
5,000	" Union Carbide & Carbon Corporation Capital (No par) @ \$85.1848	425,924.00
5,000	" United Fruit Co. Capital (No par) @ \$52.9025	264,512.50
11,900	" Westinghouse Electric Corporation Common (Par \$12.50) @ \$67.67252	805,302.95
		<hr/>
		\$48,806,588.02

**OTHERWISE ACQUIRED**

\$20,000	German Government International Loan of 1930 — Extension Issue 1953, 5s, 6/1/80 in exchange for \$20,000 German Government, 5½s, 6/1/65	—0—
3,150	German Government International Loan of 1930 — Funding Issue 1953, 3s, 12/1/72 in payment of interest for the period 6/1/41 to 12/1/44 on original bonds	—0—
9,000,000	USA Treasury Bonds 2½s, 11/15/61 in exchange for \$4,500,000 USA Treasury Certificates of Indebtedness "A" 2½s, 2/15/54 and \$4,500,000 USA Treasury Bonds 2s, 6/15/52-54	\$9,006,760.84
8,000,000	USA Treasury Bonds 2½s, 8/15/63 in exchange for \$5,000,000 USA Treasury 2s, 12/15/52-54 and \$3,000,000 USA Treasury 2s, 12/15/51-55	8,021,250.00
4,000,000	USA Treasury Certificates of Indebtedness 1½s, 5/17/55 in exchange for \$4,000,000 USA Treasury Bonds 2¼s, 6/15/52-55	4,016,768.04
16,500	shares Canadian Industries (1954) Limited Common (No par) @ \$19.29804 or \$318,417.66	} in exchange for
16,500	" Du Pont of Canada Securities Limited Common (No par) @ \$19.29804 or \$318,417.66	
		15,000 shares of Canadian Industries Limited Common (No par)
		636,835.32

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30,000	rights Canadian Industries (1954) Limited received on 30,000 shares of Canadian Industries (1954) Limited Common (No par) stock held of record 10/29/54 and the value used to reduce the ledger value of stock owned	\$21,362.85
133,174	shares Consolidated Natural Gas Co. Capital (Par \$10) received in a stock split on 133,174 shares (Par \$15) held of record 12/8/54, par of which was changed to \$10	— 0 —
4,000	" Fireman's Fund Insurance Co. Capital (Par \$2.50) received as a dividend on 20,000 shares Fireman's Fund Insurance Co. Capital held of record 2/26/54	— 0 —
666 2/3	" First National Bank of Chicago Common (Par \$100) received as a dividend on 6,000 shares of stock held of record 12/14/54	— 0 —
40,000	" General Electric Co. Common (Par \$5) received because of ownership of 20,000 shares Common of no par held of record 5/5/54, par of which was changed to \$5	— 0 —
3,750	" Hartford Fire Insurance Co. Capital (Par \$10) received as a dividend on 15,000 shares of stock held of record 2/25/54	— 0 —
250	" International Business Machines Corporation Common (No par) received in a stock split on 1,000 shares of stock held of record 5/7/54	— 0 —
3,000	" International Paper Co. Common (Par \$7.50) received as a dividend on 60,000 shares of stock held of record 11/19/54	— 0 —
3,780	" Standard Oil Co. of California Capital (No par) received as a dividend on 75,600 shares of stock held of record 10/8/54	— 0 —
600,000	" Standard Oil Co. (Indiana) Capital (Par \$25) received as a dividend on 600,000 shares of stock held of record 10/25/54	— 0 —
10,000	" Standard Oil Co. (New Jersey) Capital (Par \$15) received as a dividend on 600,000 shares Standard Oil Co. (Indiana) Capital (Par \$25). Taken into the books at \$99,875, which was the value reported by Standard Oil Co. (Indiana) in a notice dated 10/8/54, and credited to income	998,750.00

FINANCE COMMITTEE'S STATEMENT OF TRANSACTIONS  
RELATING TO INVESTED FUNDS — *continued*

**OTHERWISE ACQUIRED — *continued***

240,000	" Union Tank Car Co. Capital (No par) received in a stock split on 240,000 shares of stock held of record 5/11/54	— 0 —
		<u>\$22,701,727.05</u>

**INTEREST INCREMENT ON USA SAVINGS BONDS SERIES "F" (12 year appreciation Bonds)**

\$67,500	(Maturity value) due 1/1/54	\$1,350.00
67,500	" " " 7/1/54	2,565.00
135,000	" " " 1/1/55	<u>4,725.00</u> 8,640.00
		<u>\$71,516,955.07</u>

**REDEEMED AT MATURITY**

		PROCEEDS	LEDGER VALUE
USA Treasury Bills:			
\$3,000,000	dated 12/24/53 due 3/25/54 @ 99.568	\$2,987,040.00	
2,000,000	" 12/31/53 " 4/1/54 @ 99.602	1,992,040.00	
3,000,000	" 3/25/54 " 6/24/54 @ 99.74	2,992,200.00	
1,500,000	" 4/1/54 " 7/1/54 @ 99.7336	<u>1,496,004.00</u>	<u>\$9,467,284.00*</u> \$9,467,284.00
USA Savings Bonds Series F (12 year appreciation bonds):			
67,500	dated 1/1/42 due 1/1/54 @ par	\$67,500.00	
67,500	" 7/1/42 " 7/1/54 @ par	<u>67,500.00</u>	<u>135,000.00</u> 135,000.00
		<u>\$9,602,284.00</u>	<u>\$9,602,284.00</u>

\* Amount by which proceeds from the redemption of USA Treasury Bills at par exceeded the ledger value, or \$32,716.00, was credited to interest income.

## SOLD

\$3,150	German Government International Loan of 1930 — Federal Republic of Germany, Funding Issue 1953, 3s, 12/1/72 @ 50.6492 and proceeds of \$1,595.45 credited to income on \$20,000 German Government International Loan of 6/1/30 5½s, 6/1/65	— 0 —	— 0 —
20,000	German Government International Loan of 1930 — Federal Republic of Germany, Extension Issue 1953, 5s, 6/1/80 @ 64.7487	\$12,949.74	— 0 —
6,600,000	USA Treasury Bonds 2s, 12/15/52-54 @ 100.765625	6,650,531.25	\$6,600,000.00
1,500,000	USA Treasury Certificates of Indebtedness Tax Anticipation "C" 2½s, 3/22/54 @ 100.234375	1,503,515.63	1,500,000.00
	USA Treasury Certificates of Indebtedness:		
4,000,000	2½s, 6/1/54 @ 100.609375	4,024,375.00	3,997,877.76
1,000,000	2½s, 8/15/54 @ 100.40625	1,004,062.50	1,000,101.46
5,000,000	2½s, 9/15/54 @ 100.49375	5,024,687.50	5,000,000.00
4,000,000	1½s, 5/17/55 @ 100.15625	4,006,250.00	4,010,795.84
	30,000 rights Canadian Industries (1954) Limited @ \$71,2095 per 100 rights	21,362.85	21,362.85
	3,000 shares Fiber Products, Inc. Common (Par \$1) @ \$6.8595	20,578.50	16,500.00
24,200	" National Fuel Gas Co. Capital (No par) @ \$15.360579	371,726.03	187,550.00
94,100	" Standard Oil Co. (New Jersey) Capital (Par \$15) @ \$83.34557	7,842,818.13	2,292,059.73
5,000	" Tennessee Gas Transmission Co. 4.25% Cumulative Preferred (Par \$100) @ \$93.9011	469,505.55	483,372.50
380,000	" Union Tank Car Co. Capital (No par) @ \$25.661712	9,751,453.58	1,271,486.31
		<u>\$40,703,816.26</u>	<u>\$26,381,106.45</u>

