

THE ROCKEFELLER FOUNDATION
ANNUAL REPORT FOR 1962



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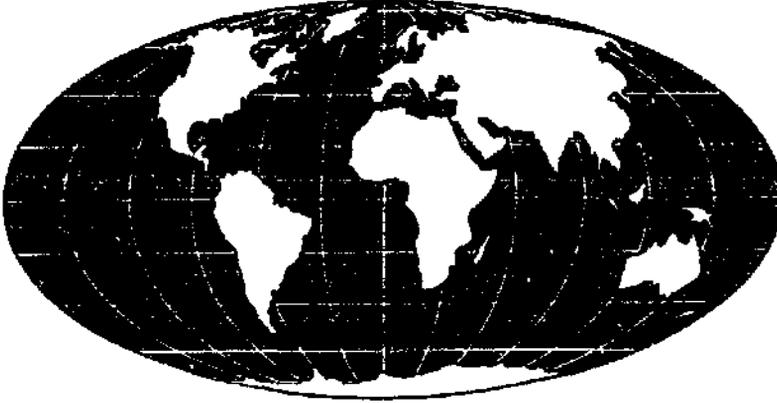
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THE PRESIDENT'S REVIEW • 1962



YESTERDAY AND TOMORROW

YESTERDAY

In 1962 The Rockefeller Foundation began its fiftieth year and in the spring of 1963 will celebrate its fiftieth birthday. Although the Foundation has periodically re-evaluated its policies and activities, there is something special about a fiftieth birthday that calls for review, for reflection, and for looking ahead. Viewed retrospectively, the past should be seen not just as a record of successes and failures but as a rich source of experience whose lessons can contribute measurably to *planning for the future.*

A description of Foundation activities over the past half-century must center on its efforts to advance human knowledge and its application year by year to those ills and problems which limit the freedom and satisfactions of mankind. Through a deliberate policy adopted by its first Trustees, Foundation effort has been directed not to the practice of charity but rather toward the identification of the underlying causes of human suffering and lack of opportunity and toward their gradual removal from areas of the human scene whose boundaries widened as the years went by.

Medicine and Public Health

Conceived in the philosophy that "disease is the supreme ill," and that the search for peace and progress depends in the first instance mainly upon physical well-being, the Foundation in its early years directed its programs toward problems of public health on an international scale. Working without precedents, Foundation officers in those first decades created patterns of operation which were innovations in the prevention and control of disease. In an organized fashion they sought the major communicable diseases at their sources, followed every lead which would guide them to greater understanding of the strengths and weaknesses of these enemies, and translated the results into practical programs designed to eliminate or contain them. As a consequence they gained increasing insight into the magnitude and complexity of diseases such as hookworm, malaria, and yellow fever, learned the secrets of their persistence and transmission, and devised the means for achieving their effective control.

Six of these early workers against yellow fever lost their lives in the search for its control, but thanks to them and their colleagues, patterns for the protection of the public health became clearer. New knowledge and methods evolved which, applied broadly, for the first time in world history brought freedom from major diseases to millions formerly condemned to short, pain-filled, and unproductive lives.

The dedication, industry, and sacrifice of these pioneers of public health built the foundations upon which stand many of the national and international agencies and programs many times greater in size than those which gave them their beginnings. Modern developments in public health are extraordinary in their accomplishments. All who had a part in their origins may take satisfaction in their proliferation and growth, and in the strides they are making in conquering the pathogens which once collected from society so vast a toll of illness and untimely death.

As the early work of the Foundation's medical staff began to pay rich dividends in the form of knowledge and experience, and their application for the public good, the Trustees and officers wisely ex-

tended the medical program to important associated areas which then could claim only limited support. Primary among these was the development of schools of public health to train a growing body of qualified public health physicians, nurses, and technicians. The Foundation built and endowed the first of these at the Johns Hopkins University; soon similar training centers were established or strengthened in places as diverse as Tokyo and Oslo, Calcutta and Zagreb, Warsaw and Manila. From this widespread network of schools of public health and hygiene, supported by governmental and private resources, have come the people who arrested many once-common diseases, and built the national and local public health systems that stand guard against their recurrence. Although progress has necessarily been slow in the less industrialized regions, patterns of public health protection are evolving which every year add to the health, vigor, and satisfaction of millions of individuals.

The Rockefeller Foundation's yellow fever laboratory in Lagos, Nigeria, in 1928. This and others in East Africa, South America, and New York were the bases for the Foundation's campaign against yellow fever.



Photograph Excised Here

As a natural evolution from these first steps, the Foundation began to increase its efforts in the field of medical education. For many years The Rockefeller Foundation and its sister organization, the General Education Board, were the principal investors in medical schools here and abroad in an attempt to improve the quality of medical education and, ultimately, of the medical care afforded society. Although the bulk of this activity was in the United States through the work of the Board, the Foundation contributed to the advance of medical education in Canada, Europe, Latin America, and Asia. One major element in this effort was continuing emphasis on medical research which, of necessity, must move forward hand in hand with education if the desired achievements are to be attained. Many of the modern accomplishments of medical research had their origins in some of these early ventures.

During recent years in this country, rapidly growing social acceptance of responsibilities for medical education, research, and care has led to the channeling of vastly increased public funds into these areas of human welfare. The Foundation, seeking pioneer opportunities which may create patterns for the future, has consequently increased its work abroad. In the context of the less industrialized countries, although the search for new knowledge is not overlooked, the main emphasis is placed on the communication of information, methods, and materials, and their ever-broadening application for the well-being of the areas where these benefits have long been withheld because of the lack of adequate educational and economic resources.

The program of the International Health Division of The Rockefeller Foundation was brought to a close in the 1950's. The decision was taken in the knowledge that new agencies and new resources entering the field could be expected to extend, expand, and carry forward the work in response to need.

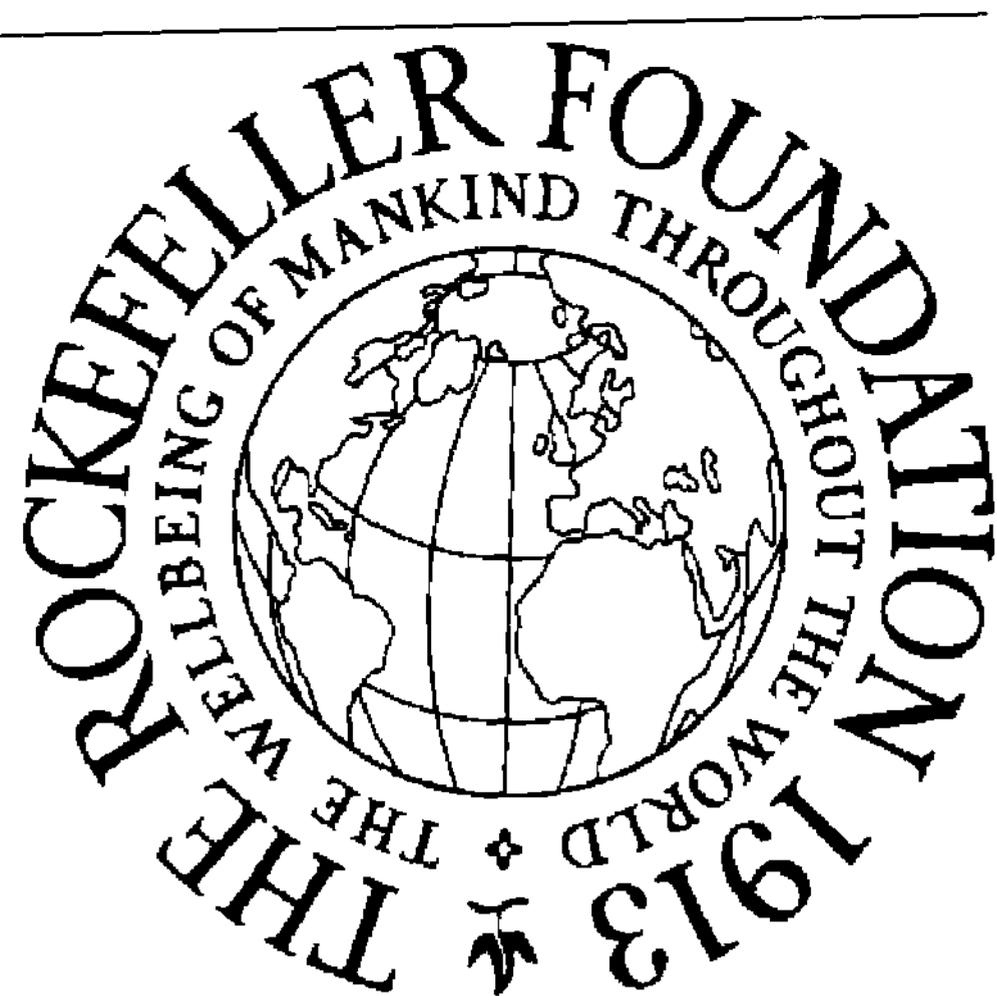
However, at about the same time it became clear that an important but little known area of medical science, not then receiving adequate support, would obviously require greater attention during the years ahead. This was the study and understanding of the arthropod-borne (arbo) viruses. These were known to be numerous, and it was suspected that their numbers might be exceedingly large. These insect-transmitted viruses were thought to be the cause of many little-understood diseases often categorized broadly as "tropical fevers."

Basing its plans on years of accumulated experience, the Foundation assembled a small team of public health physicians, medical entomologists, and virologists. Staff units were located in those areas of the world which careful ecological studies showed to be the most appropriate centers for the study of the arboviruses. At various times since the work began in 1950, field staff units have been located in South Africa, West Africa, Egypt, India, Brazil, Trinidad, Colombia, and the state of California, feeding information and materials into central laboratories in New York City. In the 12 years following, about 150 hitherto unknown arboviruses have been collected and classified, many of them by the Foundation staff; new diseases caused by only slightly known arboviruses have been identified; a collection of reference strains and antisera has been created and maintained; and a significant number of virologists have been trained.

Currently, and once more in accord with its policy of maintaining flexibility for forward planning, the Foundation is in the process of consolidating the headquarters of its virus research program with the Department of Epidemiology and Public Health of Yale University, in cooperation with the World Health Organization. Ultimately, this center and others established during recent years in various localities and under other auspices can be expected to take over this vitally significant pioneer area of public health research.

The Life Sciences

In 1928 the Foundation created a Division of Natural Sciences in recognition of the needs and opportunities for reinforcing research and teaching in those sciences basic to the progress of all science and technology. Physics, chemistry, mathematics, biology, and, to a limited extent, astronomy and geology were included in the early programs. As they evolved, and as ampler resources became available in this country for the support of the natural sciences, the Foundation, in its program, placed greatest emphasis on studies in the life processes, channeling increasing support to biophysics, biochemistry, and related disciplines such as genetics, physiology, microbiology, and, to a lesser degree, marine biology. The Foundation takes pride in its role in the advancement of these areas of science through the support of basic research and through aid to the training of specialists in these dis-



Photograph Excised Here

One of the earliest studies in the life sciences supported by the Foundation: the influence of radiation on the growth of plants, at the Smithsonian Institution, Washington, in 1929.

ciplines. The outpouring of useful knowledge from microbiology, genetics, and the other biochemical and biophysical sciences has become so great that they are now the object of interest and support which many times exceed the modest funds which the Foundation provided during their earlier stages.

The Agricultural Sciences

As a natural outgrowth of its interest in public health and the biological sciences, the Foundation turned its attention more and more to the general field of human nutrition, especially with reference to the problems of producing more food for a hungry world. When an opportunity was presented to participate with the government of Mexico in

an action program directed to improving the quality and quantity of locally important basic food crops, the Foundation accepted, and established a new program in 1943. In intimate association with Mexican leaders, scientists, and agricultural producers, an initial attack was made on the problems responsible for annual deficits in such major food crops as corn and wheat. Ultimately the work was expanded to include other projects on potatoes, beans, feed and forage crops, and on the animal sciences directed toward the increased production of protein foods. Integrated with the research projects from the beginning was an effort to improve agricultural education and to train specialists who could one day accept full responsibility for future investigations in the sciences related to agriculture and their application to national production.

In the twenty years since 1943 the deficit position of Mexico with respect to its basic foods has been corrected. The country can now satisfy its own requirements for corn, wheat, beans, and potatoes, and is entering new areas of agricultural enterprise. These results have been accomplished through the improvement of soil management and fertility, the use of genetically improved crop varieties, the control of major pests and diseases, and the rapid extension of new knowledge, methods, and materials to the persons and agencies responsible for crop and animal production.

In the same two decades some 700 young Mexican graduates have obtained in-service training experience, and many of them have had opportunities for advanced studies. These young men and women have now assumed positions of leadership in education, research, extension, and administration throughout the country and are gradually accepting responsibility for the agricultural development of the nation.

During the course of the experiment in Mexico, it became evident, as was expected, that information and experience gained there would be of value in other countries. As a consequence, and in response to invitations from the governments concerned, the Foundation's agricultural program was expanded by the establishment of a second unit in Colombia in 1950, and a third in Chile in 1955, along with less formal cooperation in a number of other Latin American countries. In 1956 a cooperative unit was established in India at the invitation of the government of that country. In 1959 an international institute dedicated

primarily to the study of rice and its improvement was established in the Philippines in conjunction with the University of the Philippines and in cooperation with the Ford Foundation, which financed the construction of the physical plant.

Today each center, although cognizant of and working toward the solution of local problems of food production, is thoroughly international in character. Each has many interrelationships designed to enable it to function widely and usefully as a source of new information and materials and as a training center for those from other countries who wish to profit from a period of direct participation in an operating program.

The Social Sciences

In 1928 the Laura Spelman Rockefeller Memorial fund was consolidated with The Rockefeller Foundation as the Foundation's Division of Social Sciences. In its program the division emphasized the advancement of research in the social sciences, including economics, sociology, government, and history. A grant-making rather than an "operating" division, its efforts were directed principally to the support of research in colleges and universities in the United States,

The Foundation's agricultural program was based on recommendations made by a Survey Commission which travelled over 5,000 miles through Mexico in the summer of 1941, often over trails too rough for a car.



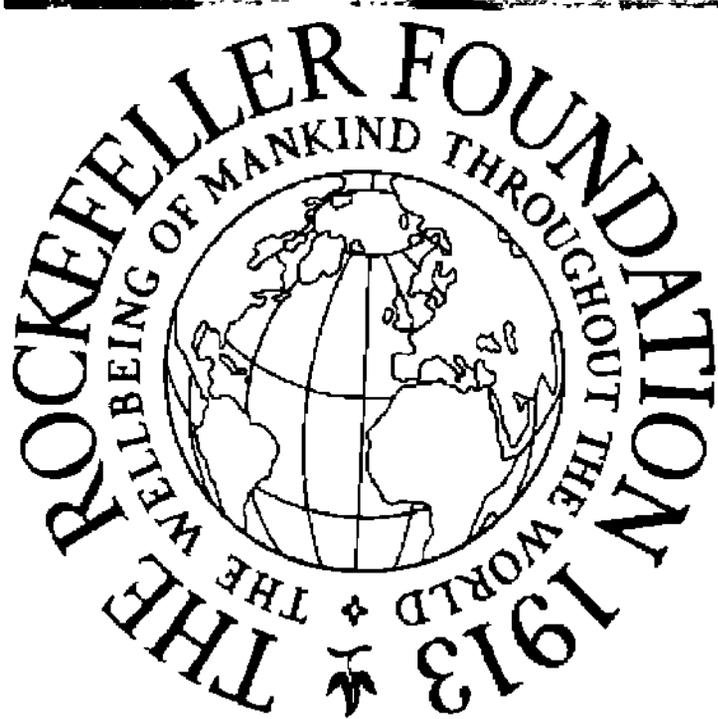
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The poor plant stands and hand methods of primitive agriculture mean meager harvests. Agricultural advances in Mexico, where this was taken in the early 1940s, have made scenes like this a rarity.

Europe, and Great Britain and to social science organizations dedicated to advancing knowledge. As in all Foundation programs, a great deal of effort was directed to increasing the number of knowledgeable individuals thoroughly trained in the social science disciplines and interested in carrying on research or instruction. Among the organizations which the Foundation assisted or helped bring into being are the Social Science Research Council, the Council on Foreign Relations, the National Bureau of Economic Research, and the Brookings Institution. Through Foundation support, these agencies and similar bodies in American and European universities have been enabled to progress



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Operators in the relay test room of the Hawthorne plant of the Western Electric Company in 1937. One of the oldest, most-quoted landmarks in the behavioral sciences, the Hawthorne study was conducted by a group from the Harvard School of Business Administration headed by Dr. Elton Mayo. Rockefeller board support for the Mayo group began in 1926 and in the end totaled \$1,352,954. Below, a scene designed by Samuel Selden for the 1934 premiere of Paul Green's *Shroud My Body Down*, produced by the Carolina Playmakers of the University of North Carolina. Foundation aid to the Playmakers, begun in 1933, continued for a decade.



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more rapidly and effectively in their basic and applied research and training programs in the social sciences.

Over the years the program in the social sciences, like other sectors of the Foundation, has evolved in response to changing need and opportunity. Recently emphasis has been given to economic history, government and diplomacy, legal and political philosophy, general economic theory, and agricultural and land economics. Advanced research at the frontiers of knowledge has been supported at various centers. During this period, too, there has been growing interest on the part of the Foundation in the role of the social sciences in the underdeveloped areas, and moves have been made to permit increasing contributions to the social and economic growth of many of these regions.

The Humanities

In 1929 The Rockefeller Foundation established a Division of Humanities, which continued and redefined earlier cultural interests of the General Education Board and the International Education Board. This was in response to awareness by the Foundation's Trustees of the pressing demand for attention to problems of enriching the content and purpose of human life within modern society. Early grants included support of research in history, creative writing, the arts, linguistics, and selected aspects of education. Recognizing the broad sweep of the term "humanities," the Foundation experimented widely as it sought to identify the areas which might be chosen for concentration. Although most of the emphasis was in the United States and on university-connected projects, from the beginning the program recognized to a considerable degree the importance of intercultural understanding involving studies abroad, as well as the need to increase knowledge of foreign areas in American higher education. As a consequence, some of the leading centers for the study of foreign languages, cultures, and institutions owe their origin or further development to Rockefeller Foundation assistance.

The humanities program has been marked by flexibility, although the changes have not necessarily been rapid. Support given has been on the basis of careful preliminary study, and when time has been a critical factor the support has been sustained for periods sufficient to

assure the sound establishment of research programs and satisfactory accomplishment. Because of its pioneering concern with the importance of knowing the language and outlook of many foreign cultures, the work in humanities early included scholarly exchanges and support of language and allied studies at leading institutions overseas. Initial emphasis was on Asia, but this has since been expanded to include both Latin America and Africa, and, to some degree, the Middle East. As more recently many other organizations have given aid to linguistics and its application for improved language teaching, the Foundation has been able to reduce its own efforts in this field and to concentrate on the support of language departments in institutions abroad.

The humanities program has long included the study of history as important for background and perspective in contemporary thinking and in interpreting change and continuities in the wide variety of countries in the world today. Thus a range of projects have been aided on the history not only of the Americas and Europe, but also of Asia and Africa.

Library science has been a consistent Foundation interest, and each program on numerous occasions has recommended aid to some aspect of library development. Little by little these efforts have been integrated and are now looked upon as a Foundation-wide activity closely related to other phases of its work. The humanities program was, however, the first to be especially vigorous in library science.