**FINANCE COMMITTEE'S STATEMENT OF TRANSACTIONS  
RELATING TO INVESTED FUNDS—*concluded***

**OTHERWISE DISPOSED OF, ETC.**

\$20,000	German Government International Loan of 6/1/30, 5½s, 6/1/65, received as a legacy in 1946 and previously written off as worthless, for \$20,000 German, Government International Loan of 1930—Federal Republic of Germany Extension issue 1953, 5s, 6/1/80	— 0 —	— 0 —
4,500,000	USA Treasury Bonds 2s, 6/15/52-54 for \$4,500,000 USA Treasury Bonds 2½s, 11/15/61	\$4,500,000.00	\$4,500,000.00
5,000,000	USA Treasury Bonds 2s, 12/15/52-54 for \$5,000,000 USA Treasury Bonds 2½s, 8/15/63	5,013,281.25	5,013,281.25
3,000,000	USA Treasury Bonds 2s, 12/15/51-55 for \$3,000,000 USA Treasury Bonds 2½s, 8/15/63	3,007,968.75	3,007,968.75
4,000,000	USA Treasury Bonds 2¾s, 6/15/52-55 for \$4,000,000 USA Treasury Certificates of Indebtedness, 1½s, 5/17/55	4,016,768.04	4,016,768.04
4,500,000	USA Treasury Certificates of Indebtedness 2½s, 2/15/54 for \$4,500,000 USA Treasury Bonds 2½s, 11/15/61	4,506,760.84	4,506,760.84
15,000 shares	Canadian Industries Limited Common (No par) @ \$42,455.688 for 16,500 shares Canadian Industries (1954) Limited Common (No par) and 16,500 shares Du Pont of Canada Securities Limited Common (No par)	636,835.32	636,835.32
30,000 " "	Canadian Industries (1954) Limited Common (No par) reduced by the value of 30,000 rights received	21,362.85	21,362.85
		<hr/> <u>\$21,702,977.05</u>	<hr/> <u>\$21,702,977.05</u>
		<hr/> <u>\$72,009,077.31</u>	<hr/> <u>\$57,686,367.50</u>

## AMORTIZATION OF PREMIUM PAID ON PURCHASE OF SECURITIES

	USA Treasury Bonds:	
\$4,000,000	2½s, 6/15/52-55	\$1,981.96
6,200,000	2½s, 6/15/59-62	2,688.68
9,000,000	2½s, 11/15/61	656.98
6,000,000	2½s, 6/15/67-72	1,275.98
	USA Treasury Certificates of Indebtedness:	
3,000,000	2¼s, 2/15/54	337.12
1,000,000	2½s, 8/15/54	1,270.12
4,000,000	1½s, 5/17/55	5,972.20
		<u>\$14,183.04</u>

## RECONCILIATION

Ledger value of securities, December 31, 1953		\$173,643,321.62
Purchased	\$48,806,588.02	
Otherwise Acquired	22,701,727.05	
Interest Increment	8,640.00	71,516,955.07
		<u>\$245,160,276.69</u>
Redeemed at Maturity	\$9,602,284.00	
Sold	26,381,106.45	
Otherwise Disposed of, etc.	21,702,977.05	
Amortization	14,183.04	57,700,550.54
Ledger value of securities, December 31, 1954		<u>\$187,459,726.15</u>

**SCHEDULE OF SECURITIES ON DECEMBER 31, 1954**

BONDS	PAR	LEDGER VALUE		MARKET VALUE		380
		PRICE	TOTAL	PRICE	TOTAL	
International Bank for Reconstruction and Development 3½%, October 15, 1971	\$1,000,000	98.	\$980,000.00	103.	\$1,030,000.00	
Standard Oil Co. (Indiana) Conv. Deb. 3½%, October 1, 1982	5,450,000	105.844	5,768,484.37	115.50	6,294,750.00	
United States of America Treasury Bonds:						
INT.                          DUE						
2½% — Sept. 15, 1956-59	11,000,000	99.330	10,926,250.00	100.84375	11,092,812.50	
2¾% — June 15, 1958	5,000,000	100.	5,000,000.00	101.375	5,068,750.00	
2½% — Dec. 15, 1958	1,000,000	100.	1,000,000.00	102.	1,020,000.00	
2½% — June 15, 1959-62	7,000,000	100.	7,000,000.00	99.50	6,965,000.00	
2½% — Dec. 15, 1959-62	6,200,000	100.217	6,213,443.34	99.46875	6,167,062.50	
2¾% — Sept. 15, 1961	1,920,000	100.	1,920,000.00	102.34375	1,965,000.00	
2½% — Nov. 15, 1961	9,000,000	100.068	9,006,103.86	100.65625	9,059,062.50	
2½% — Aug. 15, 1963	8,000,000	100.266	8,021,250.00	100.25	8,020,000.00	
2½% — June 15, 1967-72	6,000,000	100.682	6,040,911.52	98.8125	5,928,750.00	
United States of America Treasury Notes Series "A" 1½%, March 15, 1955	4,400,000	99.244	4,366,750.00	100.1875	4,408,250.00	
United States of America Treasury Notes 1½%, February 15, 1959	18,000,000	100.299	18,053,750.00	99.4375	17,898,750.00	
United States of America Savings Bonds Defense Series "F" (12 year appreciation bonds):						
January 1, 1955	135,000	98.	132,300.00	100.	135,000.00	
United States of America Savings Bonds 2½% Series "G" due October 1, 1962	1,000,000	100.	1,000,000.00	94.70	947,000.00	
			<u>\$85,429,243.09</u>		<u>\$86,000,187.50</u>	

THE ROCKEFELLER FOUNDATION

STOCKS	SHARES	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
American Gas & Electric Co. (Par \$5)	40,000	\$26.877	\$1,075,084.95	\$42.75	\$1,710,000.00
American Telephone & Telegraph Co. Cap. (Par \$100)	20,000	137.283	2,745,668.24	175.00	3,500,000.00
Canadian Industries (1954) Limited (No par)	30,000	21.978	659,354.86	24.75	742,500.00
Christiana Securities Co. (Par \$100)	200	5,568.00	1,113,600.00	11,250.00	2,250,000.00
Continental Oil Co. Cap. (Par \$5)	150,000	14.46	2,169,117.65	75.00	11,250,000.00
Consolidated Natural Gas Co. Cap. (Par \$10)	266,348	14.231	3,790,417.87	35.50	9,455,354.00
Continental Insurance Co. Cap. (Par \$10)	10,000	65.597	655,965.37	99.25	992,500.00
Corning Glass Works (Par \$5)	5,000	88.986	444,917.79	148.50	742,500.00
Crown Zellerbach Corporation (Par \$5)	15,000	39.411	591,167.64	63.75	956,250.00
Dow Chemical Co. (Par \$5)	20,000	23.945	478,909.80	47.00	940,000.00
Du Pont of Canada Securities Limited (No par)	16,500	19.298	318,417.66	30.00	495,000.00
Fireman's Fund Insurance Co. Cap. (Par \$2.50)	24,000	52.304	1,255,304.56	71.75	1,722,000.00
First National Bank of Chicago (Par \$100)	6,700	174.611	1,169,895.85	307.00	2,056,900.00
Freeport Sulphur Co. (Par \$10)	10,000	63.188	631,877.90	71.00	710,000.00
General Electric Co. (Par \$5)	60,000	19.674	1,180,424.14	46.75	2,805,000.00
Goodrich, B. F. Co. (Par \$10)	25,000	73.596	1,839,893.41	127.00	3,175,000.00
Hartford Fire Insurance Co. Cap. (Par \$10)	18,750	104.060	1,951,131.15	198.00	3,712,500.00
International Business Machines Corp. (No par)	1,900	278.441	529,038.71	362.00	687,800.00
International Nickel Co. of Canada Ltd. (No par)	55,000	41.636	2,289,969.82	58.875	3,238,125.00