The areas comprising the creative and performing arts are vast and intricate. The Foundation has always recognized that it could not hope to provide support for performances in any large sector of either the creative or performing arts, but has attempted to encourage the continuing development of highly talented individuals and organizations concerned with creative writing, musical composition, dramatic production, the ballet, and symphonic conducting. As a consequence, a substantial number of projects have been assisted in the hope that they will, to some degree, help in the enrichment of the cultural experience of all those whom they reach and serve.

Finally, the humanities program has been continuously interested in the complex and difficult field of communication in its broadest context, recognizing that human action is largely determined by experience and knowledge and that these require continuing and effective

communication. Support has been given to various efforts to improve the interchange of information, ideas, and ideals for greater human progress, including grants for projects of international press organizations, educational television, information storage and retrieval, and critical and interpretive writing.

The fifty years of activity described in a concentrated form in the preceding pages has provided the Foundation with a rich body of experience. This provides bases and judgments which serve as guidelines for the future. It is clear that much of what was done in the past, although of great value and significance at the time, would not be applicable in the world of today. The fact that we live in a world of change is constantly recognized by the Foundation, as is the necessity of continuous adjustment to change, and, accordingly, of planning for the future.

In 1921 a Rockefeller Foundation staff member (*center*) helped a local group in Siam (Thailand) conduct an intensive investigation of hookworm disease. As in similar campaigns in the United States and other countries, the purpose was to dramatize the need for a permanent governmental organization with full-time, professionally trained staff, to safeguard public health from preventable disease.



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TOMORROW

The projection of the work of The Rockefeller Foundation during the years ahead can appropriately be described in terms of the changes which had begun to occur as it approached its fiftieth anniversary. The year 1962 has been one of careful and intensive examination, study, evaluation, and reorientation.

Perhaps the most fundamental decision taken is that the Foundation should place increasing emphasis on the ecological approach to human problems. As the study of the interrelation between a species and its environment, ecology is indeed a very broad field, and the term "human ecology" has infinite ramifications and implications. Human ecology is of particular interest to the Foundation, however, for its relevance to the problems both of industrialized and of developing countries. Predicated on the concept that a given society, whatever its stage of development, stands in intimate relation to all aspects of its environment and that a change in one necessarily affects the others, an ecological approach would seek to assist advances simultaneously on several important fronts. Hopefully, this approach would avoid some of the internal torques and tensions induced by rapid development in one sector, such as the industrial, and slow advance in others, such as the agricultural or educational.

In 1962 the Foundation began a process of consolidation which does not substantially change its pattern of operation, but which does bring together hitherto separate activities in a more precisely focused effort. In the past a coordinated attack of this sort was not possible. Opportunities for helping offered themselves almost on a random basis. Regions which in educational and scientific developments had not kept pace with industrial nations, suffered so great a dearth of qualified professional personnel that aid programs, starting with the few existing points of strength, were inevitably dispersed and diffused. Only through offering training opportunities on an ad hoc basis was it possible to help create a corps of competent individuals who could begin to take increasing responsibility for the building up of local projects and institutions.

Over the years the Foundation has been fortunate in having on its staff specialists acquainted with scholarly and scientific activities throughout much of the world. Through extensive travel and careful and

continuous study, they have been able to select points of potential growth and to identify individuals of promise. The modest assistance which staff officers could offer has often aided these institutions and individuals to utilize more fully their human and material resources. More than 16,000 scientists and scholars have been awarded scholarships, fellowships, or study grants to extend and deepen their knowledge, experience, and skills. Concurrently aid has been given to departments or schools of medicine, public health, agriculture, the basic sciences, economics, sociology, the humanities, and the arts. Although Foundation help has of necessity been modest in proportion to the total needed, the objective in each instance has been to provide support at critical moments and in such a manner as to assure maximum leverage toward progress.

An abiding conclusion which the Foundation can draw from fifty years of experience is the wisdom of the philosophy that the best investment a private philanthropy can make is in the development of the individual of talent and promise within an area of opportunity. Essentially all the progress in which the Foundation can claim to have had some role has derived from the energy, ability, and dedication of those who have been assisted through contributions to their training or professional activity.

The immeasurably greater challenges of today and the future transform into new orders of magnitude the need for individual human competence. Hope for the future depends on success in achieving educational and professional opportunities for an ever-increasing number of men and women with the intellectual capacity and motivation to contribute to social progress. Thus the Foundation expects to continue its program of fellowships, scholarships, and study awards to assist the intellectual development and learning of individuals. At the same time, the pattern of the training awards will be integrated with other types of work in an over-all ecological approach.

Today the training process has been carried to a point at which it is readily possible to identify opportunities for concentration. A half-century of effort in many areas by the Foundation and other agencies has now trained individuals over a wide spectrum of needed skills to staff national institutions and programs. As emerging indigenous institutions take increasing responsibility for the training of their nationals,



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The rapid development of their universities is one of the keys to the advancement of emerging countries. A student in the library of the University of Ibadan in Nigeria.

outside aid can be concentrated on selected institutions rather than on individuals, to help build them into positions of excellence and permanence in which they can satisfy ever larger proportions of the national educational needs and aims. Ultimately some of these institutions can be expected to extend their influence beyond national boundaries to become regional centers.

The chief innovation in the Foundation's program in 1962 was the decision to center its concern for institutional development primarily upon selected universities in the less developed countries. By thus narrowing its objectives, and utilizing an ecological approach for their attainment, the Foundation believes that it can promote a better relationship between the universities and their environments.

In many less developed countries a serious imbalance exists between the ability of the institutions to serve society and the demands made upon them to produce the trained and competent specialists required in a host of fields. In some instances this imbalance is simply one of size: the universities have nowhere near the student capacity nor the faculty to handle the training of the needed personnel. In others the imbalance results from the slowness of the universities, often among the most conservative institutions in the social structure, to adapt their course offerings to the manifold kinds of skills and competencies demanded by complex societies. In still others relatively sudden influxes of great numbers of students have so diluted university authority and academic quality that the very purpose and function of the university seems to have become weakened.

Clearly no one formula can be expected to fit such diverse problems, and foreign organizations, however good their aims, cannot take the lead in beginning corrective adaptation. The American system of higher education evolved over three centuries. Its success at home does not mean that it would be the right system for other countries. The forms which they take must grow from within the universities themselves and from the societies which support them.

The importance of bringing their university systems into consonance with present-day requirements is deeply realized by the people and governments of practically every country where the needs for higher education are still unmet. Coupled with this in most instances is the need for vastly expanding and reinforcing elementary and secondary education. The magnitude of the problem faced by many of these countries is staggering, and in view of their limited resources, progress must be deliberate. Even so, progress is being made, and already certain centers of higher education are emerging as models which others can emulate. It is centers of this sort which the Foundation hopes to assist. Each of these institutions has had various types and levels of support from the Foundation in years past. Building on established points of strength, it should be possible to help in raising the level and tone of the institution as a whole.

The philosophy behind the decision to concentrate on university development is that all nations need the strength which comes from stable institutions of higher learning to serve the intellectual and other

needs of the population. A growing body of alumni can contribute uniquely to national economic and social stability and to the functioning of democracy in a free society.

In the past a number of countries have been able to acquire in part the top echelons of the educated personnel they needed by sending young people abroad for training, frequently with the help of foundations and other philanthropic agencies. Too often upon their return these highly competent people have been unable to contribute as much as they should because of the lack of supporting organizations and institutions and the dearth of competent teammates. The Foundation is dedicated to the principle that a gradual, steady shift to education at home is the solution toward which such countries should progress. The interchange of scientists and scholars among nations will always reward both parties, but each country, insofar as possible, should try to offer its citizens the benefits of education at least through the baccalaureate level, and ultimately through the advanced and professional degrees. No country can forever afford an adverse educational exchange balance.

In deliberately deciding to concentrate on institutional development on an international scale, the Foundation remains true to its basic objectives. A large proportion of its staff and financial aid has always been devoted to helping indigenous institutions rise to levels of quality and diversified competence which permit them to shoulder a much greater share of the burden of higher education for their own people. The Foundation has never attempted to create or direct the process, but only to respond to the initiative and enterprise of local leadership subscribing to the same educational philosophy and trying to do something about it. Within the limitations of its resources, the Foundation stands ready to join with institutions of strategic importance in their efforts to move ahead on the road toward greater responsibility for the educational needs of their peoples.

In 1962, and even before, institutional development was begun in two ways. One was the establishment of a limited partnership with several universities aimed toward over-all development of the university pattern and process. The second was the establishment of an international research institute working to increase production of a vitally needed food in a highly important part of the world. The latter

—the International Rice Research Institute—is expected also to contribute to the development of a university and ultimately to become an integral part of it.

The funds to be devoted to institution building—a substantial proportion of those available for appropriation—will be used for both direct and indirect support of this overseas university development program. Direct aid will include the reinforcement of faculty, the provision of equipment and library materials, and, occasionally, grants for plant construction. Indirect aid may include training awards for junior faculty, and the temporary support of visiting specialists to serve the institution during the early stages of growth before adequate numbers of nationals are ready for responsibility.

The growth of universities toward full assumption of their national responsibilities must be balanced, with all the constituent faculties and schools advancing in step toward a freely chosen goal. For one or two parts of a university to greatly outpace the others obviously would create internal imbalances fatal to effective ecological adjustment. The Foundation expects to employ the full potential of all its various program facilities concertedly and continuously to assist in the objective of balanced university development. Insofar as the Foundation can stimulate the process, it will seek to aid the total university, not selected departments or schools separately.

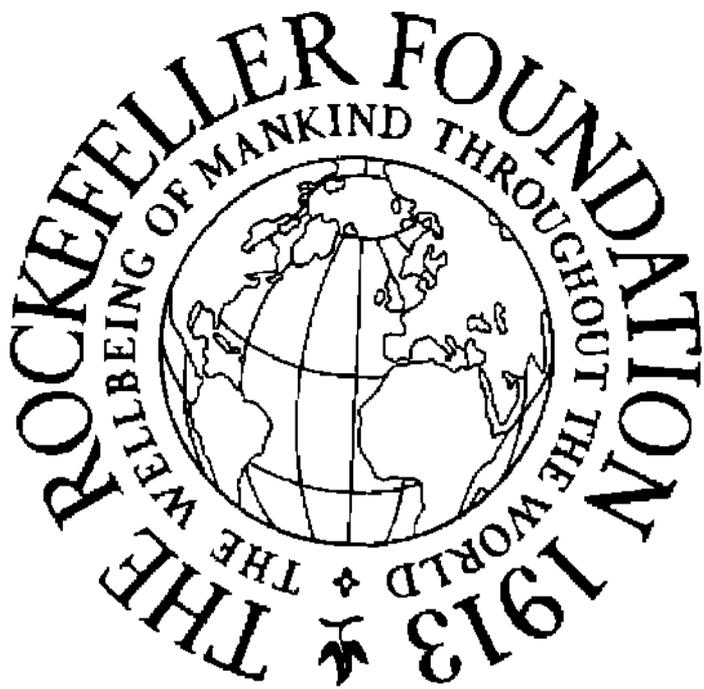
Any projection of Rockefeller Foundation work in the future must stress the prominent role of staff-operated projects. One distinctive feature of the Foundation's half-century history has been its willingness to do the job itself when local organizations and personnel were not prepared to undertake the full task. Staff members have gone to countries in every region of the world to lend a hand in solving problems of public health, medical education, nutrition, and food production. Through shoulder-to-shoulder cooperation between Foundation specialists and their local associates over the years, the threats of infectious diseases and continuous hunger have been demonstrably diminished in the regions where operating programs have been in progress. National organizations strengthened through these cooperative ventures and professional personnel trained in them have accepted responsibility for continuing the progress toward production of greater quan-

tities of foodstuffs, improvement of the national diet, protection from disease, and better medical care for all the people.

Whatever the field, a single pattern of shared responsibility has characterized all the operating programs and the Foundation expects to continue to respond in the same way to future opportunities. This pattern is to initiate projects only upon invitation from responsible authorities in the host country, to cooperate intensively over a substantial period, to rank the training of nationals as a top-priority objective, and to withdraw gradually as assistance becomes less and less necessary. Through this process the Foundation has been able to use its financial and staff resources in a series of overseas ventures which have since become self-sustaining, carried forward and expanded by others. As projects drew to a close, Foundation staff were ready for transfer to new areas where needs were still unmet.

The fact that for half a century the Foundation has maintained a staff of specialists as career employees has made it possible to build up a body of knowledge and experience about overseas technical assistance which is probably unique. The first operating programs were in medicine and public health, necessitating the development of a staff of public health physicians and nurses, epidemiologists, medical entomologists, virologists, and sanitary engineers. Later, teams of scientists in the fields basic to agriculture and nutrition were built up in order to respond to invitations from abroad to participate in food production projects. More recently, as a result of the reorientation begun in 1962, a beginning has been made toward staffing in the humanities and social sciences for overseas assignment. The contribution of these experts will be directed to the Foundation's institutional development plans, and those of the public health and agricultural staffs will be correlated with university development as time and opportunity permit.

Responsibility for the continuity and development of much of what The Rockefeller Foundation initiated in the past is now in the hands of others. Similarly, many projects and programs which previously received Foundation support for various periods are now eligible for assistance from national and international agencies having vastly larger resources. In consequence, the Foundation has gradually withdrawn from a number of fields in which it was once a prime mover.



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The Center for Studies in Economic Development of the University of the Andes, Bogotá, Colombia, is conducting a study of unemployment in Bogotá and Girardot. Here researchers visit the home of an unemployed worker who moved into Bogotá from a neighboring rural area.

Specifically, the Foundation does not now regularly contribute to the general support of medical education or to research in the medical, natural, biological, and agricultural sciences in the United States for the reason that other resources available in these areas are entirely adequate to the need. However, the Foundation retains the option of assisting research and related enterprises in the sciences which offer exciting possibilities for future results of important social benefit, in those instances when support from other sources is not readily at hand.

In the humanities and social sciences, the Foundation has gradually moved away from the provision of general support in separate fields to a type of assistance carefully related to the total complex of Foundation efforts and directed toward lines of work thought to be of greatest potential value for a changing social scene.

The problems which society faces today from the simple increase in the numbers of human beings have created an anxiety among the experts which is now spreading to the general public. Regardless of their numbers, these individuals must be housed, fed, protected, and given opportunities in keeping with their dignity as human beings if

One of the Foundation's consistent interests in institutional development is the strengthening of library resources. This reading room is located at the Indian School of International Studies, New Delhi.



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civilization as we think of it is to survive. Because each individual has only one life span, the problem is one of great immediacy, not one for relaxed planning. The prospect is alarming in the industrialized nations with great resources, and can be frightening in have-not nations where it approaches the dimensions of catastrophe.

Unless human intelligence is focused on the problems of population, it is probable that all efforts to improve the lot of nations and of individuals will be nullified. Modern technology can do a great deal to help the world accommodate more people. However, there must be a simultaneous and vigorous effort to stabilize populations if mankind is not one day to be engulfed by its own numbers.

The complex and diverse attitudes which govern people's thinking about human rights and social issues have in the past made population problems particularly sensitive. As the facts become clearer, however, and the threat more evident, the situation is changing. The affected societies must decide the population question in their own terms; the answer does not lie in the imposition of restraints through authoritarianism. As the effects of totally uncontrolled population increases are realized, voluntary decisions will be brought about, hopefully with promptness. It is abundantly clear that unless the problems are faced and the appropriate decisions made, the world is on a road which can only lead downward in terms of economic and social progress.

There are constructive possibilities for the achievement of a more satisfactory accommodation of present and, within limits, of future



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populations. The necessity of increased food supplies is no longer a debatable issue. In a world where fewer than half the people enjoy an adequate daily diet, no one can question the imperative importance of growing more food if there is to be any hope for peace and some measure of prosperity.

Food production is an integrated function of climate, land, and people. Little can be done about controlling climate; a good deal can be done with the land; and almost anything is possible through the ingenuity of the human mind. The area broadly described as land economics, which has received too little attention in the past, must be brought to the forefront in preparation for the hungry hordes of the future. This discipline involves the careful examination, evaluation, and improvement of land-use patterns. It involves not only the problems of agriculture but those of cities and suburbs as well. The Foundation has attempted to assist in moving the study of land economics forward and expects to intensify efforts to encourage greater recognition of its significance.

Perhaps the greatest limiting factor in economic planning for land utilization is the world supply of fresh water. For centuries in the regions where rainfall has always been plentiful water has been thought of as an unlimited resource, without intrinsic value. Under the pressure of growing populations and the new multiplicity of activities requiring large quantities of water, the situation is changing to one in which this commodity is becoming more and more precious. The hardships im-

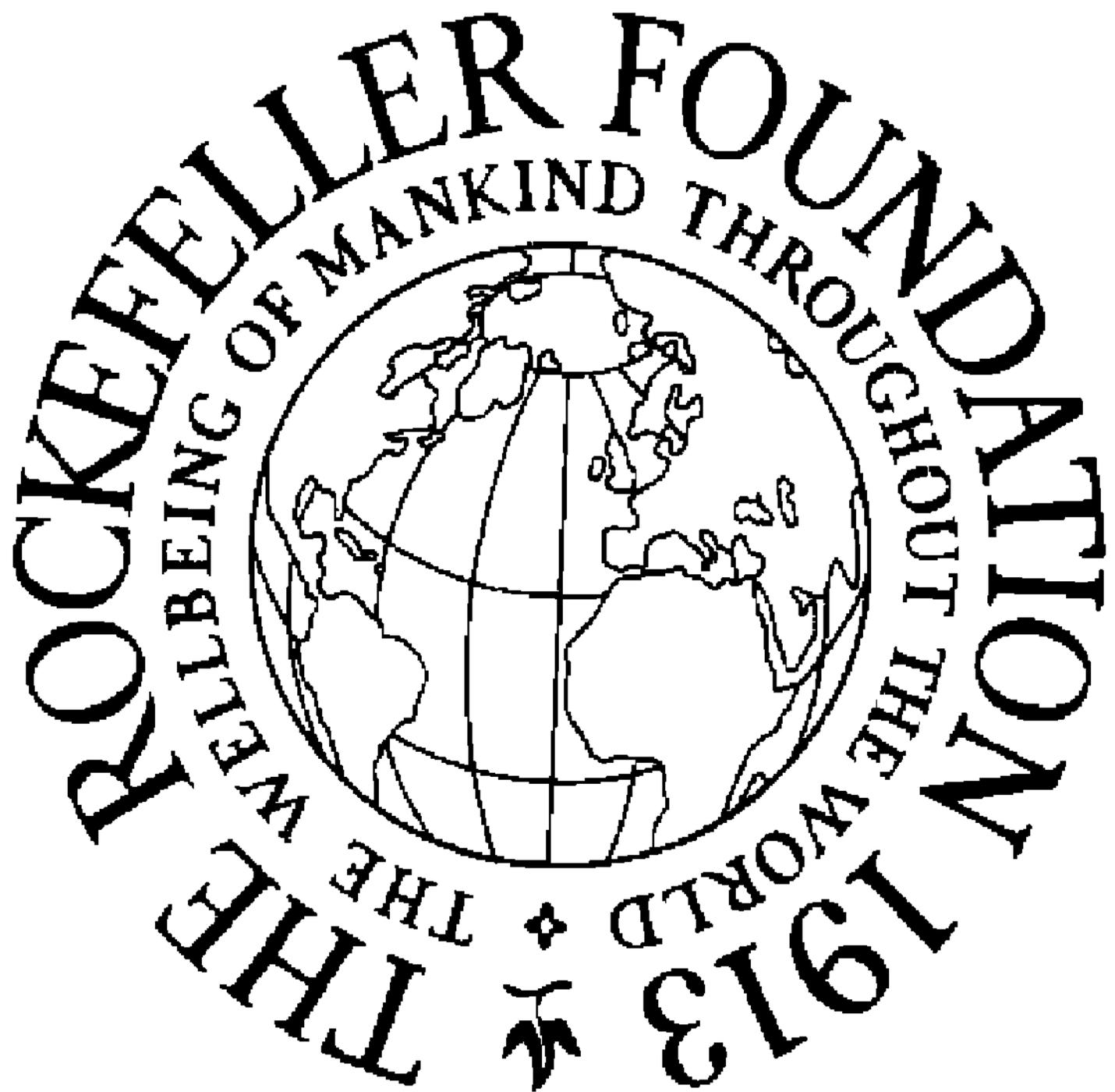
posed by the scarcity of water in the arid and semiarid lands are well known; very little has been accomplished to overcome them in any sizeable fraction of the earth's arid surfaces. The Foundation has been concerned with the problem of water supplies, especially because of its efforts in agriculture. Much must be learned and new knowledge must be won and applied. The Foundation expects to increase its efforts in the hope of contributing to some of the basic factors which affect water resources and their utilization.