SCHEDULE OF SECURITIES — *continued*

STOCKS — <i>continued</i>	SHARES	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
International Paper Co. (Par \$7.50)	63,000	\$37.576	\$2,367,288.41	\$88.75	\$5,591,250.00
Kennecott Copper Corporation Cap. (No par)	30,000	58.539	1,756,180.37	105.50	3,165,000.00
Monsanto Chemical Co. (Par \$5)	10,000	77.132	771,318.65	104.00	1,040,000.00
National Lead Co. (Par \$5)	15,000	49.787	746,805.13	62.00	930,000.00
The Ohio Oil Co. (No par)	100,000	34.584	3,458,394.00	68.625	6,862,500.00
Peoples Gas Light & Coke Co. (Par \$100)	7,000	120.653	844,573.46	158.00	1,106,000.00
Phelps Dodge Corporation Cap. (Par \$12.50)	70,000	26.358	1,845,087.74	52.25	3,657,500.00
Socony-Vacuum Oil Co. Cap. (Par \$15)	300,000	33.015	9,904,514.61	54.375	16,312,500.00
Standard Oil Co. of California Cap. (No par)	80,000	7.975	637,991.30	77.00	6,160,000.00
Standard Oil Co. (Indiana) Cap. (Par \$25)	1,200,000	14.185	17,021,661.26	48.125	57,750,000.00
Standard Oil Co. (New Jersey) Cap. (Par \$15)	2,000,000	15.378	30,756,473.47	110.625	221,250,000.00
Travelers Insurance Co. (Par \$100)	1,000	56.385	856,385.00	1,975.00	1,975,000.00
Union Carbide & Carbon Corporation (No par)	10,000	80.027	800,271.33	86.25	862,500.00
Union Pacific R.R. Co. (Par \$50)	10,000	107.565	1,075,659.68	153.50	1,535,000.00
Union Tank Car Co. Cap. (No par)	100,000	3.346	334,601.66	27.50	2,750,000.00
United Fruit Co. Cap. (No par)	20,000	56.699	1,133,989.79	56.625	1,132,500.00

Westinghouse Electric Corporation (Par \$12.50)	20,000	\$61,227	\$1,224,541.52	\$80.50	\$1,610,000.00
Weyerhaeuser Timber Co. Cap. (Par \$25)	30,000	53,486	1,604,588.31	109.00	3,270,000.00
			<u>\$102,030,483.06</u>		<u>\$388,101,179.00</u>

**SUMMARY**

	LEDGER VALUE	MARKET VALUE
Bonds	\$85,429,243.09	\$86,000,187.50
Stocks	102,030,483.06	388,101,179.00
	<u>\$187,459,726.15</u>	<u>\$474,101,366.50</u>



**Geographical Distribution  
of Grants, 1954**



## Geographical Distribution of Grants, 1954

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### UNITED STATES

*Amount \$ page*

#### ALABAMA

##### ALABAMA POLYTECHNIC INSTITUTE

Nematology: training and research

45,000 163

#### ARIZONA

##### UNIVERSITY OF ARIZONA

Cloud Physics Research Conference:  
expenses of participants

5,000 189

#### CALIFORNIA

##### CALIFORNIA INSTITUTE OF TECHNOLOGY

Indian Mineral Resources; H. Brown; travel

4,650 190

##### DEPARTMENT OF PUBLIC HEALTH

Chronic Disease Epidemiology Center: support

150,000 118

##### SACRAMENTO STATE COLLEGE FOUNDATION

American Democratic Tradition; J. C. Livingston; study

6,000 219

##### STANFORD UNIVERSITY

Asian Philosophy: H. Kishimoto; writing

4,670 257

Economics:

M. Baba; support

1,000 205

S. Kaji; visiting professorship

6,000 205

Law: R. A. Murphy; study

700 221

Political Science:

*The International City of Tangier*, G. H. Stuart; revision

2,000 216

		<i>Amount \$</i>	<i>page</i>
<b>THE SUMMER INSTITUTE OF LINGUISTICS, INC.</b>			
Structure of Language and Behavior: K. L. Pike; writing		1,500	271
<b>UNIVERSITY OF CALIFORNIA</b>			
<i>Berkeley:</i>			
Extension Division: Medical Care Administration; support		7,000	93
Institute of Child Welfare: H. E. Jones; travel		880	209
Political Science:			
D. W. Minar; study		3,300	218
Y. Rogat; study		7,800	218
S. S. Wolin; study		6,000	218
Radiation Laboratory and Department of Chemistry:			
Photosynthesis; research		18,500	151
Sociological and Political Theories: H. S. Kariel; study			
Virus Laboratory: research		3,300	219
		210,000	142
<i>Davis:</i>			
H. H. Laidlaw, Jr.; travel		4,200	167
<i>La Jolla:</i>			
Scripps Institution of Oceanography: research		1,000,000	184
<i>Los Angeles:</i>			
Institute of Industrial Relations:			
Labor Health Education; support		10,000	93
Near Eastern Studies: B. Lewis; travel		2,000	247
<i>Riverside:</i>			
Citrus Experiment Station: R. L. Metcalf; research		15,000	138
<b>VIRUS STUDIES</b>			
		44,500	93

**CONNECTICUT****AMERICAN SHAKESPEARE FESTIVAL THEATRE AND ACADEMY**

Establishment of theatre and academy for production of  
Shakespeare's plays and training of Shakespearean  
actors

200,000    259

**CONNECTICUT AGRICULTURAL EXPERIMENT STATION**

Plant Genetics: research

25,000    138

**YALE UNIVERSITY****Communications Research Program:**

Communication and Attitude Change; support

200,000    207

Economics: T. C. Koopmans; study

9,975    204

**History:**

R. E. Turner; research

3,500    257

R. L. Walker; study

8,000    248

**Industrial Organization and Public Policy:**

J. P. Miller; study

9,657    204

Political and Legal Philosophy: C. Blitzer; study

4,000    219

**School of Medicine:**

N. J. Giarman; travel

1,000    90

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J. L. Melnick; travel Schools of Medicine and Public Health: I. V. Hiscock; travel	600 1,000	90 90
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**DISTRICT OF COLUMBIA****AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE**

Arid Lands Development: International Meetings; support Gordon Research Conferences: expenses of foreign scientists	10,000 30,000	167 152
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**AMERICAN COUNCIL ON EDUCATION**

Student Personnel Workers: cooperation with Japanese organizations	39,612	270
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**AMERICAN UNIVERSITY**

History of Washington, D. C.: C. M. Green; preparation	46,000	252
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**THE BROOKINGS INSTITUTION**

Federal Reserve System: History; preparation Historical Materials; exploratory study Support of research and educational activities	310,000 10,000 375,000	199 204 198
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**INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT**

Economic Development Institute: support	85,000	202
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**LIBRARY OF CONGRESS**

College of Science and Letters, Baghdad: equipment	400	271
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**NATIONAL RESEARCH COUNCIL**

Committee for Research in Problems of Sex: support Conference Board of Associated Research Councils: Commission on Human Resources and Advanced Training; support Division of Biology and Agriculture: Committee on Educational Policies; support Medical Sciences: fellowships	150,000 12,000 50,000 150,000	108 279 189 72
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**PAN AMERICAN SANITARY BUREAU**

Institute of Nutrition of Central America and Panama: Corn Varieties; research	10,000	166
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**HAWAII****UNIVERSITY OF HAWAII**

History: J. A. White; study Japanese Literature: Y. Uyehara; travel	4,000 3,000	249 266
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**ILLINOIS****AMERICAN LIBRARY ASSOCIATION**