Broadly speaking, all Foundation efforts depend on and seek to improve the communication of knowledge and its application. Its training programs for the development of human potential have as their ultimate goals the accumulation of new knowledge and its communication and translation into activities for human benefit. The support of research is thought of as one way of acquiring new knowledge which may later be disseminated and utilized where it can be effective. Support to universities and other institutions is expected in the long run to assist in establishing continuing sources of knowledge and of knowledgeable people who in their turn will communicate their information and methods to others to be applied for further progress. In all its programs the Foundation seeks to aid the transmission and interchange of useful knowledge so that it can promptly and economically speed the advance of civilization.

The world of man will not be complete unless and until each individual has opportunities to utilize his own capacities beyond the satisfaction of physical needs. Health, housing, and adequate diet are not in themselves the components of a rewarding existence; they simply permit man to take advantage of his own potential in occupational and avocational activities. If individual members of society seek to have a fuller life and to contribute to the welfare of mankind, they must do so primarily through their own efforts and conduct. They must also continue to learn and to participate in cultural and civic affairs which give satisfaction and understanding and purpose to human experience. Long regarded by too many people as esoteric and irrelevant, cultural activities are now widely recognized as of vital importance to both individual development and a civilized, healthy society. The exercise of individual talents and skills through association with others in music,

drama, literature, architecture, and other arts—often in educational ventures—is increasingly emphasized as essential to human satisfaction. Opportunities are multiplying for acquaintance with the work of creative artists through performances, literature, museums, and libraries. Thus there are growing alternatives to routine and merely materialistic behavior. It has sometimes been argued that a free industrial society based on the competitive system must become materialistic because the conspicuous tokens of success are usually physical and material in nature. A free society, however, more than any other, provides the freedom, as well as the challenge and range of choices, to make judgments and decisions about values. Given opportunity, enlightened leadership, and critical intelligence, there is little doubt that democratic society will increasingly support and spread varieties of human experience which are inwardly enriching.

The Rockefeller Foundation recognizes the need to infuse cultural and moral values much more pervasively through the intricate fabric of contemporary society. The task is immense, and many complications and difficulties limit efforts to carry it out. Nevertheless, present forms and rates of activity will have to be increased on a rapid and large scale if more sectors of our growing population are to be reached. In the creative and performing arts, which are a very important part of this effort, the Foundation will continue to encourage individual creative work of excellence. It considers its main role, however, as helping to develop new patterns and institutions which will sustain creative work of high quality and at the same time bring the best in these arts to an increasing and varied public. This approach to progress in the arts will not take the Foundation into support of particular performances or projects which in the last analysis must depend upon public support. It is the intent of the Foundation to carry forward its efforts in this area, and to identify a few basic lines of activity and assistance, which give promise of furthering the development and evaluation of those aspects of experience broadly included in the arts.



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A medical student and teacher from Makerere College, Uganda, interview a family as part of a field research project in preventive medicine.

CURRENT PROGRAM

MEDICAL AND NATURAL SCIENCES

During the past year the Medical and Natural Sciences program has been moving toward a concentration of energy and resources on the advancement of natural science and medical education in connection with a coordinated effort to develop certain key universities abroad.

There are both negative and positive reasons for this step. On the negative side it seems clear that in advanced countries there is now much less need for ad hoc "project" support in the physical and biological sciences than there used to be; in the short space of thirty years The Rockefeller Foundation has changed from the principal source of free research funds to a barely detectable ripple on an ocean of them. Even in underdeveloped countries there is beginning to be a considerable flow of research money to established laboratories.

Speaking from the positive point of view, the greatest need, and at the same time the most challenging task, is the development of ongoing institutions that can engage in both research and teaching. Although some countries, especially in Africa, still lack trained scientists in almost all fields, there are many others, notably in Latin America and in certain parts of Asia, which have produced a number of excellent scientists who are not able to reach anything like full productivity in their home countries because of the lack of suitable institutions in which to work.

In this concentration of effort on university development, the Foundation's long-standing interests in the improvement of health services, the development of professional education, the investigation and control of specific diseases, and the advancement of medical science find combined expression.

The Foundation's role in the field of medical education has always been directed chiefly to helping existing institutions reach a higher level of effectiveness rather than to establishing new ones. In developing the science departments and the medical schools in the institutions of major interest, it is thus continuing to give special attention to encouraging the administration to limit enrollment and establish full-time

positions in teaching and research, and to fostering practical teaching in laboratories and on the wards. In Latin America, for example, where emphasis on the full-time principle is the keystone of the current effort to upgrade medical education in certain areas, substantial grants were made in 1962 to the medical schools of the University of Minas Gerais in Brazil and of the University of Cuyo in Argentina, both of which maintain full-time staff in the basic science departments. In each instance Foundation funds are aiding in the establishment of a premedical curriculum and the strengthening of research and teaching activity. Similarly, help is being given to the University of Khartoum, Sudan, which is reorganizing its Department of Physiology, and to the King George's Medical College, University of Lucknow, India, for further development of its Department of Pharmacology.

A somewhat different situation is represented by the grant to the Medical Training Center of the Ministry of Health and Labour of Tanganyika for a new training program for rural physicians. Confronted by an acute shortage of medical school candidates and of practitioners able to cope with rural health problems, the ministry is establishing a small medical school at its Medical Training Center at Princess Margaret Hospital, Dar es Salaam, by expanding the facilities there and appointing additional staff. The curriculum, which has been planned in consultation with distinguished authorities in the field, will put heavy emphasis on practical laboratory and field work oriented to rural and community medicine.

Implicit in the preceding remarks is the critical need in all the emerging areas to develop medical education in close touch with methods of medical care suitable to the condition of the population to be served. Although almost all observers of medical education and public health in underdeveloped countries have at one time or another expressed concern for this problem, it is probably fair to say that no really satisfactory models, either for systems of distributing medical care or for training all the personnel necessary, are to be found anywhere. Stated in oversimplified terms, what is needed is some sort of amalgamation between the point of view of the Iron Curtain countries, which have tended to stress the quantitative needs of poorer populations, and that of the Western countries, which have by and large emphasized the quality of medical care.

The major point to be borne in mind is that the people of the less advanced countries for the most part suffer from illnesses which are well enough understood by scientists and physicians to be either prevented or treated by more or less routine procedures. Again at the risk of oversimplifying, it may be said that the majority of sick people in the advanced countries suffer from illnesses which are not very well understood and which require careful study even for diagnosis and even more complex and time-consuming procedures for treatment. Another striking difference is that in the underdeveloped countries just about everyone must be classed as medically indigent, whereas the number of such persons is much smaller in advanced areas. The result is that the underdeveloped areas have no alternative to establishing as soon as possible a completely socialized system for distributing medical care and preventive services.

In actuality, surprisingly little is known about how to combine curative medicine with public health measures. Furthermore, it is coming to be recognized that good health is the resultant of a complex interplay of specific medical measures and less specific social and economic factors, all of which must somehow be controlled and integrated if the people of the "new nations" are to duplicate in a short time the standards achieved by advanced countries over the last three centuries. In order to learn more about such matters, the Foundation is giving special encouragement to overseas medical schools that have established, or are planning, medical care units in communities for the purpose of studying the medical needs of these communities and for experimenting with different ways of meeting them, including the training of specialized subprofessional personnel. Although health centers and schools for subprofessional personnel have existed in various places for many years, they have rarely—perhaps never—been associated with medical schools responsible for training doctors and capable of carrying on complex epidemiological research.

Four such units are currently receiving Foundation assistance, three of them connected with institutions selected for comprehensive cooperation. The community health center at Candelaria, Colombia, which serves as the teaching and demonstration area for the Faculty of Medicine and the School of Nursing of the University of Valle, has been described in the 1961 Annual Report. In Uganda, the Departments of Pre-

ventive Medicine and Pediatrics at Makerere University College, a unit of the University of East Africa, are jointly developing a field research and training center in preventive medicine at Kasangati which will provide clinical clerkships and courses in field epidemiology and, in association with ancillary research staff, study disease patterns and the sociological status of the surrounding Buganda community of 20,000. In the Western Region of Nigeria, the Institute of Child Health of the University of Ibadan has for the past three years been working in the Ilesha area with university and government personnel to develop basic data on agricultural and health problems of rural communities. More recently it has initiated demonstration and training programs for field workers designed to alter village food production and the basic dietary habits of the rural populations. As a result of the striking correlations found between agricultural methods and nutritional status and health, the institute is now establishing a demonstration extension service in cooperation with the university's Faculty of Agriculture and the agricultural section of the Western Region government, while at the same time extending the survey into the Eastern Region. In New Delhi, a resident Foundation staff member is serving as adviser to the All-India Institute of Medical Sciences in the development of a teaching and research unit in rural medicine.

These experiments with new forms of professional education under practical conditions are still young and are characterized more by hopes than by results. There continues to be a very great shortage of physicians capable of dealing with both the curative and the preventive aspects of medicine and with the talent for organizing community health services. The Foundation is nevertheless convinced that, in comparison with other aspects of medical education, this aspect is seriously underdeveloped and offers a real pioneering challenge. Many new countries are at present contemplating the establishment of new medical schools, and in all cases the authorities stress the importance of training physicians familiar with local needs and competent to deal with them.

Properly organized community health units provide excellent opportunity for cooperation, not only with schools of agriculture, but also with other university departments interested in community problems. In Colombia, for example, the Candelaria health center, originally started by the Department of Preventive Medicine, has received valu-



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One of the four teaching health centers connected with schools of medicine where the Foundation supports pilot projects for training medical students in both preventive and curative medicine and in cooperating with other specialists in general community development.

able assistance from the Faculty of Architecture in the design of suitable quarters for the center itself and, even more important, in the design of a sanitary unit which can be installed in the houses of the town on a more or less do-it-yourself basis. With the help of a government loan program, installations are progressing rapidly and have already brought about measurable improvement in village sanitation.

The Foundation is also convinced that the development of community health units associated with universities offers the best opportunity for conducting field experiments on the population problem. Methods of fertility control have now developed so far as to suggest that the major difficulty involved in the control of population is one of communicating satisfactorily with the people themselves. It is probably useless to try to introduce birth control into a community so lacking in maternal and child health services that it still supports a high infant mortality rate. Once having learned, however, that most of their children will survive, and having thereby gained confidence in the medical

personnel who have helped to achieve this result, the people of the community should be well prepared to receive and put into practice advice on family limitation. Such a development, while it would obviously not render other measures of public education unnecessary, would nevertheless greatly simplify the problem.

In all countries, emerging and advanced, the physician is now confronted by such a multitude of tasks that he can function effectively only if he is supported by other sorts of professional and subprofessional personnel specially trained for particular parts of the over-all job. Of these, of course, the trained nurse has for a long time occupied first place. Coincident with its interest in medical education, but often more closely related in purpose and in actual implementation with its activities in public health, the Foundation has for many years sought to encourage the development of the nursing profession. Although for a period American nursing education became somewhat preoccupied with the goals of administration and teaching, more recently it has begun to show a greater interest in providing direct care to patients as part of a cooperative medical team. The nursing program of the Foundation is now encountering an increasing number of opportunities to help foster this movement here and especially abroad, where the need for well-prepared nurses is even more pressing. One approach to this difficult but important matter is represented by the recent grant to the Johns Hopkins University for exploring the possible role of the nurse-midwife in the hospital practice of obstetrics. Among other 1962 grants were those to the University of Valle, Colombia, in continued support of the School of Nursing, and to the University of Ankara, Turkey, for its new School of Nursing and Health Sciences. At the Medical College in Trivandrum, India, where a degree course is being planned for the School of Nursing, a Foundation staff member has been assigned as adviser during the planning and early implementation stages.

It may be noted here that the Foundation's traditional interest in the control of specific diseases has developed in two rather different ways. As indicated above, the original idea of a disease-by-disease attack on the health problem has now become merged in the concept of good health as the product of specific medical measures combined with economic and social improvement. In its other form, and more or less as a direct continuation of the yellow fever studies, this interest has

evolved into a general ecological investigation of a group of insect-borne virus diseases. The basic philosophy as well as the practical application of this program are discussed elsewhere in this report. Suffice it to point out here, that wherever possible the field laboratories involved in the virus research program are being integrated with universities selected for comprehensive attention.

In the advanced countries, the Medical and Natural Sciences program is necessarily assuming a somewhat opportunistic and irregular character, largely because of the considerable amounts of research funds now flowing into these fields from one or another of the official or private agencies. The Foundation nevertheless continues to have a deep interest in the basic biology of behavior and to be alert to opportunities to express this interest with grants to selected programs of investigation both in the United States and overseas. In 1962 the grants to the University of Cambridge, for the work of the animal behavior group under Professor William H. Thorpe, and to the Polish Academy of Sciences, for the distinguished studies on physiological psychology under Professor Jerzy Konorski, fell in this category. On much the same basis, other 1962 grants continued support of outstanding research in genetics at three Italian universities—those of Rome, Milan, and Parma. Finally, although its primary orientation is now changing, the Medical and Natural Sciences program has no intention of neglecting the occasional opportunity involving what might be called the general welfare of science, of which the recent grant to the National Academy of Sciences for enlarging its building is an excellent example.

HUMANITIES AND SOCIAL SCIENCES

During 1962 the Foundation's programs in the humanities and the social sciences, which had been separate since 1929, were consolidated. As in many American universities, these two programs had often overlapped: both had been active in international relations and intercultural studies, in area studies, and in social and political philosophy, and both had sought to encourage work of lasting importance in history. With the increasing concentration on the development of key universities abroad, this separation became more and more artificial.

The new Humanities and Social Sciences program expects to continue certain well-established lines. Out of a conviction that every

society has needs for self-realization and creative fulfillment, the Foundation has for many years maintained an interest in various aspects of the creative and performing arts, both in the United States and abroad. Sometimes the help has taken the form of training for talented artists of exceptional promise; in other instances it has involved assistance with the cost of equipment and materials. Occasionally, funds have been given to strengthen institutions which, by reason of leadership, local sources of support, and a growing public, give assurance of continued activity to stimulate and employ the talents of artists.

While the Foundation retains its concern for creative individuals, it is more and more seeking opportunities, particularly in the developing countries, to help with the building of institutions that will provide a sustaining environment in which cultural work may flourish. In 1962, for example, as part of the university development plan, the University of Ibadan, Nigeria, received substantial assistance for its drama program, whose influence is being felt in both the academic community and among the wider public in Nigeria. Another major grant went to the Torcuato Di Tella Institute in Buenos Aires, Argentina, which under the distinguished leadership of the composer Alberto Ginastera offers advanced training in musical composition.

A third current grant is helping Indiana University, Bloomington, establish the first center in the United States for the study and performance of Latin American music. In a series of smaller grants assistance was given to a writers' workshop in Ghana, a study of African music in southern and central Africa, the Little Carib Theatre in Trinidad, a drama program in Syria, and a Mexican center for writers.

A second domain of pre-eminent concern within the humanities is communications. The communication of knowledge and its adaptation to the local scene is a central requirement, not only for intellectual and social development but also for the mitigation of conflict and strife. Modern man continues to believe that tolerance results from understanding and that civilization develops through the strengthening of humane values. The heart of international understanding must be communication among nations and peoples. Not infrequently, this is most effectively achieved when representatives of one culture are invited to share responsibility for the meeting of human needs along with representatives of other cultures. In this sense, the Foundation's university

development program is a direct approach to better communication.

Another means of strengthening understanding across national boundaries is the building of a more solid network of newspaper coverage in developing areas and the training of more qualified editors and journalists. A current Foundation grant is helping the International Press Institute, Zurich, in its efforts to promote more effective use of the daily press in the countries of South and Southeast Asia.

In the field of educational communication, this year's somewhat exceptional award to the Educational Broadcasting Corporation, New York, reflects the widespread view in the United States that the techniques of television can be further developed to make more widely available the best in the American cultural heritage. Various pilot projects in nonprofit educational television are serving to test whether program content can be enriched for educational purposes. The Foundation's grant gives assistance in the initial stages of operation of WNDT, Channel 13, the first such project in the New York area.

Recording equipment at the Latin American Music Center of the University of Indiana. Professor Juan Orrego-Salas, the director, at right.



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Still another approach to better communication is represented by several recent appropriations for linguistics applied to language and second-language study. Two of these were made to the Colegio de México, Mexico City, and Yale University, New Haven, in support, respectively, of a study of American Spanish and research on Creole as a major spoken language in the Caribbean area. Two others—to the University of Valle in Cali, Colombia, and the University of Texas, Austin—are intended to assist with the development of the new linguistic center at Cali.

Cognizant of the lack of organization and aesthetic barrenness which seem inevitably to accompany the growth of complex modern cities, the Foundation is also continuing its interest in providing help for studies in urban design and urban criticism. This year support was given to Allan Temko of the University of California for systematic formulation of how new technologies and materials can be better employed in the physical development of large metropolitan centers.

Masks for a production by the dramatic group at the University of Ibadan, Nigeria. Stressing indigenous cultural interests, the group presents new plays and adaptations of the classics in Nigerian terms.



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In its efforts to aid the development of trained leaders in both the humanities and the social sciences, the Foundation historically has concentrated on assistance for scientists and scholars. More recently, because of the pressing demand in the new nations both for competent diplomats and for economists and economic planners, it has also endeavored to provide training opportunities in fields important to the world of affairs.

Since 1960, for example, it has been supporting a program administered by the Carnegie Endowment for International Peace, New York, under which junior foreign service officers from the developing countries are given fellowships for a year's advanced study in international relations and diplomatic practice at Columbia University and the Graduate Institute of International Studies in Geneva. Over 70 awards have been made thus far, and a number of the fellows are already returning to ambassadorial posts and positions in their countries' foreign ministries. A 1962 grant is enabling the Endowment to continue this program and also to extend its recently established series of institutes in diplomacy, being held within various developing regions to help meet the urgent need for short-term intensive training of those newly recruited to foreign services.