International Youth Library, Munich: J. Lepman; support	31,000	278
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<b>NATIONAL ASSOCIATION OF EDUCATIONAL BROADCASTERS</b>		
Poetry Broadcasting: experimentation in technique	9,970	266
<b>NORTHWESTERN UNIVERSITY</b>		
Economics:		
R. B. Heflebower; research	59,000	200
H. G. Johnson; visiting professorship	5,000	205
R. H. Strotz; travel	5,500	205
<b>PLAYWRIGHTS THEATRE CLUB</b>		
Promotion of New Playwriting:		
D. Sheppard and P. Sills; travel	420	266
<b>UNIVERSITY OF CHICAGO</b>		
Department of Medicine: W. R. Adams; travel	2,150	87
Department of Surgery: L. R. Dragstedt; travel	2,250	87
Economics:		
L. M. Goreux; study	625	223
E. J. Hamilton; research	7,500	204
Public Finance; research	50,000	221
Industrial Civilization: J. U. Nef; research	7,500	204
Islamic Doctrines and Practices:		
G. E. von Grunebaum; study	4,000	247
Lafayette Studies: L. Gottschalk; study	15,000	254
Law School:		
N. Abrams; study	700	220
Industry and Invention; research	15,000	203
Philosophy:		
R. H. Cox; research	3,800	220
R. H. Kennington; research	3,100	220
<b>UNIVERSITY OF ILLINOIS</b>		
American Studies: R. L. Mott; visiting professorship	1,000	217
Department of Dairy Science:		
Experimental Biology; research	100,000	161
Department of Entomology:		
Biochemistry of insects; research	75,000	135
Economics: J. F. Due; study	3,750	206
Insect Physiology: G. S. Fraenkel; travel	2,000	140
<b>INDIANA</b>		
<b>PURDUE UNIVERSITY</b>		
E. C. Young; travel	1,950	168
<b>UNIVERSITY OF INDIANA</b>		
Conference on Oriental-Western Literary and Cultural Relations: expenses of participants	2,000	248

*Amount \$ page*

**KANSAS****UNIVERSITY OF KANSAS**

Biology and Taxonomy of Bees: C. D. Michener; travel	1,300	141
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**LOUISIANA****TULANE UNIVERSITY**

Comparative Law Teaching: F. F. Stone; travel	8,500	215
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**MAINE****ROSCOE B. JACKSON MEMORIAL LABORATORY**

Financial survey, and genetics research	10,000	139
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**MARYLAND****JOHNS HOPKINS UNIVERSITY**

Chemistry: E. V. McCollum; research	5,000	154
Department of Political Economy:		
Research Guidance Program; support	39,000	222
Political Theory: D. G. Smith; research	4,000	219
School of Advanced International Studies:		
C. Gamba; visiting professorship	4,000	206
Theory of International Politics and American Foreign		
Policy; research	10,000	215
School of Medicine:		
G. O. Gey; travel	500	88
J. E. Rose; travel	1,450	88

**MASSACHUSETTS****HARVARD UNIVERSITY**

Anthropology: D. Oliver; research	6,415	209
Department of English: R. Chapman; study	5,000	266
Fine Arts in Higher Education: study	10,000	266
Laboratory of Social Relations:		
Methodology of Attitude Studies; research	6,000	209
Law:		
B. Gold and H. Furth; study	700	219
K. L. Koh; support	1,160	223
Legal and Political Philosophy; conference	20,000	218
R. G. McCloskey; study	7,100	219
Medical School:		
A. Bartholomay; research	10,000	160
G. P. Berry; travel	1,350	89
Program of Complete Family Medical Care; research		
and teaching	275,000	71
B. L. Vallee; travel	2,500	154

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Political Science: H. A. Kissinger; research	4,000	219
Russian Research Center: H. Marcuse; research	9,900	249
<b>MARINE BIOLOGICAL LABORATORY</b>		
General budget support	100,000	131
<b>MASSACHUSETTS GENERAL HOSPITAL</b>		
Neurology: R. D. Adams; travel	2,500	86
<b>MASSACHUSETTS INSTITUTE OF TECHNOLOGY</b>		
Aesthetic Aspects of City Planning: study	85,000	264
<b>MASSACHUSETTS MEDICAL SOCIETY</b>		
Postgraduate Medical Institute: support	7,500	82
<b>NORTHEASTERN UNIVERSITY</b>		
Bureau of Business and Economics: W. H. Miernyk; research	7,500	204
<b>SMITH COLLEGE</b>		
Genetics: research	10,000	139
South African Party System: G. M. Carter; writing	1,500	217
<b>TUFTS COLLEGE</b>		
Nucleic Acid Chemistry: program support	3,000	155
<b>WOODS HOLE OCEANOGRAPHIC INSTITUTION</b>		
Meteorological Research: S. Turner and S. Twomey; travel	2,500	189
<b>MICHIGAN</b>		
<b>CHILD RESEARCH CENTER</b>		
Genetics of Blood Disorders in Africa: pilot study	5,200	117
Genetics of Sickle Cell Anemia: research	66,000	110
<b>MEDICAL LIBRARY ASSOCIATION</b>		
Medical Librarianship: fellowships	15,000	81
<b>UNIVERSITY OF MICHIGAN</b>		
European Composers: R. L. Finney; study	3,700	267
American Studies: Intercultural Understanding; support	28,000	235
Survey Research Center: Population Trends; study	91,835	208
<b>UNIVERSITY OF MICHIGAN HOSPITAL</b>		
Maternal and Child Health: D. C. Smith; travel	1,400	89
<b>WAYNE UNIVERSITY</b>		
Chemistry of Natural Plant Products: research	30,000	149
<b>MINNESOTA</b>		
<b>UNIVERSITY OF MINNESOTA</b>		
Dight Institute for Human Genetics: research	19,400	117

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Political Science: D. Cooperman; research	3,500	220
School of Medicine: Mathematical Physiology; support	19,500	117
<b>MISSOURI</b>		
ST. LOUIS UNIVERSITY		
Institute of Social Order: J. M. Becker, S.J.; study	750	207
UNIVERSITY OF MISSOURI		
Division of Nursing Education: V. H. Harrison; travel	1,000	89
WASHINGTON UNIVERSITY		
Enzyme Chemistry: research	50,000	144
Plant Physiology and Plant Biochemistry: research	75,000	146
School of Medicine: Dermatology; research and training	400,000	107
Sociology: P. J. Campisi; research	7,500	209
<b>NEW HAMPSHIRE</b>		
DARTMOUTH COLLEGE		
Cellular Physiology and Microbiology: research	10,000	138
Oriental Philosophy: Wing-tsit Chan; study	10,000	248
<b>NEW JERSEY</b>		
INSTITUTE FOR ADVANCED STUDY		
Economic History: W. H. B. Court; travel	2,600	206
History and Government: G. F. Kennan; research	15,000	214
PRINCETON UNIVERSITY		
International Relations:		
Geography and Political Science; study of relationship	22,500	212
Near Eastern Studies: development	500,000	238
Social Philosophy: R. R. Palmer; research	17,945	218
<b>NEW MEXICO</b>		
UNIVERSITY OF NEW MEXICO		
<i>New Mexico Quarterly</i> : K. Lash; travel	3,000	266
<b>NEW YORK</b>		
BALLET SOCIETY, INC.		
Bibliography of Dancing: P. Magriel; revision	6,000	266
History of Dance in the American Theatre: L. Moore; preparation	5,000	267
BROOKLYN COLLEGE		
Political Science: S. J. Konefsky; study	3,500	220

	Amount \$	page
<b>THE CITY COLLEGE OF NEW YORK</b>		
Contemporary Artists: Exhibiting and Marketing of Works in Metropolitan Area; study	2,000	267
International Politics: J. H. Herz; research	8,500	215
Labor: Role of Teamsters' Union; R. D. Leiter; study	7,425	205
New York Metropolitan Area: study	107,500	250
<b>COLUMBIA UNIVERSITY</b>		
Alexander Hamilton Papers: New Edition; preparation	40,000	253
Bureau of Applied Social Research:		
L. Benson; study	9,500	214
Potential Audience for the Arts in New York; study	6,000	266
East Asian Institute: support	25,000	211
History:		
S. B. Clough; research	1,200	205
D. Kettler; study	3,300	220
G. Sansom; study	12,000	243
Immunochemistry: M. Heidelberger; research	7,500	139
Institute for the Study of Human Variation:		
Genetics; research	50,000	136
International Relations: H. Feis; study	15,000	214
Islamic Civilization in India and Pakistan:		
S. M. Ikram; writing	6,250	248
Labor: J. Carwell; writing	6,000	205
Lamont Geological Observatory: Marine Biology; research	90,000	186
Law: M. Lax and W. F. Schwartz; study	700	220
School of International Affairs: Russian Institute; research	375,000	21c
<b>CORNELL UNIVERSITY</b>		
Law: B. LaLone; study	700	221
Medical College: B. D. Davis; travel	1,000	90
Psychological Stress: R. D. Walk; research materials	4,830	209
Southeast Asia Program: support	500,000	239
Role of the Arts in Indonesia: C. Holt; study	31,720	240
<b>HEALTH INSURANCE PLAN OF GREATER NEW YORK</b>		
Completion of study of the Plan	20,500	92
<b>GEORGE E. JUDD</b>		
Study of instrumentalists for orchestras in U.S. and Canada	4,200	267
<b>LONG ISLAND BIOLOGICAL ASSOCIATION</b>		
Population Genetics:		
Symposium; expenses of Latin American participants	3,000	140
<b>THE MODERN LANGUAGE ASSOCIATION OF AMERICA</b>		
Inquiry into role of foreign languages and literatures in American life	115,000	268

GEOGRAPHICAL DISTRIBUTION OF GRANTS 395

	<i>Amount \$</i>	<i>page</i>
<b>MUSEUM OF MODERN ART</b>		
Film Library: Transferral to permanent stock; expenses	25,000	269
Modern Art Bibliography: B. Karpel; completion	1,500	267
Book on experience in widening public appreciation of modern art: preparation	4,500	267
<b>NATIONAL LEAGUE FOR NURSING, INC.</b>		
National Nursing Accrediting Service: support	63,771	78
<b>NEW SCHOOL FOR SOCIAL RESEARCH</b>		
Institute of World Affairs:		
E. Hula; research	15,000	214
E. E. Yalden-Thomson; study	6,300	205
Religion in Germany since World War II: C. Mayer; research	22,145	237
<b>THE NEW YORK BOTANICAL GARDEN</b>		
Plant Growth and Nutrition: research	35,000	150
Purchase of equipment	8,500	150
<b>NEW YORK COMMUNITY TRUST</b>		
Operating expenses	100,000	276
<b>NEW YORK UNIVERSITY</b>		
Department of Biochemistry: Enzyme Chemistry; research	100,000	143
Department of Journalism:		
science writing for the general public; survey	10,000	190
Department of Pharmacology: support	6,000	117
NYU-Bellevue Medical Center: purchase of books	5,000	83
Soviet Trade Unions: S. Schwarz; research	8,075	215
<b>SARAH LAWRENCE COLLEGE</b>		
Drama, Literature, and Music:		
L. MacNeice; visiting professorship	2,000	266
<b>SLOAN-KETTERING INSTITUTE FOR CANCER RESEARCH</b>		
Trace Elements: symposium	10,000	154
<b>SOCIAL SCIENCE RESEARCH COUNCIL</b>		
<i>Current Digest of the Soviet Press</i> : support	99,000	210
Grants in aid	170,000	221
<b>UNION THEOLOGICAL SEMINARY</b>		
Program of Advanced Religious Studies: establishment and support	525,000	275
<b>VIRUS STUDIES</b>	170,000	93

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<b>NORTH CAROLINA</b>		
<b>DUKE UNIVERSITY</b>		
History of Socio-Economic Thought: research	33,000	217
Philosophy: F. P. Canavan, S.J.; research	2,600	221
<b>NORTH CAROLINA STATE COLLEGE</b>		
School of Agriculture: R. W. Cummings; travel	850	169
<b>UNIVERSITY OF NORTH CAROLINA</b>		
Division of Health Affairs: continuation of study of medical practice	15,000	93
<b>OHIO</b>		
<b>AMERICAN PHILOSOPHICAL ASSOCIATION, WESTERN DIVISION</b>		
Original Philosophical Work: grants	40,800	254
Conference on Contemporary Philosophical Thought	11,000	254
<b>KARAMU HOUSE</b>		
Music Building: construction and equipment	100,000	262
<b>MIAMI UNIVERSITY</b>		
Political Science: J. E. Black; research	8,500	215
<b>OREGON</b>		
<b>REED COLLEGE</b>		
British Jurisprudence and the Theory of Justice: E. N. Garlan; study	7,600	219
<b>PENNSYLVANIA</b>		
<b>AMERICAN LAW INSTITUTE</b>		
International Law: E. D. Dickinson and A. S. Fisher; survey	10,000	214
<b>THE JEFFERSON MEDICAL COLLEGE</b>		
Biochemistry: R. H. De Meio; travel	1,265	89
<b>PENNSYLVANIA STATE UNIVERSITY</b>		
Biologically Significant Compounds: R. Pepinsky; travel	2,000	160
<b>PHILADELPHIA MUSEUM OF ART</b>		
Arts of India: S. Kramrisch; support	12,500	242
<b>UNIVERSITY OF PENNSYLVANIA</b>		
School of Medicine: exchange program	2,100	87
Wharton School of Finance and Commerce: Industrial Research Unit; research on labor mobility	100,000	200

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**UNIVERSITY OF PITTSBURGH**

Communism and Chinese Society: C. Yang; study 4,200 209

**PUERTO RICO**

**DEPARTMENT OF HEALTH**

Division of Public Health: E. Quintero; travel	400	90
Hospital Survey and Construction Bureau:		
J. A. Pérez; travel	575	90
Medical and Public Health Facilities in the Bayamón Region: survey	63,500	91
Regionalization Programs: O. Costa-Mandry; travel	350	90

**UNIVERSITY OF PUERTO RICO**

School of Medicine:		
G. Arbona; travel	800	89
Library; purchase of books and journals	25,000	81
S. L. Morales; travel	1,100	89
D. M. Q. Negrón; travel	1,300	89

**TEXAS**

**UNIVERSITY OF TEXAS**

Department of Genetics: research 100,000 134

**VERMONT**

**BENNINGTON COLLEGE**

Bennington Composers' Conference: expenses 4,500 267

**VIRGINIA**

**UNIVERSITY OF VIRGINIA**

American Foreign Policy: L. J. Halle, Jr.; research	8,000	215
Industrial Relations: D. M. Wright; travel	1,350	207
Woodrow Wilson Department of Foreign Affairs:		
C. A. Micaud; study	3,000	215

**WASHINGTON AND LEE UNIVERSITY**

History: E. D. Myers; study 2,200 257

**WASHINGTON**

**UNIVERSITY OF WASHINGTON**

Contemporary Japanese Literature: R. McKinnon; study	4,200	248
International Relations: C. E. Martin; travel	3,400	216
Materials on East Asia: purchase of Joseph Rock Library	8,000	248