Allied to these activities is the Foundation's plan for providing foreign ministries in the newer nations with small working libraries in the fields of international law, international organization, economics, and area studies. This year, libraries were given to the foreign ministries of Uganda, Togo, the Congo, Cameroun, Jamaica, and Jordan, bringing the total presented to 30. Concurrently, the Foundation is assisting with the costs of distributing French-language basic libraries in economic development prepared by the International Bank for Reconstruction and Development in connection with its training program for economic planners and central bank personnel in the developing countries. A previous grant helped with the distribution of an English-language library.

A substantial number of this year's grants had as their purpose the development of humanities and social science disciplines in areas of the world undergoing rapid social change. In some instances the aid has taken the form of fellowships intended to contribute to faculty development in universities and institutes. Other grants have brought

qualified American, British, and European scholars to these institutions to participate in teaching and research activities on an interim basis, and occasionally to advise on curriculum planning and faculty recruitment. Thus, to mention a few examples, a senior economist from Duke University and two authorities in the field of English-language programs have spent periods at the University of Valle in Colombia; a philosopher from Cornell University has assisted in discussions of philosophical studies at the University of the Philippines; and a Columbia University professor of Islamic studies is about to visit the University of East Africa.

Still other grants have provided short-term lecturers or helped with the staffing of new departments not yet financed within existing budgets.

The need in the developing countries, however, is not only for trained personnel in the humanities and social sciences, but also for organized data and knowledge in certain vital fields. Recent Foundation grants are supporting research, both in this country and abroad, which shows promise of providing new information and understanding in the fields of demography and economic development, land economics, and history.

For example, at the Scripps Foundation for Research in Population Problems at Miami University, Oxford, Ohio, work is nearing completion on the second phase of a study that attempts to analyze the host of social, economic, and psychological factors influencing family planning in the United States. In Colombia, one of the projects at the Center for Studies in Economic Development of the University of the Andes, Bogotá, is an analysis of the international market for Colombian coffee in which special emphasis is being placed on the interrelationship of the factors that influence the world demand. The results of this study will be helpful to both Colombia and other Latin American countries in formulating future policies.

Among research projects receiving assistance in the field of land economics, one at the University of Arizona, Tucson, relating the availability of water to social and economic growth in an arid environment may well have relevance for Mexico and other countries of Latin America with a climate similar to that of the southwestern United States. Other grants in this field are supporting programs in

agricultural economics at the Catholic University of Chile, Santiago.

Studies in economic, cultural, and political history can not only provide a base line against which to measure change in newly independent countries, but also contribute to a greater understanding of traditions and practices deeply rooted in a culture. The revised edition of the *Encyclopedia of Islam*, to which the Foundation is giving assistance through a grant to the American Council of Learned Societies, will make available to both Western and non-Western countries the vast amount of information accumulated on Islam and the Muslim world over the past 25 years. Among other historical studies currently receiving support are an economic and social history of the Ottoman Empire and an analysis of the problems of Argentine nationalism.

Although continuing its aid to research in the basic social science disciplines, as represented by the recent major grant to the Social Science Research Council, New York, the Foundation is thus concentrating the larger part of its effort in the humanities and social sciences on assistance to the emerging nations through the strengthening of key institutions and support for investigations of problems of immediate and vital concern to these areas.

Affecting all peoples, however, is the question of whether mankind can achieve a viable international society. Never has the need been more urgent for a reappraisal of the fundamental premises underlying present forms of self-government, or for an analysis of the principles by which sovereign states conduct their relations with other sovereign states.

Since 1952 the Foundation has been devoting a certain part of its funds for the support of a range of studies in legal and political philosophy, including research on the nature of political behavior and the reinterpretation in contemporary terms of traditional concepts concerning political representation, freedom, civil liberties, and the like. This year 20 awards were made to scholars working in this field in the United States and abroad.

Somewhat newer is the grants program in international relations, which is designed to assist individual scholars engaged in research and writing on issues of significance for emergent foreign policy problems and the evolution of international society. The increase in the membership of the United Nations from 51 to 110 and the concurrent

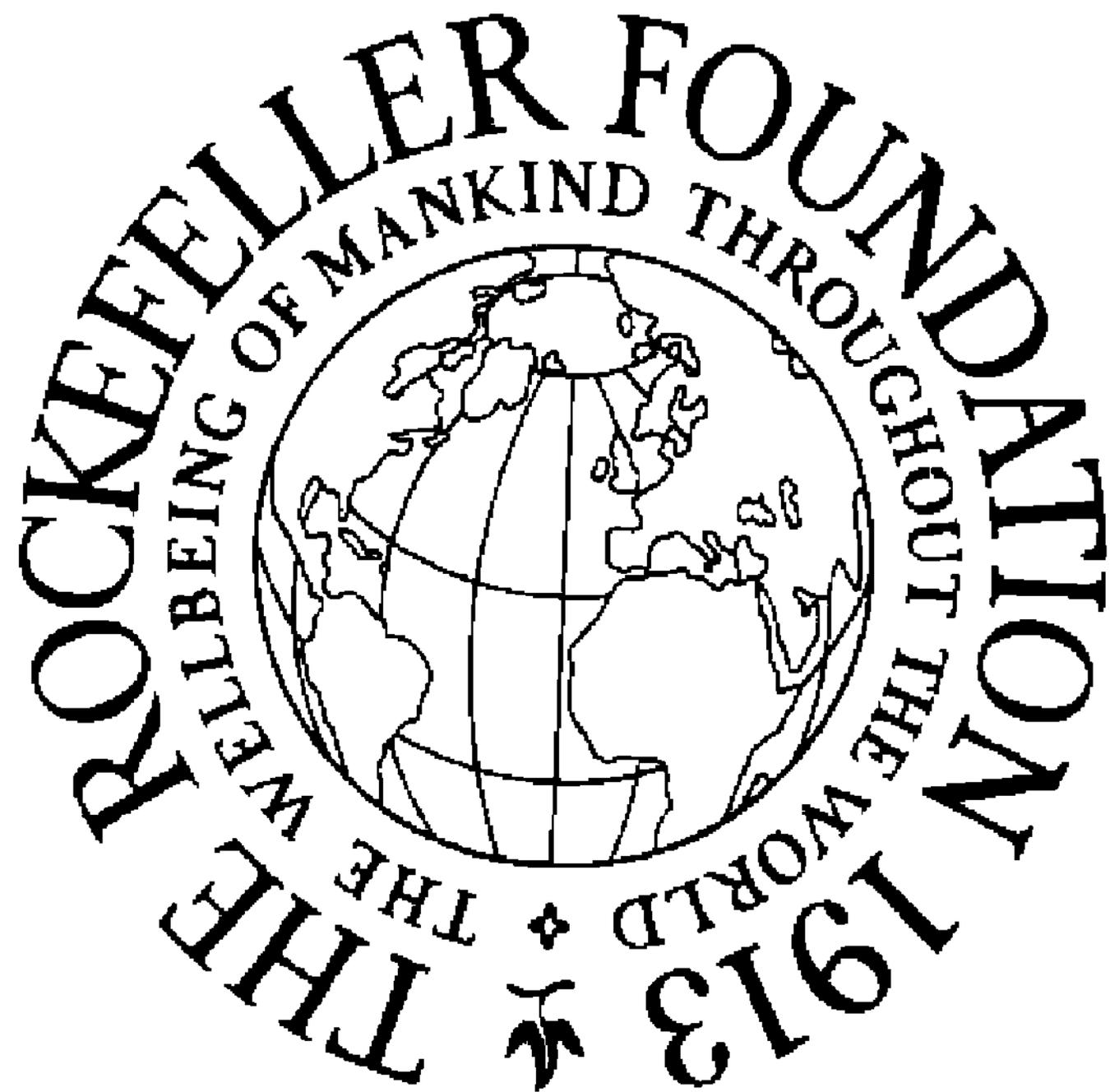
development and invention of international institutions and practices have created formidable and complex problems. Their solution requires the skills not only of traditional experts, political scientists, and historians, but also—and increasingly—of sociologists, psychologists, and anthropologists. During 1962 the Foundation awarded 30 grants for projects in international relations.

AGRICULTURAL SCIENCES

In its Agricultural Sciences program The Rockefeller Foundation continues to place major emphasis on staff-conducted cooperative research in five selected countries or regions of the world. The research is directed toward the improvement of the production of food crops and livestock important to local diets and is centered on the elimination or control of the factors that limit production: inferior genetic stocks, diseases and parasites, and poor management practices. The materials and methods developed for the improvement of corn, wheat, and potatoes in Latin America have proved valid and are being extended internationally to other countries and regions with the same general problems and climates.

For permanent results, the concept that agricultural research is the basis of improvement must be embodied in stable indigenous organizations devoted to this objective. In Mexico, Colombia, and Chile the ministries of agriculture have recognized this principle and are setting up well-staffed and adequately financed research units to assure that progress will continue. The Foundation is therefore decreasing its emphasis on direct participation in research and is increasing its aid to the formation and strengthening of the permanent research organizations in these countries.

The Post Graduate School of the Indian Agricultural Research Institute, New Delhi, established with Foundation cooperation in 1958, is already providing extremely valuable human resources for the continual advancement of agricultural science and technology in India. The success of the school encouraged the government of India to constitute a special committee, headed by a Foundation representative, to review the needs for improvement in agricultural education, research, and extension throughout the country. This committee assisted in plan-



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A maize breeder of Kasetsart University, Bangkok, Thailand, exhibits two large ears produced on a single stalk, an objective of the university's maize breeding program. The Rockefeller Foundation contributes some financial support to the Thai work and a staff member of its Indian Agricultural Program serves as technical consultant. The influence of the Foundation's work in maize improvement, begun in Mexico in 1943, now extends through Latin America, much of Africa, India, and to Thailand, Cambodia, and Indonesia in the Far East.

ning legislation for the establishment of new or improved agricultural universities in the United Provinces, the Punjab, Rajasthan, and Orissa, and similar legislation is pending in several other states.

The International Rice Research Institute, which was inaugurated early in 1962, represents a significant combination of resources for the solution of agricultural problems of international importance. Built with funds appropriated by the Ford Foundation and with the cooperation of the government of the Philippines, the institute is operated and in part staffed by The Rockefeller Foundation.

More comprehensive accounts of the Foundation's work in these five countries will be found under the heading "Operating Programs" in a later section of this review.

Agricultural education, research, and extension, to be effective, must be conducted by dedicated and highly trained scientists and educators. To help build up this human resource, the Foundation has always spent a substantial proportion of its budget for training. This includes apprentice-type training through practical projects directed by staff members in countries where the Foundation has operating units, and formal advanced education through the award of fellowships and scholarships. As of June 30, 1962, for example, 236 students on Foundation scholarships and fellowships were pursuing graduate studies as candidates for M.Sc. or Ph.D. degrees at 40 different universities in the United States and Europe. The students represented 28 different countries, with the largest proportion from the countries where the Foundation has resident staff members. Well over \$1 million annually is allocated for the cost of these training awards in agriculture.

The Foundation also makes grants to educational and research institutions to support agricultural progress. In the past a large proportion of the budget for grants went to encourage high-level research in advanced countries, chiefly the United States. Recently the funds have been more and more concentrated on selected institutions in emerging nations, and on research projects elsewhere likely to be of use in solving their problems.

Among the grants made in the United States in 1962, three can be mentioned as examples. One was for continued support of an orientation program for foreign students planning to enter graduate schools of agriculture. Offered at the New York State College of Agriculture of

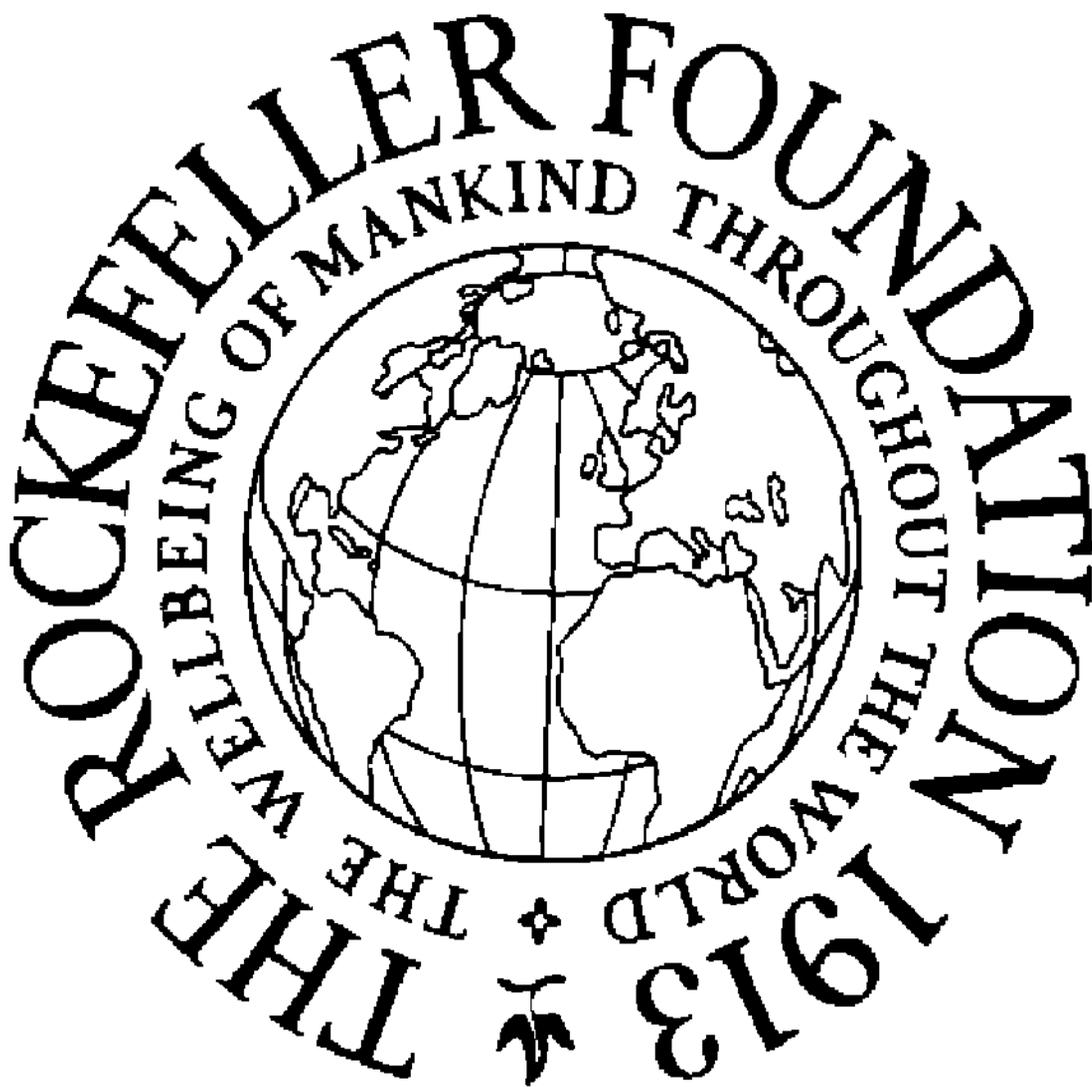
Cornell University, the nine-week summer course includes not only instruction in the English language but also a general introduction to American rural life and farm organization through field trips and community visits. The course has demonstrated its value in easing the transition of foreign students into the United States educational scene; the new grant helps to assure its continuance for five years. Foundation fellows and scholars in agriculture are often advised to take advantage of the Cornell orientation course.

Another grant, to the Texas Agricultural and Mechanical College System, was for studies employing an ingenious mechanical device by which the nutritive value of forage crops can be measured during the actual digestive process in ruminant animals. With a newly designed peristaltic pump the scientists can duplicate artificially the contents of the rumen in the living animal, without harm to the animal. This process should speed up the evaluation of grasses and legumes used for pasturing livestock in countries where increased supplies of animal proteins are urgently important.

A third, to the University of Arizona, assisted investigations of the economic use of scarce water supplies. This grant, for a project of obvious importance for agriculture in semiarid areas, was made as part of the land-economics program, and is described in the section on humanities and social sciences.

Both in its operating programs in Latin America and in its grants in that region, the Foundation is placing increasing emphasis on finding solutions to the factors which limit livestock and poultry production. In Chile the work is on the improvement of forage crops to increase the livestock-carrying capacity of the country's extensive pasture areas. Legumes and grasses for pasture and silage are also investigated in the programs in Colombia and Mexico. In these countries animal scientists and veterinarians on the Foundation staff, in cooperation with local associates, also work directly on the problems of beef and dairy cattle, sheep, swine, and poultry.

Concurrently grants have been made to aid the development of schools of animal husbandry and veterinary science. A 1962 grant assisted the establishment of one of the first animal nutrition research centers in Latin America. Situated at Nova Odessa, in the state of São Paulo, Brazil, the new center will encourage the production of live-



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Ground-water pumping unit used in the University of Arizona's research project on the economic use of scarce water supplies.

stock in a region formerly devoted to coffee growing. In Mexico, the Veracruz state university's Faculty of Veterinary Medicine and Animal Husbandry received a grant for the purchase of equipment needed for studies of tropical livestock diseases and parasites. Members of the Foundation's staff cooperate in these researches.

Among centers for plant crop improvement which received grants in 1962 were the Institute of Agronomy of the state of São Paulo, Brazil, in Campinas, which will advance its studies in agronomy, biology, and agricultural engineering; the Faculty of Agriculture of the Uni-

versity of the West Indies, in Trinidad, which is seeking more effective coordination of its educational, research, and extension activities; and the Central University of Ecuador, in Quito, and the related National Institute of Agricultural Research, which are cooperating with the Foundation's international program for the improvement of wheat.

As is well known, the protein and amino acid content of different varieties of the same food plant can vary widely. While in the past plant breeders have aimed chiefly at creating higher yield and better disease resistance in new hybrids, they have also become increasingly concerned with nutritive quality. In Mexico the National Institute of Nutrition is cooperating with the Foundation's agricultural program to assess the nutritive value of hybrids before they are released to farmers. Initial results indicate that the substitution of certain new varieties of beans and maize for those currently popular with farmers could markedly improve the quality and quantity of protein intake of the Mexican people without modifying their food habits. The Foundation is supporting this work.

Two other grants in Latin America mark gratifying progress toward the building of strong agricultural institutions in which education, research, and extension will be closely integrated as they are in land-grant universities in the United States. One was to the Faculty of Agronomy of the University of Concepción, in Chillán, Chile, and its associated experiment station and training center for extension workers.

Chapingo, Mexico, a few miles outside Mexico City, is the home of the National School of Agriculture, an undergraduate college, and its associated Graduate School, established in 1958. Also in Chapingo is the national central experiment station, where the Foundation's agricultural program has cooperated for nearly twenty years. Plans are being formulated to move to Chapingo the National Institute of Agricultural Research and the headquarters of the extension services. Chapingo already ranks high among Latin American agricultural centers, and the new plans will give it pre-eminent position. The Foundation at various times has assisted all the Chapingo units, and in 1962 made a substantial grant to the Graduate School.