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<b>WEST VIRGINIA</b>	
AMERICAN SYMPHONY ORCHESTRA LEAGUE, INC.	
Workshops for conductors, workshops for music critics, and studies of organization and support of the arts	83,150 261
<b>WISCONSIN</b>	
STATE HISTORICAL SOCIETY	
Study of goals and problems of work in local history	4,500 257
UNIVERSITY OF WISCONSIN	
Department of Plant Pathology: H. T. Wenham; travel	700 169
Law:	
J. Mayda; study	2,500 219
S. Mermin; research	5,000 219
R. R. Robinson; study	700 219
Social Science Research Committee: W. H. Sewell; research	8,000 209
<b>NORTH AMERICA</b>	
<b>CANADA</b>	
DEPARTMENT OF HEALTH, PROVINCE OF SASKATCHEWAN, REGINA	
Psychiatric Research: A. Hoffer; travel	2,700 86
MCGILL UNIVERSITY, MONTREAL	
American Science of Politics: B. Crick; study	3,500 220
Department of Genetics:	
F. C. Fraser; research	7,875 117
F. C. Fraser; travel	2,650 85
Department of Philosophy: J. Robinson; research	1,100 220
Department of Psychiatry: support	47,250 112
Department of Psychology:	
Physiological Basis of Behavior; research	60,900 111
Political Science: K. B. Callard; travel	6,150 215
Robert B. Warren Papers: preparation for publication	9,900 204
School for Graduate Nurses: R. Chittick; travel	1,000 85
Tenth International Congress of Genetics:	
General Organizing Committee; support	3,500 140
MCMASTER UNIVERSITY, HAMILTON	
Biophysics: S. S. Kirkwood; research	6,300 160
STRATFORD SHAKESPEAREAN FESTIVAL OF CANADA FOUNDATION, ONTARIO	
General expenses	42,000 260
UNIVERSITY OF BRITISH COLUMBIA, VANCOUVER	
Slavic Studies: support	10,500 245

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<b>UNIVERSITY OF MANITOBA, WINNIPEG</b>		
Plant Pathology: D. Shaw; travel	750	169
<b>UNIVERSITY OF SASKATCHEWAN, SASKATOON</b>		
College of Medicine:		
Seven Professors and Assistant Professors; travel	6,000	82
Department of Psychiatry: Schizophrenia; research	121,275	109
<b>UNIVERSITY OF TORONTO</b>		
Department of Slavic Studies: support	9,450	245
Faculty of Medicine: Medical Care; teaching	29,150	81
Near Eastern Studies: J. W. Wevers; travel	2,000	247
<b>MEXICO</b>		
<b>AGRICULTURAL OPERATING PROGRAM</b>	209,620	169
<b>AGRICULTURAL RESEARCH CENTERS: development</b>	150,000	170
<b>CHILDREN'S HOSPITAL, MEXICO CITY</b>		
Development of a Research and Training Program	150,000	73
<b>COLEGIO DE MEXICO, MEXICO CITY</b>		
Mexican History: research	5,000	257
<b>MEXICAN-AMERICAN CULTURAL INSTITUTE, MEXICO CITY</b>		
Writing Center: support	123,000	258
<b>MINISTRY OF AGRICULTURE AND ANIMAL INDUSTRY</b>		
Agricultural Directive Committee, Jalisco:		
R. Palacios A.; travel	975	169
Extension Service: J. Loredo; travel	1,200	168
<b>NATIONAL INSTITUTE OF CARDIOLOGY, MEXICO CITY</b>		
Physiology and Pharmacology Laboratories; support	50,000	75
<b>NATIONAL UNIVERSITY OF MEXICO, MEXICO CITY</b>		
Institute of Biology:		
L. Vázquez G.; travel	1,850	141
A. Villalobos F.; travel	1,850	141
Institute of Chemistry: O. H. Wheeler; research	4,500	154
Institute of Mathematics: library research materials	5,000	190
Medical School: J. Laguna; travel	1,450	89
<b>STATE OF MEXICO EXTENSION PROGRAM</b>	30,000	166
<b>TECHNICAL INSTITUTE AND SCHOOL OF HIGHER STUDIES OF MONTERREY</b>		
Agricultural Education and Research Program: support	60,000	162

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<b>UNIVERSITY OF GUADALAJARA</b>		
Department of Biochemistry; equipment	10,000	82
<b>UNIVERSITY OF GUANAJUATO</b>		
Thoracic Surgery: F. Gómez G.; travel	1,500	88
<b>CENTRAL AND SOUTH AMERICA</b>		
<b>CORN IMPROVEMENT PROJECT</b>	50,000	183
<b>INTER-AMERICAN SOCIETY OF SOILS SCIENTISTS</b>		
Expenses of meetings	10,000	167
<b>LATIN AMERICAN SCHOLARSHIPS TO ROCKEFELLER FOUNDATION</b>		
AGRICULTURAL OPERATING ACTIVITIES	70,000	164
<b>ARGENTINA</b>		
<b>INSTITUTE OF BIOCHEMICAL INVESTIGATIONS, BUENOS AIRES</b>		
Campomar Foundation: Enzyme Research; E. Cabib; travel	1,100	156
<b>BOLIVIA</b>		
<b>L. LUJAN:</b> Agriculture; travel	1,485	168
<b>BRAZIL</b>		
<b>INSTITUTE OF AGRONOMY, CAMPINAS</b>		
Bean Breeding: M. Itto; travel	890	167
Insect Ecology: equipment and supplies	10,000	167
<b>MANDAQUI TUBERCULOSIS HOSPITAL, SÃO PAULO</b>		
Thoracic Surgery: G. M. Botelho; travel	2,550	86
<b>MEDICAL SCHOOL OF PARA, BELEM</b>		
Histology and Embryology: M. M. Sampaio; travel	600	90
<b>MINISTRY OF AGRICULTURE, STATE OF RIO GRANDE DO SUL</b>		
Institute of Agronomy: Soil Physics; equipment	525	169
<b>RURAL UNIVERSITY OF THE STATE OF MINAS GERAIS, VIÇOSA</b>		
College of Agriculture:		
Department of Domestic Science; equipment	30,000	162
<b>UNIVERSITY OF MINAS GERAIS, BELO HORIZONTE</b>		
Department of Biochemistry: J. B. Sumner; equipment	5,000	83
<b>UNIVERSITY OF PARANA, CURITIBA</b>		
Faculty of Philosophy: Genetics; equipment and supplies	1,000	141
<b>UNIVERSITY OF RECIFE</b>		
Faculty of Medicine: N. N. de C. Chaves; travel	2,350	86

## GEOGRAPHICAL DISTRIBUTION OF GRANTS

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## UNIVERSITY OF RIO GRANDE DO SUL, PÔRTO ALEGRE

Faculty of Philosophy: W. W. Milstead; travel	850	141
Institute of Biophysics Research: C. Tondo; support	980	160

## UNIVERSITY OF SÃO PAULO

*Ribeirão Preto:*

## Faculty of Medicine:

J. M. Gonçalves; travel	1,400	155
Laboratory of Cell Physiology; equipment	7,400	133
J. L. Pedreira de Freitas; travel	3,250	84
F. J. C. Pileggi; travel	960	84
R. F. Santos; travel	3,100	84

*São Paulo:*

Faculty of Medicine: R. Fried; travel	2,275	155
Institute of Oceanography: Development of Marine Resources; equipment and supplies	10,000	189
Veterinary Medicine: Animal Husbandry; equipment	5,800	167

## VIRUS STUDIES

14,000 93

## CHILE

## AGRICULTURAL OPERATING PROGRAM

60,000 182

## BACTERIOLOGICAL INSTITUTE OF CHILE, SANTIAGO

Experimental Farm: equipment	15,000	133
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## CATHOLIC UNIVERSITY OF CHILE, SANTIAGO

Faculty of Agronomy: equipment and library materials	10,000	167
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## MINISTRY OF AGRICULTURE, SANTIAGO

M. Astorga C.: travel	2,750	184
Entomology: R. Cortes; travel	3,350	168
Parasitology: I. Tagle; travel	285	168

## NATIONAL HEALTH SERVICES

Medical Care: V. Ayub-Hauva; travel	544	90
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## UNIVERSITY OF CHILE

*Montemar:*

Marine Biological Station: equipment and supplies	6,750	189
P. Yanez; travel	3,200	189

*Santiago:*

Department of Parasitology: E. Thiermann; travel	500	85
School of Medicine: H. Alessandri R.; travel	2,700	85
J. Allamand; travel	3,050	85
G. Gasic; travel	1,800	141

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<b>COLOMBIA</b>		
AGRICULTURAL OPERATING PROGRAM	100,500	177
AGRICULTURAL RESEARCH CENTERS: development	40,000	177
COLOMBIAN INSTITUTE OF COTTON DEVELOPMENT, BOGOTA		
Fiber Technology: M. Londono B.; travel	2,200	168
COLUMBUS SCHOOL, MEDELLIN		
General budget support	3,250	279
NATIONAL UNIVERSITY OF COLOMBIA		
<i>Bogotá:</i>		
Faculty of Medicine: equipment	60,000	79
<i>Medellin:</i>		
Faculty of Agronomy:		
Plant Physiology Laboratory; equipment and supplies	5,000	168
NEW GRANADA SCHOOL, BOGOTA		
General budget support	3,000	279
UNIVERSITY OF ANTIOQUIA, MEDELLIN		
Department of Pathology: A. Correa H.; travel	1,650	88
UNIVERSITY OF VALLE, CALI		
Faculty of Medicine:		
Department of Preventive Medicine and Public Health; development	504,000	69
<b>ECUADOR</b>		
UNIVERSITY OF QUITO		
School of Agronomy and Veterinary Science:		
equipment and library materials	10,000	166
UNIVERSITY OF GUAYAQUIL		
School of Agronomy and Veterinary Science:		
equipment and library materials	10,000	167
<b>HONDURAS</b>		
PAN AMERICAN AGRICULTURAL SCHOOL, TEGUCIGALPA		
Scholarships	30,000	165
<b>PERU</b>		
MINISTRY OF AGRICULTURE		
National Institute of Animal Biology: H. Preston S.; travel	2,850	168
NATIONAL COLLEGE OF AGRICULTURE, LA MOLINA		
Stem Rust Control: R. Postigo; travel	5,000	168

**GEOGRAPHICAL DISTRIBUTION OF GRANTS** **403**

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**NATIONAL UNIVERSITY OF CUZCO**

Potato Research: C. Vargas C.; travel **2,825** **168**

**UNIVERSITY OF SAN MARCOS, LIMA**

Faculty of Medicine: O. Hercelles; travel **1,750** **88**

Faculty of Veterinary Medicine:

Diseases of the Alpaca; study **7,300** **167**

**TRINIDAD**

REGIONAL VIRUS LABORATORY **60,000** **93**

**URUGUAY**

**MINISTRY OF PUBLIC HEALTH, MONTEVIDEO**

Institute of Biological Research:

<i>Drosophila</i> Genetics and Histochemistry; travel of staff members	<b>800</b>	<b>141</b>
Secretary-Librarian; support	<b>1,020</b>	<b>134</b>
A. Vaz Ferreira; travel	<b>600</b>	<b>134</b>
A. Vaz Ferreira; travel	<b>700</b>	<b>141</b>

**UNIVERSITY OF MONTEVIDEO**

Faculty of Engineering:

Research on biological and medical problems utilizing radioactive isotopes **10,000** **159**

Faculty of Veterinary Medicine:

Poultry Pathology and Animal Genetics; research **10,000** **167**

**EUROPE**

**AUSTRIA**

**SALZBURG SEMINAR IN AMERICAN STUDIES, INC.**

General budget support **25,000** **278**

**UNIVERSITY OF VIENNA**

Second Chemical Laboratory: Protein Chemistry; equipment **6,000** **154**

**BELGIUM**

**INSTITUTE OF INTERNATIONAL RELATIONS, BRUSSELS**

Integration of Germany in Western Europe; conference costs **8,000** **215**

**UNIVERSITY OF LIEGE**

Carbohydrate Chemistry: research **1,000** **156**

Isotope Techniques: equipment **3,000** **160**

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UNIVERSITY OF LOUVAIN		
Biochemistry: research		15,000 153
 <b>DENMARK</b>		
NATIONAL HEALTH SERVICE, COPENHAGEN		
Nursing Education: M. Foget; travel		3,150 84
UNIVERSITY OF COPENHAGEN		
Institute of Genetics: M. G. Kølmark; travel		500 142
Institute of Human Genetics: T. Kemp; research		14,200 117
 <b>FINLAND</b>		
STATE MEDICAL BOARD		
Uusimaa Training Area: support		32,500 77
UNIVERSITY OF HELSINKI		
Institute of Sero-Bacteriology: library equipment		1,500 88
UNIVERSITY OF TURKU		
Medical Education: E. Mustakallio; travel		2,650 82
Medical Faculty: equipment		6,200 82
 <b>FRANCE</b>		
BIBLIOTHEQUE NATIONALE, PARIS		
Union Catalogue of Slavic Collections in Paris Libraries: completion		21,600 244
S. KOT		
European Intellectual History: travel		500 247
INSTITUTE OF APPLIED ECONOMICS, PARIS		
National Income and Wealth: research and analysis		21,000 203
NATIONAL CENTER FOR SCIENTIFIC RESEARCH, PARIS		
Center of Sociological Studies:		
Social Stratification and Mobility; study		10,000 209
Enzyme Research: L. Gorini; travel		1,250 155
PASTEUR INSTITUTE, PARIS		
Microbial Chemistry: equipment		50,000 147
Virus Research: J. Vieuchange; travel		2,150 87
UNIVERSITY OF AIX-MARSEILLES, MARSEILLES		
Neurophysiology: equipment		30,000 114

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**UNIVERSITY OF PARIS**

Chemical Genetics: research	2,200	140
Colloquium on Physiology of Plants Grown in Tissue Culture:		
American Delegates; travel expenses	2,400	140

**GERMANY**

**CHRISTIAN ALBRECHT UNIVERSITY, KIEL**

Economics Seminar: Market Integration; research	5,000	205
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**PHILIPP UNIVERSITY, MARBURG**

Institute for Political Science:		
Internal Resistance to the Nazi Regime; research	10,000	214

**RHENISH FREDERICK WILLIAM UNIVERSITY, BONN**

Institute of Anatomy: E. Hagen; research	6,150	82
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**UNIVERSITY OF HAMBURG**

Linguistic and University Administration: B. Snell; travel	300	271
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**UNIVERSITY OF MUNICH**

American Institute: support	32,800	234
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**UNIVERSITY OF TÜBINGEN**

General Education Program: P. Ohlmeyer; travel	2,650	271
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**GREAT BRITAIN**

**INSTITUTION OF CIVIL ENGINEERS, LONDON**

Public Health Engineering: graduate training and research	48,000	80
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**MARINE BIOLOGICAL ASSOCIATION OF THE UNITED KINGDOM,  
PLYMOUTH**

Plymouth Laboratory:		
Marine Biology and Oceanography; support	30,000	187

**MEDICAL RESEARCH COUNCIL, LONDON**

Medical Sciences: fellowships	125,000	75
Social Medicine Research Unit: J. N. Morris; travel	1,150	89

**MIDDLESEX HOSPITAL MEDICAL SCHOOL, LONDON**

Physics: J. F. Tait; travel	1,100	156
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**NATIONAL INSTITUTE OF ECONOMIC AND SOCIAL RESEARCH, LONDON**