The year 1962 also marked the culmination of 14 years of progress toward the professionalization of agricultural workers in Latin America through the building up of a professional association. In 1949, at the

invitation of The Rockefeller Foundation, 15 plant scientists from several countries assembled in Mexico City for a short conference. Each third year since, the group—growing in numbers each time—has met in different countries. The 500 delegates to the 1961 meeting in Buenos Aires voted to form the Latin American Association of Plant Science with a permanent secretariat at the Inter-American Institute of Agricultural Sciences in Turrialba, Costa Rica. The Foundation made a small grant to set up the secretariat, after which it is expected that dues and other income will make the association fully self-supporting.

A few other grants should be cited to show the geographical extent of the Foundation's work. One was for investigations of the origin and relationships of 3,700 strains of rice from many different countries; this work is being done at the National Institute of Genetics, in Misima, Japan. Another, also in Japan, was for research on the genetics of wheat and the origin of wheat species at Kyoto University. Plant breeders have always realized that the broader the range of germ plasm available for the making of hybrids, the better the chance of achieving significant gains through heterosis, or hybrid vigor. Both studies should be of importance in the further improvement of two of the world's most important cereals.

And finally, in Los Baños, the Philippines, the College of Agriculture of the national university is surveying its resources as a basis for plans for substantial expansion. A Foundation grant provided the services of a number of expert consultants from the United States to assist in this survey and evaluation. The newly established International Rice Research Institute is adjacent to the College of Agriculture.

OPERATING PROGRAMS

VIRUS RESEARCH

The Rockefeller Foundation's staff-conducted program in virus research is principally concerned with viruses which are transmitted by arthropods such as mosquitoes and ticks. The following account of the program, written by two members of the Foundation's virus research group, leads from a description of the isolation of one virus to a discussion of the program as a whole.

For the expenses of the virus work in 1963, and for its operating program in the general development of professional education, the Foundation appropriated the sum of \$1,524,640.

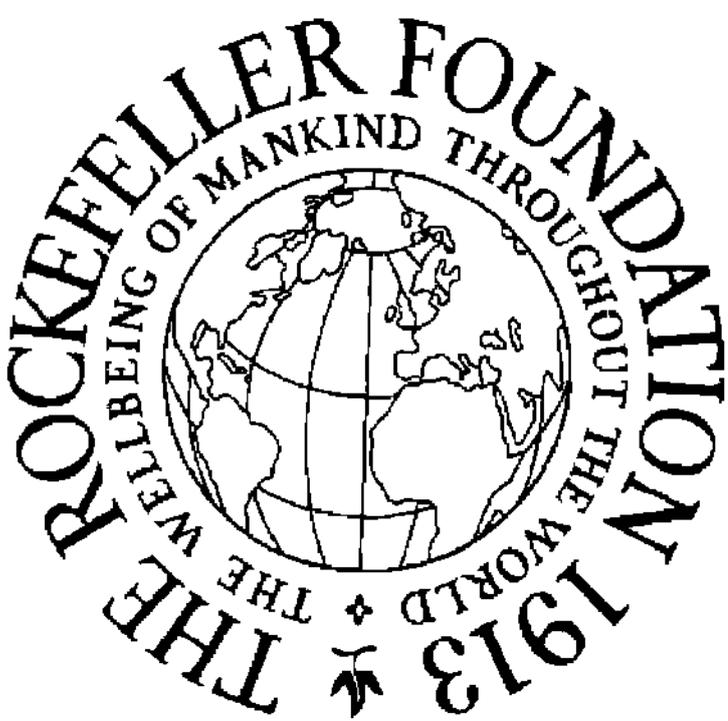
*Oropouche: The Story of a New Virus**

The story begins in Trinidad in the small village of Vega de Oropouche, five miles east of Sangre Grande. Just beyond the village to the east is the Melajo Forest, an impressive rain forest with mora trees towering over 100 feet in height. Many villagers of the region work either in the forest itself, cutting wood or making charcoal, or on the forest fringe in the cocoa and citrus plantations. In 1955 one of these charcoal burners was an East Indian of Vega de Oropouche named Ramlal.

On September 26, 1955, Ramlal felt quite miserable—it was the second day with fever, backache, headache and a cough—and went to the Health Unit in Sangre Grande. The doctor there, noting his temperature of 104°F, gave him antimalarial therapy and referred him routinely to the nearby diagnostic laboratory, a proudly named small, mud-walled house on stilts, with a galvanized iron roof, rented for \$12 a month.

This diagnostic clinic, which was operated by the Trinidad Regional Virus Laboratory (one of the field units in the Rockefeller Foundation virus program), had been set up in Sangre Grande the

* By Max Theiler, M.R.C.S., L.R.C.P., and Wilbur G. Downs, M.D. Reprinted by permission of the *Yale Scientific Magazine*.



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The Sangre Grande diagnostic clinic of the Trinidad Regional Virus Laboratory, sentinel station for the observation of virus activity.

previous year following an outbreak of yellow fever in the jungle only a few miles away. Through systematic examination of all fever cases seen at the Health Unit, as well as some cases referred by cooperating private practitioners, it was hoped to maintain a good sentinel service for the detection of activity of yellow fever or other viruses in the jungle regions. Each patient that came to the clinic was given a brief physical examination. With accessories of a microscope, a small sink, a hand centrifuge and an alcohol lamp, a physician from the main laboratory in Port-of-Spain and a technician carried out several diagnostic tests with blood and urine specimens.

No one would have suspected that Ramlal would make history. Hundreds of similar patients had been seen at the clinic and had yielded nothing. Ramlal's white blood cell count was low, and a single malaria parasite was seen on his blood film. The illness could quite possibly be malaria; nearly a third of the fever cases seen in 1955 did have malaria. (This disease has now been nearly eradicated in Trinidad.)

At the Port-of-Spain laboratory, a very small amount of serum from Ramlal's blood specimen—2/100 of a cubic milliliter—was inoculated

with a fine needle into the brains of a group of infant white mice. The remainder of the serum specimen was stored in a special refrigerator maintained at -60°C by means of dry ice (solid CO_2). Such low temperatures are very necessary for storage of live viruses.

Within three days, all the inoculated mice were either dead or dying. A portion of brain from a dead mouse was smeared on a glass slide, stained and examined for bacteria. No bacteria were seen. Further material from the brain of a dead mouse was filtered through a very fine filter that would not permit passage of bacteria. The filtrate, when inoculated into a new group of mice, again killed promptly. These tests established the mouse-killing agent as a probable virus.

At this point, the virologist must ask an important question: Did this virus come from the patient, or is it perhaps a virus in the mice of the mouse colony? The further portion of Ramlal's serum, frozen for days at -60°C , was resurrected and inoculated into mice. Again the mice sickened. This finding strengthened the evidence that the virus had come from Ramlal.

The virologist now turned for help to the field epidemiologist, who in a small laboratory may also be the virologist. Field epidemiologist is a euphemism for the person who wades through the mud, questions the suspicious local inhabitants, finally locates the patient again in a little shack deep in the forest and persuades him, now completely recovered from his illness and hardly remembering that he had been sick three weeks earlier, to part with another specimen of blood.

The prized second specimen having been secured from Ramlal, the virologist compared it with the first, the one that had actually yielded virus. When mixed with a quantity of the "unknown virus" sufficiently large to kill ten thousand mice, Ramlal's second serum specimen neutralized this virus so that no mice were killed. The first specimen did not neutralize the virus. Thus it was demonstrated that Ramlal's body defense mechanism had produced very considerable quantities of virus neutralizing antibodies. This was further, and very convincing, proof that the viral agent had indeed come from Ramlal. It also permitted the conjecture that this virus had caused Ramlal's illness.

Once again the field epidemiological service entered the picture. Between October 10 and 21, 1955, 559 mosquitoes and 26 black flies

were collected from the immediate vicinity of Ramlal's home, and thousands of additional specimens in the Melajo Forest, in an effort to determine the insect or insects that might be acting as the carriers, or vectors, of the virus. The insects were examined for virus by grinding them up in a mortar with a sterile solution and inoculating the liquid into mice. No virus was recovered, and this line of investigation proved fruitless.

The field epidemiologist also provided the virologist with blood specimens from 46 forest workers in the region, but only three of these were able to neutralize the virus. This suggested that the agent did not commonly affect human beings. Sera from 26 *Cebus* monkeys from Trinidad were tested, and eight showed the presence of antibodies for the virus; similarly, nine of 26 sera from native red howler monkeys had neutralizing antibodies. Infections in forest monkeys were apparently more frequent than in man.

The virus was next tested against all the other viruses known from Trinidad. It was none of these. In a carefully sealed test tube inside

Suckling mice used in protection and other tests of viral activity.



Photograph Excised Here

a special thermos jug packed with dry ice, it was then sent by air to The Rockefeller Foundation Virus Laboratories in New York, where it was compared with viruses from all over the world. Certain tests in mice and in the laboratory indicated that the virus probably belonged in the group of insect-transmitted agents known as arboviruses, and was not an enterovirus, an adenovirus, a myxovirus or any of the numerous other viruses known to affect human beings. The only arbovirus with which it seemed to be related was Simbu, isolated from mosquitoes in South Africa. But even this relationship was a rather distant one. Accordingly, after several months of intensive work, it was concluded that the virus from Ramlal was a new agent. The following quotation is taken from the paper describing this new agent:

Viruses are occasionally isolated from the blood of human beings in the absence of any manifestations of disease. Consequently, when a virus is isolated from the blood of a patient with fever, it is very difficult to determine whether the virus has any etiological significance. This is especially true when only a single isolation of the virus has been made, as in the present instance. The agent described in this report has not been identified with any of the known viruses and is accordingly named Oropouche virus for the locality where the patient resides.

Oropouche virus has never turned up again in a human being in Trinidad. In fact, it has been isolated only one other time on the island, the source on this second occasion being a collection of 177 mosquitoes of the species *Mansonia venezuelensis*, captured biting human beings in Bush Bush Forest, 12 miles from Ramlal's home.

Thus, although in the past ten years over a million mosquitoes, thousands of other insects and several thousand birds and small animals from this general region of Trinidad have been examined for virus, Oropouche has continued to elude us. On the basis of these two small episodes, the virus would hardly seem to merit attention as an agent causing human disease. But the story of Oropouche is not confined to Trinidad.

In 1960, the Brazilian government embarked on their challenging plan to construct a highway from Guamá, near Belém at the mouth of the Amazon River, through hundreds of miles of unexplored wilderness to the new capital of Brasilia. The unique opportunity thus offered to

study viruses in virgin territory was quickly seized upon by the epidemiologists of the Belém Virus Laboratory. These scientists, representing both The Rockefeller Foundation and the Brazilian Health Department, had in the previous seven years experienced phenomenal success in isolating large numbers of viruses of many different kinds—including many new to science—from man, animals and insects. They had not, however, found Oropouche virus.

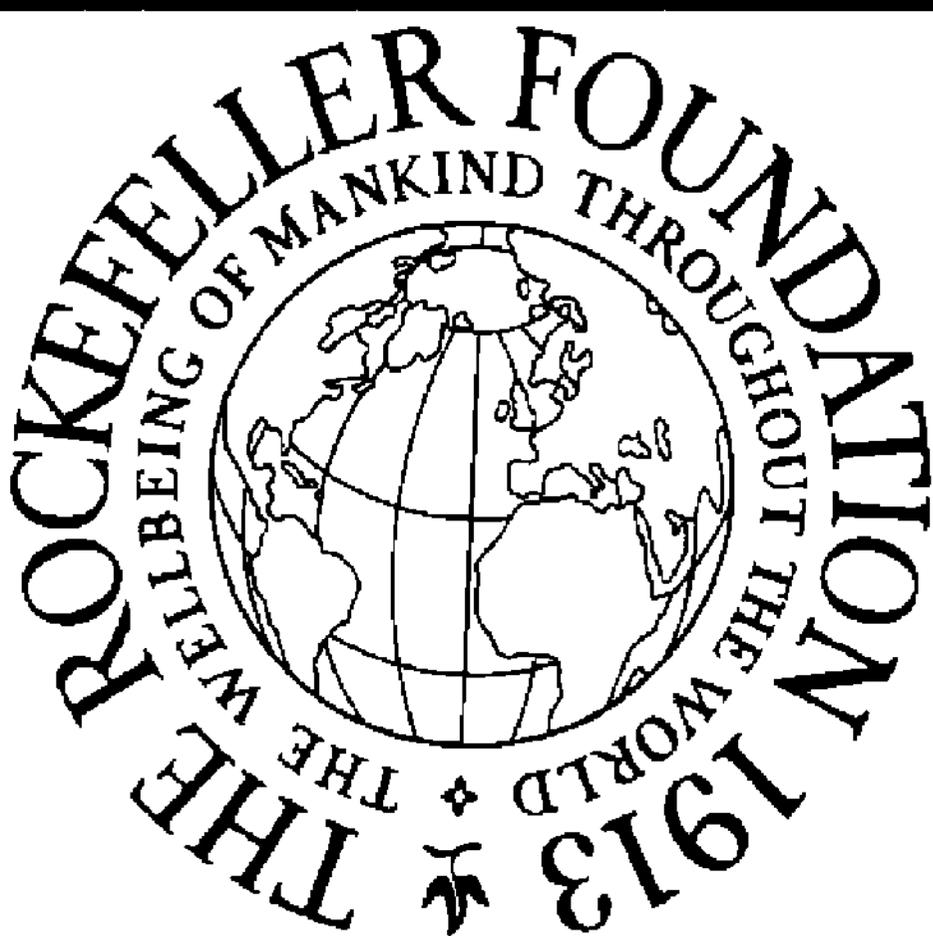
A field collecting post was set up about 50 miles from Belém on the new "highway," which in the wet season was a morass and in the dry season was thick with dust. Collections were made of mosquitoes and other insects, animals and birds, and blood specimens were taken from sick workers in the road gangs.

In May 1960, entirely unexpectedly, Oropouche virus was recovered from a sloth and from *Aedes serratus* mosquitoes. These findings were not repeated, and in themselves they did little more than put a couple of pins in the epidemiologists' maps.

But then in April and May 1961, in the suburbs of Belém an epidemic of over 7,000 cases of fever occurred. Children and adults sickened, with general aches and pains, headache and temperatures sometimes as high as 104°F. The illness lasted from two to seven days, but although prostrating, was without serious complications or sequelae. Oropouche virus was isolated from the blood of 16 patients.

Again the field epidemiologist planned a program of field investigations. All available mosquitoes in the affected areas of Belém and all collectable small animals were examined for virus. Blood specimens were taken from hundreds of human beings. No virus was isolated from several thousand mosquitoes, 25 opossums and 15 wild rats, but many Belém residents were found to have developed immunity.

Although after this dramatic flareup the virus once again disappeared from view, knowledge of its epidemiology had been advanced a little. We know now that Oropouche can cause a sizeable outbreak of human disease, and that on present evidence the disease is only a mild one. We can also guess at the insect vector species, since the virus has been recovered once from *Mansonia* mosquitoes in Trinidad and once from *Aedes* mosquitoes in Brazil; in the Belém outbreak, however, the vector could not be determined. To the finding of neutralizing antibodies in two species of Trinidadian monkeys, we can now add the



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MAXINE RUDE

A Rockefeller Foundation member of the staff of the Belém Virus Laboratory, Brazil, collects blood specimen in an Amazonian jungle village.

isolation from a sloth. But the full range of the non-human vertebrates presumably involved in a virus transmission cycle with an insect vector is still unknown. After seven years we have advanced only a short way from our position when work with Oropouche virus began. The "unknowns" still far outweigh the "knowns."

This story is but one of many similar stories that have been engaging the attention of scientists in The Rockefeller Foundation's program of investigation of arboviruses. Interest in these arboviruses awakened after Foundation staff members working on yellow fever in Africa and South America in the 1930s and early 1940s had encountered several new viral agents. Among the African agents thus turned up were Bunyamwera, West Nile, Semliki Forest and Zika viruses; those from the New World included Ilhéus, Anopheles A, Anopheles B

and *Wyeomyia* viruses. These exotic agents, added to the viruses already known in the Old and New World—including yellow fever, dengue, St. Louis encephalitis, Eastern, Western and Venezuelan equine encephalitis, Japanese B encephalitis, Murray Valley encephalitis, Colorado tick fever, African horse-sickness, bluetongue and several members of the Russian spring-summer encephalitis group—made a total of 29 recognized arboviruses in 1952. The total now has risen to about 150, not all of which have yet been dignified by formal citation in the virological literature.

Work on the identification and cross-checking of this multitude of agents proceeds slowly. Investigations concerned with the recognition and final identification and description of a new virus represent but a fraction of the work required to characterize an agent fully, in the epidemiological sense. Skilled teams of virologists, ecologists, entomologists, epidemiologists, ornithologists, mammalogists and clinicians are required. Such studies are far from useless exercises. The Belém outbreak of Oropouche virus infection stands witness to this. So do the outbreaks of encephalitis among residents of New Jersey in 1959 and Florida in the fall of 1962.

In 1950 The Rockefeller Foundation closed its work on yellow fever and embarked on a program enlarged to include the whole range of arboviruses. Field laboratories were established in Poona, India; Port-of-Spain, Trinidad; and Belém, Brazil, in 1952-1953. Personnel were also added to existing laboratory groups in Cairo, Egypt; Johannesburg, South Africa; and San Francisco. Outside the Foundation's program, extensive contributions to the flood of recent knowledge have come from laboratories in Entebbe, Uganda; Yaba, Nigeria; Singapore; Tokyo; Moscow; Prague; Panama; Kuala Lumpur; Bangkok; Brisbane; London; Bogotá; Buenos Aires, to name a few—as well as from laboratories in the United States connected with the U.S. Public Health Service, the U.S. Army, Navy and Air Force, and state health departments and universities. At Yale University, the Department of Epidemiology and Public Health has maintained an active arbovirus research unit for several years, conducting studies particularly on Eastern, Western and St. Louis encephalitis viruses in the United States.

The Rockefeller Foundation Virus Laboratories in New York have played a prominent role in monitoring the flood of new viruses from

many laboratories. When it was learned that the Yale Department of Epidemiology and Public Health was considering construction of new quarters, plans were developed to have the Foundation's New York laboratories, presently located in The Rockefeller Institute in New York, transferred to the new building. The broad epidemiological interests of the Yale group [with active interest in the field of arboviruses] complement those of the Foundation group—interests which, closely linked with arboviruses, extend into the field of international epidemiology. The prospects for fruitful collaborative investigations are excellent, and the development of a truly international arbovirus research center is contemplated.

AGRICULTURAL SCIENCES

The Rockefeller Foundation's staff-conducted work in the agricultural sciences consists of cooperative projects located in five different countries. Some 54 staff members living in these countries and seven based in New York conduct these programs. For the expenses of the work in 1963 the Foundation appropriated \$2,643,250, in addition to other amounts for the International Rice Research Institute in the Philippines, for fellowships and scholarships, and for grants to institutions reported elsewhere.

Latin America

The Mexican Agricultural Program, the oldest of the Foundation's agricultural projects, which celebrates its twentieth anniversary in 1963, began with research and training projects concerned with the solution of the problems of local food production. As better plant varieties and improved methods were developed, and as the number of highly qualified Mexican agronomists increased, progress could be made in two directions: Mexican scientists could take over the administration and staffing of the national research agency, and Foundation staff members could increasingly devote themselves to the international extension of the research and training methods proved in the Mexican and other Latin American programs.