Postwar British Economy: study	60,000	202
Recruitment of Industrial Management in Great Britain:		
C. J. Erickson; completion of study	5,000	205

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<b>THE RELIGIOUS DRAMA SOCIETY OF GREAT BRITAIN, LONDON</b>		
International Activities: support	7,200	266
<b>THE ROYAL INSTITUTE OF INTERNATIONAL AFFAIRS, LONDON</b>		
Race Relations in Central Africa: study	31,500	213
L. Simpson and H. G. Liddell: travel	3,100	216
Western Civilization and Modern Greece: P. O. A. Sherrard; study	9,765	246
<b>ROYAL INSTITUTION OF GREAT BRITAIN, LONDON</b>		
Protein Structure: L. Bragg; equipment	15,000	159
<b>THE ROYAL TECHNICAL COLLEGE, GLASGOW</b>		
Sanitary Engineering:		
Environmental Control; teaching and research	82,000	78
A. S. T. Thomson; travel	1,650	88
<b>ST. GEORGE'S HOSPITAL, LONDON</b>		
Nursing: M. B. Powell; travel	1,700	88
<b>STRANGWAYS RESEARCH LABORATORY, CAMBRIDGE</b>		
Experimental Biology: equipment	30,000	157
<b>UNIVERSITY OF ABERDEEN</b>		
Department of Biological Chemistry: equipment	7,200	154
Obstetric Medicine Research: J. Walker; travel	400	91
<b>UNIVERSITY OF BIRMINGHAM</b>		
Biochemistry: equipment and support	15,000	153
Modern History and Government: J. A. Hawgood; study	2,350	257
<b>UNIVERSITY OF BRISTOL</b>		
Department of Drama: development of program	15,300	263
<b>UNIVERSITY OF CAMBRIDGE</b>		
Board of Extra-Mural Studies:		
Conference on American Studies; expenses	9,000	246
Industrial Organization: A. Silberston; travel	1,245	206
Jesus College: Economic History; C. H. Wilson; study	2,550	206
King's College: P. Noel-Baker; revision of <i>Disarmament</i>	5,700	216
Molteno Institute: Physiology; equipment	7,500	139
Pembroke College: S. C. Roberts; travel	500	271
Political Economy: D. H. Robertson; travel	2,260	206
<b>UNIVERSITY COLLEGE OF NORTH WALES, BANGOR</b>		
Zoology: F. W. R. Brambell; travel	1,150	141
<b>UNIVERSITY OF DURHAM</b>		
Public Health Engineering: training and research	48,000	79

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UNIVERSITY OF EDINBURGH

Natural High Polymers; research 45,000 148

UNIVERSITY OF GLASGOW

Biochemistry; equipment	725	118
Genetics; conferences	7,500	139
Psychological Medicine; M. B. Swann; travel	2,400	86

UNIVERSITY OF LEEDS

Plant Anatomy; I. Manton; travel 700 160

UNIVERSITY OF LIVERPOOL

Comparative Endocrinology of Vertebrates;		
Symposium; expenses of foreign delegates	1,500	141
T. W. Goodwin; travel	1,200	155

UNIVERSITY OF LONDON

Imperial College of Science and Technology:

Water Research; support	18,000	188
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King's College:		
Biophysics; equipment and research	60,000	157
Electrophysiology; research	8,000	159
J. Honeyman; travel	920	156

London Hospital Medical College; J. R. Ellis; travel	2,150	85
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Royal Holloway College; M. M. Bullen; study	850	257
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School of Economics and Political Science:		
H. T. Himmelweit; travel	1,150	209
K. R. Popper; support	2,760	220

University College:		
The Galton Laboratory; H. Kalmus; travel	1,300	140
Human Genetics; support	9,900	117
Plant Physiology; research	2,600	140
Political Economy; G. C. Allen; travel	1,525	217

UNIVERSITY OF OXFORD

All Souls College; H. J. Habakkuk; visiting professorship	1,000	207
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Laboratory of Physiology; F. P. Glees; travel	800	90
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Nuffield College:		
African Studies; research and training	85,500	213
International Administration; A. Loveday; research	7,000	214
Political Thought; K. D. McRae; study	3,500	220

St. Antony's College:		
European Studies; program development	123,000	236

UNIVERSITY OF ST. ANDREWS

Biochemistry; equipment	1,700	155
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Marine Biology; equipment	2,000	140
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Plant Physiology; research	1,200	155
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<b>UNIVERSITY OF SHEFFIELD</b>		
Biochemistry: research	80,000	146
Microbiology: equipment	6,000	154
<b>VICTORIA UNIVERSITY OF MANCHESTER</b>		
College of Technology: R. J. Cornish; travel	2,575	86
Darbshire House Health Center: R. F. L. Logan; travel	2,800	86
Economics: T. S. Trent; research	8,925	204
Government and Administration: B. Chapman; study	6,300	215
<b>IRELAND</b>		
<b>UNIVERSITY COLLEGE, DUBLIN</b>		
Department of Biochemistry and Pharmacology: research	12,000	151
<b>ITALY</b>		
<b>CENTER OF METHODOLOGICAL STUDIES, TURIN</b>		
American Contemporary Thought: F. Rossi-Landi; book preparation	3,400	246
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Bibliography of Italian Labor Movement: preparation	3,000	206
<b>UNIVERSITY OF BOLOGNA</b>		
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Embryology; research	2,500	140
<b>UNIVERSITY OF CAILOIARI, SARDINIA</b>		
American Studies: E. Tagliacozzo; research	2,300	246
<b>UNIVERSITY OF GENOA</b>		
Center of Economic and Econometric Research: E. Fossati; travel	3,600	206
research program	79,200	201
<b>UNIVERSITY OF MILAN</b>		
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Institute of Genetics: equipment	700	139
Institute of Zoology: Experimental Biology; equipment	7,500	139
<b>UNIVERSITY OF NAPLES</b>		
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Cytology and Embryology; equipment and supplies 5,000 139

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Institute of Comparative Anatomy:  
Spectroscopic Biology; equipment 3,500 160  
Institute of Zoology: Cytogenetics of Mosquitoes; research 21,600 113

**UNIVERSITY OF PISA**

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Neurophysiology: G. Moruzzi; research 25,000 116

**UNIVERSITY OF ROME**

Experimental Biology; research 4,000 140

**ZOOLOGICAL STATION OF NAPLES**

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**UNIVERSITY OF LEIDEN**

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**UNIVERSITY OF UTRECHT**

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**NORWAY****UNIVERSITY OF OSLO**

T. Braarud; travel	660	142
Faculty of Sciences: Chemistry of Nucleic Acids; research	2,000	155
Institute of Respiratory Physiology: research	31,950	115
Pharmaceutical Institute: A. Nordal; travel	975	155
Psychiatry: Epidemiology of Mental Disease; research	17,225	117

**SWEDEN****KAROLINSKA INSTITUTE, STOCKHOLM**

Department of Physical Cell Research:  
Biophysics; equipment 15,000 159  
Electron Microscopy; equipment 6,000 158

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Neurophysiology: E. K. H. Kugelberg; travel	1,950	87
<b>STOCKHOLM SCHOOL OF ECONOMICS</b>		
B. Ohlin: travel	1,500	207
<b>SWEDISH NATURAL SCIENCE RESEARCH COUNCIL, STOCKHOLM</b>		
Palynological Research Center: Pollen Analysis; research	2,500	133
<b>UNIVERSITY OF STOCKHOLM</b>		
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<b>UNIVERSITY OF UPPSALA</b>		
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<b>UNIVERSITY OF BERN</b>		
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Theodor Kocher Institute: research and equipment	25,000	132
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Institute of Human Genetics: support	10,000	116
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