Some twenty wheat specialists from Middle Eastern countries, for instance, have come to Mexico to study practical wheat improvement

methods, spending about ten months among Mexican farmers, at the government's experiment stations and laboratories, and in national and local agricultural agencies. These visitors represented Pakistan, Afghanistan, Turkey, Iraq, Iran, Lebanon, Syria, Jordan, Libya, and the United Arab Republic.

Similarly, postdoctoral and other advanced specialists in corn and potato improvement come to Mexico from practically every country of Latin America. Mexican corn, wheat, and potato hybrids and lines are being used around the world in improvement and breeding programs.

The training experience of the visiting specialists is planned and administered by Mexican scientists collaborating with Foundation staff through the Inter-American Food Crop Improvement Program, and their expenses are provided in whole or in part from Foundation funds. Mexico is thus contributing to agricultural improvement around the world by helping to upgrade professional competence and by supplying improved materials. Very often the Foundation in addition makes grants to aid the institutions in which the visitors will work when they return home.

Mexico's growing importance as an international agricultural center rests on the country's remarkable progress in improving food production. Mexico is one of the very few countries in which the rate of increase in total food production over a ten-year period has been greater than the rate of population increase, and practically the only one in which the rate for agricultural increase is more than twice as high as the rate for population growth.

As recently as 1955 Mexico had to import wheat because domestic production fell short of meeting the requirements of her people. In 1956 wheat harvests balanced demand for the first time in history, and every year since Mexican farmers have dramatically increased both the total amount of wheat grown and the yield per unit of area.

Wheat yield increases have been particularly striking—from a national average of 0.9 metric ton per hectare (2.47 acres) in 1952 to 1.9 tons in 1962, with many farmers getting 3 tons or better.

The Mexican Agricultural Program began in February, 1943, when J. George Harrar, a plant pathologist who is now the president of the Foundation, arrived in Mexico to begin a wheat improvement project. The Ministry of Agriculture assigned to him for training a recently



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Wheat specialists from Pakistan, Iraq, and Syria making cross-pollinations at the experiment station "CIANO" in Sonora, Mexico, as part of their practical experience with the wheat improvement section of the National Institute of Agricultural Research of Mexico.

graduated plant pathologist from the National School of Agriculture at Chapingo. Thus from the first the program has combined research on food crops with practical training in crop improvement methods. The Mexican Ministry of Agriculture had invited the initiation of the project and the work in Mexico, like that of subsequent units, has been cooperative with appropriate agencies of government.

The wheat project was soon supplemented by a similar one in corn, and in subsequent years work on other small grains, potatoes, and vegetables was added, along with studies and training in soil science and plant protection. In the 1950's a program in the animal sciences was initiated to increase Mexico's supply of animal proteins. This expansion was made possible by the success of the cereals research, for with ample grain for human consumption, surpluses can be used to feed animals.

Future progress for Mexican agriculture now seems assured through changes in organizational structure of the responsible agencies. All plant research has been consolidated in the National Institute of Agricultural Research, created in 1960, and work in the animal sciences has similarly been consolidated in the National Center for Animal Research, created in 1962. Both research units are integral parts of the federal Ministry of Agriculture and Animal Husbandry. Mexico's facilities for agricultural education were strengthened in 1958 by the establishment of a Graduate School in the National School of Agriculture at Chapingo; the school is contributing highly competent professionals to the country's agricultural economy. Many key positions in both institutes and the school are filled by men and women formerly associated with the program who have received training toward advanced professional degrees on Foundation fellowships and scholarships.

The demonstrated success of the Mexican experiment led to an invitation for the initiation of a similar unit in Colombia in 1950. The acceptance by government and the public of the importance of research

Dairy barn unit at Tibaitatá, the central national experiment station near Bogotá, Colombia. Research on food crop and livestock improvement at this and associated stations has had important results in increasing the quality and quantity of the Colombian food supply.



Photograph Excised Here

and training as the basis of agricultural progress has been even more rapid in Colombia than in Mexico. The original cooperative program was absorbed into the Ministry of Agriculture in 1955 through the creation of a central Department of Agricultural Research (DIA), and DIA in turn in 1962 became the nucleus of a National Institute of Agricultural Research which includes not only research but also extension, experiment station operation, and provision for postgraduate training. The government built a central experiment station, Tibaitatá, outside Bogotá, one of the largest and best research centers in Latin America, and reorganized and strengthened regional stations and substations to complete the coverage of the principal agricultural regions. Existing agricultural colleges have been improved and new ones established. Training has been pushed vigorously both through in-service experience in research projects in Colombia and through fellowships for study abroad, many of which are provided by the Foundation.

The research in Colombia was first concentrated on the basic food crops—corn, wheat, potatoes, and beans. In the middle 1950's sections were added for vigorous investigations of livestock improvement. New animal science facilities were built at Tibaitatá and the main regional centers—including one in the southern *llanos* or plains in the Orinoco basin—and cooperative programs were set up with the School of Veterinary Medicine of the National University. Results accruing from livestock research are proving of great value in improvement efforts for beef and dairy cattle, poultry, sheep, and swine.

The third Latin American unit was set up in Chile in 1955 as the Office of Special Studies of the Ministry of Agriculture. Its program from the first has been focused on wheat and forage legumes and grasses. The fact that agricultural production in Chile does not meet domestic requirements necessitates the use of substantial amounts of foreign exchange to pay for the importation of grain and meat. The government has therefore put heavy emphasis on agricultural improvement in its current Ten Year Plan. A total of \$1,200,000 was appropriated for the construction of two research centers in the 1962-1964 period, one near Santiago and the other in the south near Temuco. Staff of the Foundation program have cooperated in planning the new stations as well as in giving technical direction to the crop improvement projects.



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Threshing an experimental plot of a new line of wheat at the experiment station of the Faculty of Agronomy of the University of Concepción, Chile, where Foundation staff members also cooperate.

New wheat varieties developed by the program are used for planting over half the country's northern bread-wheat area and still better varieties are in final increase. Two new forage varieties, one a red clover and the other an alfalfa, are similarly in final increase for widespread distribution. With these and other varieties in advanced stages of development, and with the recommendations about management practices which the program can now supply, the government's goals for food production increase in the Ten Year Plan seem within reasonable prospect of achievement.

India

The Indian Agricultural Program of The Rockefeller Foundation began in 1956 in response to an invitation from the Indian government. From the beginning, like the Latin American programs, it has been devoted to the improvement of important food crops—in this instance,

maize, sorghum, and the millets—and in addition has included strong emphasis on the strengthening of agricultural education, particularly at the graduate level.

The record-breaking creation in four years of hybrid maize varieties adapted to all the major agricultural regions of India was announced a year ago. In the meantime seed of the new varieties has been multiplied to substantial proportions and is now being planted in increasingly large areas.

India is also serving as a training center in maize improvement for Thailand, Cambodia, and Indonesia, agronomists from these countries being in India in 1962 or due to arrive in early 1963.

The daughter of a farmer in the Punjab, India, poses with ears of Ganga 101 which her father has raised. This is one of the five new hybrids produced by the Indian maize improvement scheme.



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Maize, not usually thought of as an important crop in the Far East, has recently come into prominence both as a substitute for rice in the human diet and as a necessary element in increasing animal industry. Japan, especially, is buying corn for livestock feed, and much of the new interest in maize in Thailand, Cambodia, and Indonesia is in response to the demand from Japan.

The rapid production of the new maize hybrids in the Indian Agricultural Program was made possible in large measure through the use of advanced lines and varieties developed by Rockefeller Foundation staff in Mexico and Colombia, where climatic and growing conditions closely match those in many regions of India, thus permitting direct transfer and utilization of materials.

More than 5,300 lines of sorghums and millets have been collected by the cooperative program for these crops, and were planted in central India in late 1962. When mature, they will be classified into germ plasm types for further evaluation and use in Indian and international breeding programs.

Rockefeller Foundation aid to agricultural education in India is chiefly concentrated in the Indian Agricultural Research Institute, New Delhi. This postgraduate institution admitted its first class in 1958. It now has 71 professors and 60 assistant professors on the teaching staff, and an annual enrollment of approximately 400 students. Sixty graduates have been awarded the Ph.D. degree and 246 the M.S. degree.

Foundation staff members are also cooperating as consultants in the planning and establishment of several state agricultural colleges which, like land-grant institutions in the United States, will be centers for coordinated instruction, research, and extension.

The International Rice Research Institute

The International Rice Research Institute, Los Baños, the Philippines, a joint project of the Rockefeller and Ford Foundations in cooperation with the government of the Philippines, is completing its first full year of formal operation. The research center was dedicated in February, 1962.

The Rockefeller Foundation, which is assuming responsibility for the direction and operation of the institute, appropriated \$515,000 for the expenses of its work in 1963.



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Research workers at the International Rice Research Institute employ both new and traditional methods of cultivation in the experimental plots which lie immediately in front of the institute buildings.

Six Rockefeller Foundation staff members and 13 scientific and key personnel from South and Southeast Asian countries form the present roster of personnel. In addition to conducting research, the senior staff scientists direct the training of advanced students from the rice-producing countries.

During 1962, 27 research fellows from Thailand and the Philippines were enrolled, and additional students from Indonesia, Taiwan, and Malaya are expected in 1963.

The Ford Foundation, which made capital grants totaling \$7,150,000 for development of the institute, has appropriated an additional \$750,000 in support of the training program and regional research activities in Far Eastern countries over the next three years.

Although experimental rice plots have been grown at the institute for the past three years, 1962 saw the initiation of field and laboratory research on a substantial scale.

In the plant breeding program, institute scientists are working to develop higher-yielding varieties suitable for growing over a wide area of the tropics. They are seeking such characteristics as short, stiff straw, resistance to endemic disease, resistance to lodging under high fertility levels, superior milling and cooking qualities, early maturity, and insensitivity to photoperiod.

Varieties that are not sensitive to length of daylight and that mature in a short growing season could be planted at any time of the year and would permit the growing of two crops a year.

Present studies in plant protection are centered on rice blast, one of the most important rice diseases, caused by the fungus *Piricularia oryzae*. Work is being done on identification of physiologic races, determination of host range and of the nature of resistance, and possibilities of control with antibiotics or other chemicals. Measures for combating the most serious insect pest, the rice stem borer, are also under study.

Other studies are being undertaken in the chemistry, physics, and microbiology of submerged soils and on the engineering problems inherent in rice production and processing.

The institute's research laboratories are centered in a single-story, air-conditioned building with separate areas for plant breeding, genetics and taxonomy, chemistry and biochemistry, agronomy, soil chemistry and soil physics, plant physiology, plant pathology and entomology, agricultural economics, and statistics.

An administration building with a library and auditorium, a large service building, a residential compound of 25 staff homes, and dormitory and dining accommodations for 60 trainees complete the major facilities.

STUDY AWARDS

The Rockefeller Foundation's study awards are integrated with the interests of its several programs. Through its fellowships and scholarships, the Foundation seeks to train personnel and to advance knowledge in the medical and natural sciences, the agricultural sciences, and the humanities and social sciences. Awards are made on an international basis to outstanding men and women who have shown promise of making important contributions to their fields of study in their native countries.

During 1962 a total of 723 persons held Foundation fellowships and scholarships: 458 awards that began in previous years continued active into 1962, and 265 new awards became active during the year. Their distribution by program is as follows:

| | STUDY AWARDS FROM PREVIOUS YEARS CONTINUED INTO 1962 | NEW AWARDS IN 1962 | NUMBER OF AWARDS ACTIVE IN 1962 |
|--------------------------------|---|-----------------------------|--|
| Agricultural Sciences | 199 | 99 | 298 |
| Humanities and Social Sciences | 106 | 88 | 194 |
| Medical and Natural Sciences | 153 | 78 | 231 |
| | 458 | 265 | 723 |

In addition to the fellowships and scholarships awarded and administered directly by The Rockefeller Foundation, several organizations have awarded similar fellowships with funds contributed in 1962 and previous years by the Foundation. The organizations administered a total of 81 fellowships provided for by Foundation funds during 1962:

| | |
|---------------------------------------|----|
| British Medical Research Council | 11 |
| Population Council | |
| Demographic | 16 |
| Medical | 5 |
| Social Science Research Council | |
| Predoctoral and Postdoctoral | 40 |
| Political Theory and Legal Philosophy | 9 |
| | 81 |

Rockefeller Foundation Fellows and Scholars in 1962 came from 58 countries and one international organization:

| | PREVIOUS AWARDS | NEW AWARDS | | PREVIOUS AWARDS | NEW AWARDS |
|-------------|-----------------|------------|---------------------------|-----------------|------------|
| Algeria | — | 1 | Mexico | 55 | 25 |
| Argentina | 15 | 8 | Morocco | — | 1 |
| Australia | 1 | — | Netherlands | — | 1 |
| Austria | 1 | — | New Zealand | 1 | — |
| Belgium | 3 | — | Nicaragua | 2 | — |
| Bolivia | 4 | — | Nigeria | 6 | 11 |
| Brazil | 35 | 19 | Norway | 3 | 4 |
| Ceylon | 2 | 1 | Pakistan | 6 | 5 |
| Chile | 27 | 22 | Peru | 11 | 7 |
| Colombia | 56 | 35 | Philippines | 31 | 8 |
| Costa Rica | 3 | 5 | Poland | 27 | 8 |
| Denmark | — | 1 | Portugal | 1 | — |
| Ecuador | — | 3 | Rhodesia | — | 2 |
| El Salvador | 3 | 2 | Sudan | 1 | — |
| Ethiopia | 2 | 4 | Sweden | — | 1 |
| France | 2 | 3 | Switzerland | 2 | — |
| Germany | 5 | — | Thailand | 6 | 8 |
| Ghana | 2 | 3 | Trinidad | 1 | 2 |
| Guatemala | 1 | 2 | Turkey | 7 | 5 |
| Honduras | — | 1 | Uganda | 5 | 2 |
| Iceland | 1 | — | United Arab Republic | 4 | 3 |
| India | 46 | 15 | United Kingdom | 7 | 1 |
| Indonesia | 8 | 4 | United States | 6 | 3 |
| Iran | 2 | 3 | Uruguay | 2 | 1 |
| Iraq | — | 2 | Venezuela | 1 | — |
| Israel | 1 | — | Viet Nam | 5 | 1 |
| Italy | 3 | — | World Health Organization | 2 | 2 |
| Jamaica | — | 5 | Yugoslavia | — | 1 |
| Japan | 39 | 22 | | 458 | 265 |
| Korea | 3 | 2 | | | |
| Lebanon | 1 | — | | | |

The Rockefeller Foundation made available a total of \$3,200,000 for its fellowship and scholarship activities during 1962, and appropriated \$3,525,000 for the awarding of fellowships during 1963.

The Foundation in 1962 continued to appropriate funds for allocation in the form of unrestricted grants to institutions where Founda-

tion fellows and scholars are engaged in study and research. Recognizing that the disparity between universities' expenses and their income from tuition and fees is most apparent at the level of postgraduate study, the Foundation, since 1958, has made available funds to be disbursed in units of \$1,000 for each full year a fellow spends at a university and \$500 for each half year. The grants are in addition to tuition and other fees also paid by the Foundation through its fellowship and scholarship awards. Under this program in 1962, the Foundation sent funds amounting to \$441,500 to 94 institutions in the United States and foreign countries.

Fellows and scholars are listed by name and region in the Annual Report.



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The College of Agriculture of Cornell University, with some financial aid from The Rockefeller Foundation, offers a special orientation course for foreign graduate students. Shown above is the group at Cornell in the summer of 1962; among them are a number of Foundation fellows and scholars in the agricultural sciences.

FINANCIAL SUMMARY FOR 1962

The Trustees of The Rockefeller Foundation appropriated \$30,047,036 during 1962, distributed among the several programs as follows:

| | |
|--|--------------|
| Agricultural Sciences | \$ 6,129,175 |
| Humanities and Social Sciences | 7,095,460 |
| Medical and Natural Sciences | 8,056,360 |
| General Grants | 5,283,901 |
| Administration and Supporting Services | 3,482,140 |
| | <hr/> |
| | \$30,047,036 |

In order to provide funds for these appropriations, it was necessary to use \$4,381,759 from the Principal Fund to supplement total 1962 Foundation income of \$24,233,991 and \$1,431,287 representing refunds and unused balances of previous appropriations allowed to lapse.

The market value of the uncommitted Principal Fund amounted to \$568,969,605 as of December 31, 1962.

Substantial progress was made during the year in diversification of the Foundation's investments. The number of common stock issues in the portfolio was expanded from 38 to 48. Holdings of Standard Oil Company (New Jersey) stock, the original shares of which were acquired by gift in 1919, were reduced through (1) the sale of one million shares to the company in February, 1962; (2) the transfer of 189,942 shares to the Ford Foundation in exchange for 230,000 shares of Ford Motor Company stock in two transactions consummated in July and December, 1962; and (3) transfer of 33,362 shares appropriated to grantees. The remaining 4,708,696 shares of Jersey stock in the Foundation's portfolio as at December 31, 1962, represented 2.17 per cent of the total shares then outstanding.

The Standard Oil Company (New Jersey) transactions, together with the sale of miscellaneous fractional shares and receipt of a contribution of \$15,000, resulted in a net increase of \$57,240,864 in the Principal Fund, before deducting the amount of \$4,381,759 required to supplement income to provide for total 1962 appropriations.

Financial Statements for 1962 are published separately and are also printed in full in the Foundation's Annual Report. The statements present the balance sheet at December 31, 1962, with supporting information, including a list of security transactions during the year, a schedule of securities owned at the end of the year, and the opinion of Haskins & Sells, independent public accountants.

ORGANIZATIONAL INFORMATION

MEETINGS

The annual meeting of the corporation and a regular stated meeting of the Board of Trustees were held on April 4; a stated meeting of the Board of Trustees was held on December 4 and 5. Five regular meetings and two special meetings of the Executive Committee of the Trustees were held to take actions within the general policies approved by the Board.

TRUSTEES AND PRINCIPAL OFFICERS

At the meeting of the Board of Trustees on April 3, 1963, Mr. Thomas J. Watson, Jr., Chairman of the Board and Chief Executive Officer of the International Business Machines Corporation, was elected to the Board to fill the vacancy created by the resignation of Mr. Dean Rusk in 1961, and Dr. Robert F. Goheen, President of Princeton University, was elected to succeed Dr. Henry P. Van Dusen who retires on June 30, 1963. Dr. Detlev W. Bronk also retires from the Board at the end of June.

At the same meeting Mr. Kenneth Wernimont, Treasurer, was elected Vice-President for Administration. He was elected Treasurer in 1962 and will continue to serve in that capacity as well. Formerly Assistant Treasurer, Mr. Wernimont succeeded Mr. Edward Robinson who was named Special Assistant to the President. Mr. Robinson had been the Foundation's Treasurer since 1938.

Other changes in 1962 include the resignation of Dr. Charles B. Fahs, Director for Humanities, to become Minister Counselor for

Cultural and Public Affairs at the United States Embassy in Tokyo, Japan.

In July, the Foundation consolidated its programs in social sciences and the humanities, the resulting program to be known as Humanities and Social Sciences. Dr. Kenneth W. Thompson, Vice-President, was elected Acting Director of the new program.

With deep regret we report the death on May 25, 1963, of Mr. Orvil E. Dryfoos, a Trustee of the Foundation since April 6, 1960. Mr. Dryfoos was the President and Publisher of *The New York Times*. His contribution to the work of the Foundation during the period of his Trusteeship was a rich one and his loss will be keenly felt by the Trustees and officers.

REGIONAL PROGRAMS



UNITED STATES

In 1962, as in earlier years, grants made by the Foundation to institutions in the United States constitute a large portion of its expenditures. Increasingly, however, these grants reflect a trend toward a closer relationship with the development of Foundation program in other parts of the world. Many of them are in support of projects having either direct or indirect implication for the progress of developing countries or for the advancement of knowledge about them. However, substantial amounts were also appropriated for research and planning in fields in which the Foundation has had a long-time interest, and for a number of projects that will strengthen the programs of organizations whose work is closely related to that of the Foundation.

International Activities of United States Institutions

The Carnegie Endowment for International Peace since 1959 has centered a great deal of attention and effort on the problem of providing training in diplomacy and international relations for young foreign service officers of the many new nations which have achieved

independence within the past decade. Many of these nations found themselves under the necessity of conducting numerous and complex diplomatic negotiations without a foreign service staff large enough for the purpose. After a period of experimentation, the Carnegie Endowment worked out a plan which is giving important help in this situation.

The training plan is in three parts. The basic activity is the administration of fellowships for young foreign service officers nominated by the governments of the new countries for 12-month courses of advanced study in international relations and diplomatic practice at Columbia University and at the Graduate Institute of International Studies in Geneva. Some 70 fellowships have been taken up, and graduates of the courses now represent their governments in important posts at the United Nations and important embassies. About 90 similar awards will be made during the next five years. The second part of the plan consists of seminars in diplomacy offered in Washington, London, Paris, Geneva, and New Delhi, and the third involves regional training programs at selected centers in the emerging countries for diplomats unable to take the 12-month course. The two-month institutes are for short-term, intensive training of those being recruited to the foreign service of new states. The first institute was held in East Africa, and two more will be offered annually over the next four years in other parts of Africa, the Middle East, Southeast Asia, and the Caribbean area. The Foundation has helped finance the work with appropriations totaling \$847,500, and in 1962 renewed its support with a grant of \$1,097,500.

Two grants to United States universities reflect the Foundation's continuing concern with the problem of population. One, quite small (\$14,000), will help the School of Public Health of Harvard University explore the possibility of giving organized public health agencies a role in family planning in a Latin American country. In a low-income suburb of Santiago, Chile, the medical faculty of the University of Chile for some years has been operating a comprehensive medical care demonstration center which serves a population of about 12,000 people. A preliminary study of 175 women of childbearing age revealed unexpected interest in family planning and as a result the University of Chile physicians requested the cooperation of the

Harvard group for a more systematic investigation of a larger sample. On the basis of its results it may be possible to show how family planning can be included as a part of a general medical care program.

Collaboration between Latin American and United States population experts in demographic studies of Central and South American countries is being aided through a grant of \$175,000 to the University of California, Berkeley, where Professor Kingsley Davis will direct the project. Training in the methods of demographic analysis for graduate students from Latin American countries constitutes an important element in the project. A series of ten to a dozen monographs is planned, directed toward the policy-makers, planners, advisers, and technical experts who are trying to promote economic development and raise standards of living in Latin American countries. The significance of rapid population growth for all schemes of economic improvement is obvious and will be pinpointed by the new studies. Both the research and the training will be collaborative with the International Center for Comparative Social Research of the Torcuato Di Tella Institute in Buenos Aires, Argentina.

The economics of land use and agricultural production as elements in the problem of achieving national prosperity forms the center of a collaborative project between the Agrarian University of Peru and the State College of Agriculture and Engineering of the University of North Carolina. The contribution of North Carolina State to the development of the discipline of agricultural economics at the Peruvian university takes the form of supplying faculty members for teaching and research assignments in Peru, cooperation with Peruvian agencies in research on the economic adjustment and development needs of the country, offering in-service training to Peruvian specialists, and the selection of Peruvian students for advanced training in the social sciences on the Raleigh campus and elsewhere. North Carolina State has been collaborating in Peruvian higher education for a number of years; the Foundation's grant of \$150,000 will help to continue the work in social science for another four years.

Also for aid to the discipline of agricultural economics was a small grant (\$15,000) to the Fund for the International Conference of Agricultural Economists, Inc., in Chicago. As implied by its title, the chief work of the fund is to bring together specialists in this field for inter-

changes of information and experience. The conferences are held every three years; the Foundation has contributed a total of \$40,000 for the expenses of the last three, held in Finland, India, and Mexico. The new grant will help support the secretariat of the fund in preparing for the 1964 meeting in France, after which it is expected that the office will become self-supporting. Agricultural economics in the advanced countries is now an integral part of the discipline of economics; the work of the fund is contributing in a significant way to similar development in the less advanced nations.

Three other grants, two of them renewals of support begun through previous appropriations, were made in 1962 for the international activities of United States institutions. The Annual Report for 1961 noted the appropriation of \$50,000 to the Association of American Medical Colleges, in Evanston, Illinois, for the work of its Division of International Medical Education. Through this division the association helps recruit American medical faculty members for overseas assignments and places foreign medical educators on study leave in institutions in this country; for this purpose the division is creating a central registry based on a survey of more than 36,000 faculty members of the 86 medical schools in the United States. In 1962 the Foundation appropriated an additional \$200,000 for the work of the division.

For several years the New York State College of Agriculture of Cornell University, Ithaca, New York, has been giving a special summer orientation course for foreign students preparing to enter its own graduate school of agriculture or those of other institutions. The Foundation suggests attendance to a number of its fellowship and scholarship holders each year. Foundation support for the course was renewed in 1962 through a grant of \$50,000. A picture of the 1962 group is shown on page 69.

As is noted in the section on Colombia, the University of Valle, in Cali, is setting up a two-year Basic College curriculum to be taken by all students as prerequisite to entrance to the professional schools. In the curriculum the mastery of English as a second language is given strong emphasis; for teaching the language the university has established a Linguistic Center with 75 listening booths equipped with tape recorders for student practice. The University of Texas, Austin, is lending two faculty members to the Cali institution to start the center

and to direct it for two years. For the expenses of this cooperation, the Foundation has allocated \$70,288 to the University of Texas.

Several other grants aided the international activities of a number of nonacademic American organizations.

An appropriation of \$25,500 will enable the United States National Student Association, Philadelphia, to increase its effectiveness in Latin America by adding another staff member. The chief activity of the association is to work with student governments in some 400 American colleges and universities, but in recent years its international responsibilities have become increasingly important. The association has built up excellent relations with student groups in Latin America and is putting increased emphasis on this region in the hope that better understanding will lead to mutual benefits and improvements.

The central mission of the International Bank for Reconstruction and Development, in Washington, is of course to lend money for self-liquidating developmental projects in countries which lack the capital to undertake such essential tasks themselves. But to make its loans more effective and in the end more economical for the borrowing country, the bank has also operated a training plan for key men in the development programs it supports—men like senior officials of ministries of finance or economic affairs, and officers of central banks and of programing and development corporations. The training, handled by the bank's Economic Development Institute, is given in Washington, and when the sixth course was completed in 1961, 118 alumni were using their new skills in positions of responsibility around the world.

Some three years ago it became apparent that the returned trainees were handicapped by not having adequate library and reference facilities both for their own use and for passing on to colleagues new ideas and techniques. Because technical restrictions made it difficult for the bank to undertake the project by itself, the Foundation provided assistance for the assembling of an English library of 412 items, consisting of general, technical, and reference books and pamphlets helpful to officials concerned with economic development. This project has been substantially completed with the shipment of 92 libraries.

On the same basis, the bank is now preparing similar libraries in French for those recently independent countries in which French

is the official or the principal second language. A group of French scholars has selected the titles and will arrange translations of certain outstandingly important contributions. About 150 sets of the French collection are to be assembled, and the Foundation has helped with a \$25,000 grant. This makes a total of \$160,000 which the Foundation has appropriated for the library project.

The humanities program of The Rockefeller Foundation for over 30 years has sought to build up awareness and expertise in the United States in regard to the principal regions of the world through support to centers of area studies in a number of universities. For example, over \$900,000 has been given to Cornell University for various aspects of Southeast Asian studies. The Asia Society, in New York, has sought to supplement the university centers by educating Americans about the people, culture, and outlook of the countries of Asia. The society, among other things, has assembled material on Asian countries for use in high school and college courses, has stimulated exhibitions of distinguished visual art of Asia, and the publication of good translations of contemporary Asian imaginative writing. The society now proposes to set up ongoing councils, each with the task of concentrating on a given Asian country to deepen and enrich American knowledge of it as an individual entity, to counteract the tendency of thinking of all the countries as more or less alike. The new alignment of its work will require increased staff, and the Foundation has appropriated \$110,000 to help with the expenses of the new program over a two-year period.

A quite unusual venture for increasing international understanding in the professional theatre is that of the Institute for Advanced Studies in the Theatre Arts, in New York. Each year the institute brings to this country three eminent foreign directors who stage showcase performances with American actors of English translations of foreign plays in a style as close to that of the original national tradition as possible. Rehearsals take the form of workshops to which American actors, directors, and technicians are invited. Among the directors who have already staged productions in New York are Jacques Charon of the Comédie Française, Paris; Willi Schmidt of the Schillertheater, Berlin; Yuri Zavadski of the Mossoviet Theatre, Moscow; Onoe Baiko VII of the Kabuki Theatre, Tokyo; Dimitrios Rondiris of the Greek National



Photograph Excised Here

Each year, the Institute for Advanced Studies in the Theatre Arts, New York, brings to the United States several eminent directors to stage English translations of foreign classics in a style as close to that of the original national tradition as possible. This picture shows Athenian director Dimitrios Rondiris rehearsing the chorus for a presentation of Sophocles' *Electra*.

Theatre, Athens; Mr. Hu Hung-Yen and Miss Hu Yung-Fang of the Peking Opera; and Erwin Axer of the Teatr Wspolczesny, Warsaw. The Rockefeller Foundation has made a modest grant of \$32,000 to aid the institute's international activities for two years; the major part of the institute's support comes from tuition, private benefactors, and three sponsoring colleges and universities. Commendation for the institute has been vigorous from those who favor conscious theatrical style and deliberate rationality in drama; less warm from proponents of naturalism in acting. The division of opinion is a welcome sign of the increasing vitality of drama as a cultural factor throughout the United States.

Internationally Oriented Research

While the rhythms of Latin American music are often heard in American popular music and a few works of outstanding Latin American composers are standard in orchestral repertoires, no systematic effort to study, distribute information about, and perform Latin American music existed in this country until Indiana University undertook the responsibility for these functions in 1961. In that year the university's School of Music, with some aid from the Foundation, brought to Bloomington a Chilean composer, Juan Orrego-Salas, on an experimental basis, to develop the university's holdings in the field of Latin American music and to stimulate the performance of this music. On the basis of the success of the trial the university formally established a Latin American Music Center with Professor Orrego-Salas as director. The Foundation has contributed \$97,000 toward the costs of establishing the center; a picture of one of its activities appears on page 37.

The center, in addition to cooperating with the university symphony orchestra and the resident Berkshire Quartet in the performance of Latin American music, will be active in historical and musicological research, serve as an exchange center for scores and tapes of music collected at the center, catalogue the available musical literature, develop specialized graduate courses within the regular curricula of the school of music, and encourage high schools and colleges to include Latin American music in their music education programs. The center will also cooperate with the university's Archives of Folk and Primitive Music by collecting in Latin America, at first principally among the Andean Indians, and by exchanging tapes with South American institutions. Major emphasis will be put on cooperation with the Center for Advanced Music Composition of the Torcuato Di Tella Institute in Buenos Aires, Argentina.

At Cornell University, Ithaca, New York, where the Foundation since 1950 has helped support a center for Southeast Asian studies, Mrs. Claire Holt is completing an investigation of the role of the traditional and modern arts in Indonesia, which the Foundation has assisted with grants amounting to something more than \$38,000. A seminar in Islamic art and architecture at the University of Michigan, offered by the Department of the History of Art, is one of the few places in this

country or elsewhere prepared to give training for professional competence in the field in association with strong courses in Middle Eastern languages and history. The university has expanded its library and museum materials for use in the two-year cycle of courses, and the Foundation has assisted with a grant of \$17,900. Another grant in a series totaling \$75,000 is aiding the preparation of a new edition of the *Encyclopedia of Islam*, originally published between 1907 and 1938. The American Council of Learned Societies is coordinating the work, and the editing is under the auspices of the Royal Netherlands Academy of Sciences. The writers of the various articles are the leading scholars of Islam throughout the world, chosen without regard for nationality or religion. The first volume of over 1,300 pages was published in 1960; the writing and publication of the four remaining volumes is expected to be completed in about 15 years.

Three other grants to American institutions, in the fields of agriculture, economics, and medical care, are expected to have significance for less developed countries. An appropriation of \$62,850 will assist the Department of Animal Husbandry of the Texas Agricultural and Mechanical College System develop more precise methods for measuring quantitatively the energy-producing potential and nutritive value of forage crops. The development of such methods would result in an enormous saving in time, effort, and funds in creating improved varieties of the forages upon which ruminant animals depend for their production of meat and milk. The department has developed a peristaltic pump which obtains and mixes representative samples of the contents of the rumen as these undergo dynamic chemical and physical changes during the digestive processes in live animals, without harm to the animal. This method, if it can replace present laborious and long-time feeding trials for evaluating various kinds and varieties of forage grasses and legumes, would contribute importantly to the improvement of pastures, and thus to the supply of animal proteins in countries where the diets are deficient in these elements.

To develop techniques for analyzing the water problem in arid lands in relation to social and economic growth is the objective of a two-year study at the University of Arizona, for which the Foundation has appropriated \$38,500. The state of Arizona is an excellent laboratory for the study of water problems; the results should be applicable



A peristaltic pump used for studies of animal nutrition in the Department of Animal Husbandry, Texas Agricultural and Mechanical College System. The apparatus enables scientists to analyze contents of the cow's digestive system without injury to the animal.

Photograph Excised Here

in the neighboring state of Sonora, Mexico, and to some degree in other arid regions in Latin America and elsewhere. Briefly, the problem is that the growth of industry and agriculture in areas where natural supplies of water are limited creates competition for the available amounts; what rationing among potential uses will produce the greatest long-run economic product? The investigation will begin with the construction of an input-output model describing the Arizona economy, and proceed through a static analysis of a single year to a dynamic, evolving model. It is estimated that the initial stages of the work will require approximately two years to complete. A picture from the project appears on page 46.

The majority of the babies born in the United States are delivered in hospitals by physicians. A shortage of physicians for maternity care already exists, however, and it is estimated that by 1970 the disparity will be as high as 30 per cent. In these circumstances, the provision of adequate health care may have to depend on the utilization of more and better trained medical assistants to the practicing physician, and the proper use of nurse-midwives may be part of the answer. Although the profession of midwifery has traditionally had a very limited role in this country, in northern Europe it has been a respected vocation for many years. In Sweden, for example, where significantly the infant mortality rate is 40 per cent lower than in the United States, nine out of ten deliveries are handled by nurse-midwives. At the Johns Hopkins

University, the Department of Gynecology and Obstetrics is beginning a long-term investigation to determine whether there is any real difference in quality of care which nurse-midwives can render in comparison to that given by resident staff in normal and uncomplicated cases. The conditions of the study are carefully equated so that in so far as possible the major variable will be nurse-midwife versus intern-resident, and the results will be evaluated by a number of criteria. In short, the study is designed to determine without emotional bias or prejudice the safe definition of the nurse-midwife's role. Surprisingly, a study of this kind has never before been undertaken. The Foundation is helping support the study with a \$90,000 grant.

The methods of economic analysis are being applied to another concern of underdeveloped countries—that of international trade and its relation to economic development—in a study being conducted at the University of Chicago under the direction of Professor Harry G. Johnson, with the support of a grant of \$44,140 from the Foundation. Professor Johnson is a specialist on the effects of economic growth on international trade; the present study will be both a theoretical and an empirical investigation into the role of technology and the effects of technical change on international trade, with particular reference to the underdeveloped areas. Only an empirically tested theory holds promise of providing guidance in resolving a range of policy questions concerning the place of international trade in the economic development programs of these countries, where the questions turn on analysis of emerging patterns and terms of trade and the distribution of gains from trade under conditions of economic growth and spreading industrialization.

Among Latin American countries, a common heritage of the independence movement of the 19th century was the assumption by the armed forces of extramilitary functions within the political and social structure of the several nations. Typically, the military enforced social stability; more recently, in some countries it has affected economic and foreign policy as well as the social and political structure. While many books have been written on armed conflicts and individual strong men in Latin America's past, no analytical studies have been made of the social organization that enabled the man on horseback to emerge and thrive. This is the objective of a new study by Professor Edwin Lieu-

wen, of the University of New Mexico, for which the Foundation has made a grant of \$25,000. Author of *Arms and Politics in Latin America*, Professor Lieuwen will conduct the research with the aid of four graduate students, and will focus the inquiry on five countries, chosen to represent different aspects of the problem, in countries where the military is in complete domination, or is in transition from political to unpolitical status, or is politically inactive. The grant runs until the fall of 1964.

Argentine nationalism, in its political, economic, and cultural manifestations, is the center of interest of a graduate seminar at the University of Pennsylvania directed by Professor Arthur P. Whitaker. A grant of \$15,000 will help cover some special expenses of the project, such as foreign travel and the securing of Argentine and other consultants.

The Foundation is also helping to support a study of the implications of the expansion of the Common Market, being conducted by Pierre Uri of the Atlantic Institute, Paris. The main function of the institute in research is that of coordinator and clearinghouse; when it does undertake staff studies they are directed toward broad and vital policy considerations. The present investigation, it is hoped, will help define by what methods the participating nations can ensure that economic integration not only benefits members of the Atlantic Community but also serves the economic development of free nations throughout the world. The amount of the grant made to the Atlantic Council of the United States is \$30,000.

Another grant will help the Center for International Studies of the Massachusetts Institute of Technology undertake an investigation of various proposals for disarmament and arms control in terms of the kind of international security organizations and forces appropriate or necessary to them. The study is being directed by Professor Lincoln P. Bloomfield; the Foundation grant is for \$25,000. A second, of \$21,000, is aiding research by Professor Basil D. Henning of Yale University on the history of the British Parliament from 1660 to 1690.

Research in Other Areas

For forty years the work of the Institute for Research in Social Science of the University of North Carolina in Chapel Hill has earned

an enviable reputation throughout the South and the nation for its numerous studies of southern regional problems. The Rockefeller Foundation and allied boards helped establish the institute and have appropriated nearly \$840,000 for its activities during the four decades.

Several years ago the institute launched a new group of investigations on the changing position of the Negro in American society, especially with respect to population growth and migration of both races, changing occupational patterns, and political behavior. Research on the last topic—political behavior—assisted by the Foundation since 1959, has produced the largest body of systematic data ever assembled on the subject. These comprise demographic and political attributes, including Negro voting registration in all counties of the South; a South-wide opinion survey of approximately 1,000 each of adult Negroes and adult whites; and intensive community studies in four counties, ranging from a county in Mississippi with a majority of Negroes to an industrial city in the upper South. The data are being analyzed and supplemented by certain subsidiary investigations; for the later phases of the work, including publication, the Foundation has added to its 1959 grant of \$190,500 another of \$44,000.

Another important study initiated with Foundation aid and now being brought to a close is one concerned with the effect of nuclear fallout on living organisms. Administered by the National Academy of Sciences and begun in 1955, the study enlisted the cooperation of 145 top scientists. The report of the group was published in 1961 and has had strong influence both on the thinking of the general public and on the radiological practices of the health professions. The Foundation's grant for the main study, made in 1955, and supplementary grants made later, amounted to \$285,000; a new one of \$32,000 will permit the Academy committees to bring their work to an orderly close, publish certain earlier studies, and reprint some of the main reports, the supply of which is now exhausted.

As previously noted population problems have long been an interest of the Foundation. Among the organizations engaged in work in this field, the Scripps Foundation for Research in Population Problems at Miami University in Oxford, Ohio, has had Foundation support for the longest period. Since 1943 grants totaling about \$490,000 have been made by the Foundation to the Scripps group. A major—

and unique—project of the Scripps Foundation, under the direction of Dr. P. K. Whelpton, was the interviewing of a national sample of married women of childbearing age as to the number of children they expected or planned to have. The sample was first interviewed in 1955; in 1960 those who could be reached were seen again to secure data about how many children they had actually had and about the changes, if any, in their views regarding family size. Publication of some of the results of the interviews attracted wide attention and proved influential in reshaping fundamental theories about population growth. It is now planned to publish a report based on analyses of the data from both sets of interviews. To meet some unexpected costs of the work, the Foundation has made a grant of \$30,000.

The massive task of re-examining American criminal law and of recommending reforms to bring it up to date and to secure greater uniformity among federal and state penal codes has been a central preoccupation of the American Law Institute since 1952. Leading jurists, scholars, and practitioners from the many relevant fields have been engaged in a fundamental study of the underlying philosophy of the criminal law, an examination of its current statements and applications in the different states and the federal government, and in a carefully considered formulation of a Model Penal Code with commentaries. The official draft of the Model Penal Code was given final approval at the 1962 meeting of the American Law Institute. Already, however, the model code has been very influential in affecting the revision of penal laws in a number of states. Rockefeller Foundation aid to the institute for the preparation of the code began in 1950; a 1962 grant of \$15,000, which will help with the completion of the project, brings the total of Foundation support to \$510,000.

Other grants were made to round out aid to projects in progress. The preparation of a history of the Supreme Court being written under the sponsorship of the Permanent Committee for the Oliver Wendell Holmes Devise was aided by an appropriation of \$22,500 to supplement an initial grant made in 1958. Another, of \$12,500, will assist Professor Arthur S. Link of Princeton University to complete the writing of the fourth volume of his biography of President Woodrow Wilson. Professor Link is also editor of the papers of Woodrow Wilson, the publication of which is in progress with partial aid from the Foun-

dation amounting to \$150,000. A third, of \$15,000 to supplement a grant made in 1957, will help the New York Pro Musica Antiqua, Inc., continue its study and performance of the musical literature from the Middle Ages through the Renaissance. The Union Theological Seminary, New York, has been developing work in religious drama during the past seven years with Foundation aid amounting to \$113,500. A 1962 grant of \$36,000 will enable the seminary to complete its plans for financing the religious drama program on an ongoing basis.

Previous Interests in the United States

Since 1924 The Rockefeller Foundation and the former Laura Spelman Rockefeller Memorial have devoted sums totaling about \$4,835,000 for the fellowship and grant-in-aid programs of the Social Science Research Council, New York. In 1962 the Foundation appropriated securities with an approximate market value of \$1.5 million to aid the same work over the next ten years.

The Social Science Research Council plays a central role in the development of the social sciences in the United States through the advancement of research, accomplishing this purpose by stimulating research in particular fields or subjects selected with regard to their timeliness, and through giving fellowships and grants for advanced research training and the encouragement of research by social science teachers. Many present leaders in the various fields of the social sciences have received aid from the council fellowships or grants at times when support from other sources was inadequate or even nonexistent. The Foundation's 1962 grant is designed to stabilize the council's operations over a long enough period to enable it to broaden the base of its support for the fellowship and grants programs.

The Foundation's interest in the communication arts, while of long standing, has in general been expressed through aid to the printed media. A somewhat exceptional grant, however, was made in 1962 in response to the unusual difficulties attending the establishment of an educational television broadcasting station in New York City—that of the Educational Broadcasting Corporation, through Station WNDT-TV, better known as Channel 13. The Foundation appropriated \$200,000 to the corporation, the funds to be devoted exclusively to program development. As the year 1962 came to a close the station's



Photograph Excised Here

Channel 13, New York's first cultural and educational television station, began operations in the fall of 1962. In this picture, a panel discussion on education, sponsored by the New York State Congress of Parents and Teachers, is being telecast.

difficulties were not over, but it had already so fully proved its worth to the New York cultural scene and to educational television in general that its future seemed assured.

While The Rockefeller Foundation's own work in the health sciences in the United States and more recently the vastly increased governmental funds for health research and care have played major roles in the development of public health in this country, it remains true that a very substantial part of the support in these fields has come from private donors channeled through the voluntary health and welfare agencies. The Foundation since 1921 has sought to make the efforts of the voluntary agencies more efficient through the elimination

of duplication and through better administrative management. Some \$428,500 of Foundation financing has been devoted to this general effort, much of it through the National Health Council, which the Foundation helped to set up. Between 1959 and 1961 the Foundation supported a national Ad Hoc Committee which sponsored a study of voluntary agencies. One of the major recommendations of the report was that the agencies should adopt uniform cost accounting and reporting procedures. The National Health Council has begun a program looking to this objective, with the cooperation of the American Institute of Certified Public Accountants and of the National Social Welfare Assembly. A grant of \$74,000 was made in 1962 to help finance the work.

Five grants were made in 1962 to help building projects of organizations with whose work the Foundation has long been associated. One, of \$100,000, will help the Institute of International Education erect new headquarters in New York, to be a Center for International Education, located near United Nations Plaza. A second, of the same amount, was appropriated to the National Academy of Sciences, for the construction of an additional wing for its building in Washington, D.C. A third, of \$400,000, went to the College of Physicians and Surgeons of Columbia University for its new research building, and a fourth, of \$100,000, will aid the Medical Library Center of New York expand its facilities by remodelling a recently purchased building adjacent to the present library center. The fifth, of \$1.5 million to Yale University, involves the Foundation's own operating program on the arthropod-borne viruses, and is described on page 56 of this report.

While the Foundation has not been directly active in the development of medical education in the United States for some time, it made an appropriation of \$250,000 in 1962 to help the former College of Osteopathic Physicians and Surgeons, in Los Angeles, complete its conversion into a fully recognized and accredited medical school, the California College of Medicine. The process by which the curriculum and faculty of the college have been brought into consonance with general medical school standards was an extended one, and the Foundation's aid was for the final steps by which recognition and accreditation were achieved.



EUROPE

Grants made in Europe in 1962 reflect two major purposes. One is to encourage the continuance of important research in certain areas of the life sciences, economics, and history which the Foundation has supported in the past. The second is to draw upon the store of expertise in Europe which, no less than in the United States, can be widened, deepened, and shared with the less advanced countries. In this category are grants for training social scientists from Asia and Africa and for a series of workshops which it is hoped will contribute to the development of a free and responsible press in Asia.

International Activities of European Institutions

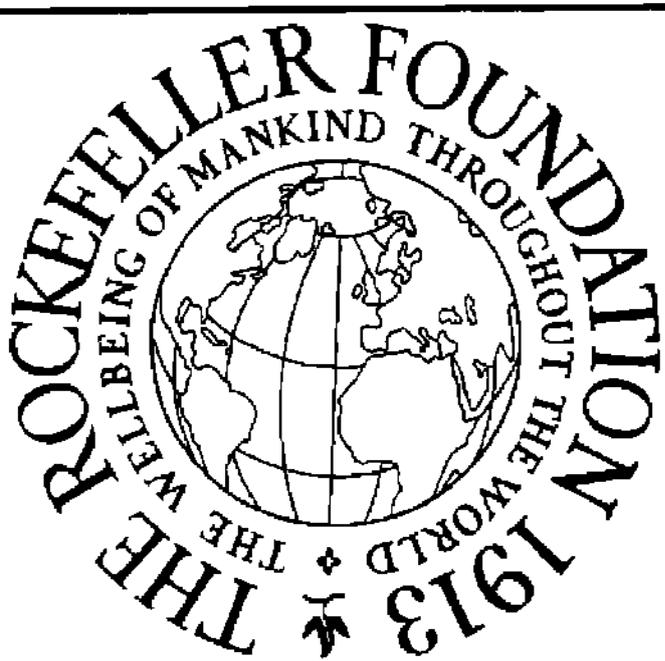
A grant of \$285,000 to the Graduate Institute of International Studies, Geneva, Switzerland, will assist the training of doctoral and postdoctoral students from Asia and Africa and enable the institute to extend its research and teaching to important new areas of world politics. Approximately 20 students from Asia and Africa are preparing for academic or government careers in the social sciences on institute scholarships, half of them through funds provided by a cur-

rent Foundation grant. Also at the center are some of the young foreign service officers from the newer nations who are receiving advanced training under the auspices of the Carnegie Endowment for International Peace.

The institute is perhaps Western Europe's outstanding center for the study of international relations. Important among its advantages are an excellent staff, bilingual (French and English) instruction, and location in a neutral country which is also the European capital of the United Nations, where many international organizations have their headquarters. In recent years the institute has emphasized studies of the problems of international organization and multilateral diplomacy, especially the impact on international politics of the advent of many new states. The permanent faculty is supplemented by visiting scholars who include Professors Herbert Nicholas of the University of Oxford, Geoffrey Goodwin of the London School of Economics and Political Science, and Stanley Hoffman of Harvard University, as well as representatives of the Economic Commission for Europe, the International Labor Organization, and the United Nations.

Now an additional area for concentration will be the relationship of military strategy to international relations, a problem in urgent need of examination in the light of the dramatic revolution in weapons technology that has occurred since World War II. Yearly seminars dealing with this relationship in a historical context are being initiated by Professor Louis J. Halle, an American scholar, with the assistance of Colonel Samuel Gonard, a senior Swiss military officer. Over the next five years a second major research program, in economic development, will be launched by the institute.

The International Press Institute, based in Zurich, Switzerland, has received a \$212,000 grant from the Foundation to conduct a series of workshop seminars for Far Eastern journalists. As mass literacy campaigns begin to take effect, Asia seems to be on the verge of a steep rise in newspaper circulation. The workshops are being planned especially to help Asian newspapers improve standards of publication and management, increase coverage of economic, scientific, and political news, improve techniques of interpretive and investigative reporting, and in general give more adequate treatment to events that touch closely on the lives of their readers.



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The library of the Graduate Institute of International Studies, Geneva, Switzerland. The institute, one of Western Europe's most important centers for advanced training in the social sciences, attracts students from many of the developing countries of Asia and Africa.

Under the direction of A. G. P. Vittachi, former editor of the *Ceylon Observer*, four seminar workshops have been held since 1960. The first, in New Delhi, was attended by editors from 23 Indian newspapers; the second, in Lahore, by journalists from newspapers in Pakistan; the third, in Kuala Lumpur, by publishers, editors, and managers from a number of South Asian countries; and the most recent, in Manila, on investigative reporting, by an international group of newsmen. To carry proposals from the seminar discussions into actual newsroom practice, the institute appoints consultants to work for periods of six months with the newspapers of seminar participants.

The International Press Institute was established a decade ago with Rockefeller Foundation assistance; including the funds appropriated in 1962, it has received well over \$500,000 in Foundation support. It now numbers its active membership of newspaper editors and publishers at nearly 1,400, representing 48 countries. Its policies are determined by an executive board that includes Donald Tyerman, editor of *The Economist*, London, and Sevellon Brown, Jr., editor of both the *Journal* and the *Bulletin* in Providence, Rhode Island. The workshops for Asian newspapermen are motivated by the same abiding

consideration with which the institute was founded, that a press responsive to the hopes, aspirations, and concerns of the people is its own best bulwark of freedom.

A group of European agencies, the Commonwealth Agricultural Bureaux, Farnham Royal, England, is the distributing organization for 17 journals of abstracts and reviews summarizing biological investigations all over the world. These are indispensable reference and research tools for any library which seeks to cover the agricultural and biological sciences. The bureaus are a cooperative venture of the governments of the British Commonwealth, Ireland, and the Sudan, and 16 of the journals are published by member groups.

Because continuous runs of these important reference journals are so essential, the Foundation is assisting the bureaus to fill the gaps in the holdings of these journals in a number of libraries in Asia and Latin America. Most of these institutions, faced with such problems as limited resources and the difficulty or impossibility of obtaining foreign exchange, cannot afford or arrange the purchase of the back issues they lack. The bureaus have determined the back issues needed by 16 libraries in Latin America, India, and Japan, and a \$26,000 grant will cover the costs of completing their collections.

Aid to Research

While the emerging countries and certain overseas-oriented programs in the older countries claim a large share of the Foundation's attention, support of a number of important projects for the advancement of knowledge is being continued. A new interdepartmental laboratory at the University of Birmingham, England, where an extensive building program has been going on for the last ten years, is a case in point.

As science probes more deeply into the secrets of life at the molecular level, it is increasingly important that scientists representing various specialties and disciplines be able to work together as a team. Recognizing this fact, the men who head the Departments of Biochemistry, Chemical Physiology, Medical Biochemistry, Genetics, Zoology and Comparative Physiology, Botany, and Microbiology at Birmingham have for several years been planning a new laboratory which will permit close association and the sharing of major equipment, li-

braries, and workshop facilities. This mode of working is not, of course, a novelty in Great Britain or elsewhere; most of the great discoveries which have advanced biology in recent years were the result of team effort. The laboratory itself, however, is a departure in European academic planning and may well set a pattern for the new universities now being developed in Great Britain. It will be furnished with research equipment in part through an outright grant of \$250,000 from the Foundation.

Equipment is also being provided for one of the world's distinguished centers for the study of animal behavior—that at the University of Cambridge's Ornithological Field Station, Madingley. Led by Dr. William H. Thorpe and his associate, Dr. R. A. Hinde, investigators are unraveling the complex interrelationships between innate and learned behavior in birds, insects, and other animals. In birds they are studying such activities as song-learning and vocal imitation, nest-building, and courtship, as well as the acquisition of new motor patterns. In larger animals—hamsters, goats, and monkeys—they are concentrating on social behavior, especially parent-offspring relations and maternal behavior.

A lively spirit of collaboration has grown up between the station group and the departments of psychology, anatomy, genetics, and veterinary pathology, and scientists from other universities. An "Animal Behavior Group" formed among them for discussion purposes did much to air differences of approach between zoologists and experimental psychologists. The papers the group wrote, criticized, and rewrote as a result of their conversations became *Current Problems in Animal Behaviour*, published last year under the editorship of Dr. Thorpe and O. L. Zangwill, Professor of Experimental Psychology at Cambridge. A 1962 Foundation grant of £23,330 (about \$66,500) will help equip new laboratories currently under construction at the Madingley field station.

One of the significant developments in the life sciences on the Continent is the rise of the brilliant Italian school of genetics. Many generations of Italian scientists have made contributions to the field, but an organizational breakthrough took place in the early postwar period when the Ministry of Public Instruction created chairs of genetics at Naples, Milan, and Pavia. Others were subsequently estab-

lished in Rome, Parma, Cagliari, and Turin. In 1961 the Foundation aided the Institute of Medical Genetics at the University of Turin; this year it has made grants totaling \$86,000 to the Universities of Rome, Milan, and Parma.

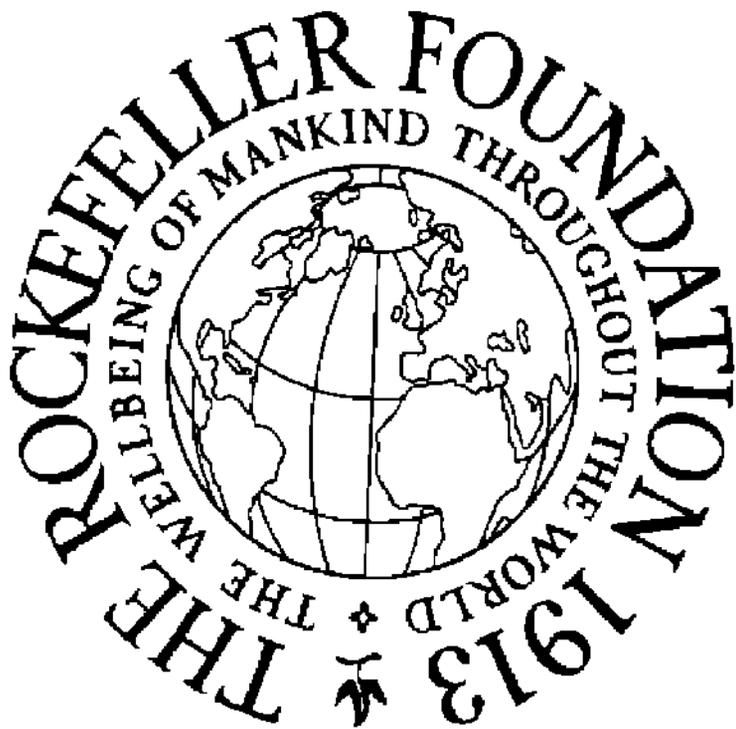
The Institute of Genetics at the University of Rome, which received a \$45,000 appropriation, is headed by Professor Giuseppe Montalenti, who left a well-established program at the University of Naples to undertake the task of organizing the institute's work. He has directed studies of such genetic diseases as microcythemia and sickle-cell anemia, and of human biochemical genetics, as well as research in *Drosophila* genetics.

Professor Claudio Barigozzi, of the Institute of Genetics at the University of Milan, leads a group primarily concerned also with *Drosophila* genetics, for which they have developed several unusual methods of approach. In addition, they are investigating the resistance of the brine shrimp to ionizing radiation, and are collaborating with researchers at the Catholic University of Milan in work in maize genetics. The Foundation appropriated \$18,500 in 1962 to assist their investigations.

At the University of Birmingham, England, a researcher uses a gas mixing and monitoring apparatus. The equipment is employed in studies of the influence of soil atmospheres on plant growth.



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A member of the Department of Zoology, University of Cambridge, England, is shown here working with doves. These birds are particularly useful for studies on the specificity of bird songs and call notes, and on the influence of early experience on later behavior.

At the University of Parma, Professor L. L. Cavalli-Sforza heads a team in human genetics studying the effects of consanguinity on fertility, life expectancy, the incidence of congenital abnormalities, and other factors. The Apennine region around Parma, where a number of villages are so isolated that often only two or three family names are represented in a community, affords unparalleled opportunities for studies in human population genetics. The group has received a grant of \$22,500.

In Poland, the Foundation is aiding an innovator in the field of neurophysiology. Dr. Jerzy Konorski, whose work at the Polish Academy of Sciences, Warsaw, has received a two-year grant of \$23,000, is the author of *Conditioned Reflexes and Neuron Organization*, published in 1948. In this book Dr. Konorski attempted to bridge the gulf between the achievements of two related branches of physiological science: that dealing with lower nervous activity, especially of the spinal cord, which was originated by Dr. C. S. Sherrington and his school; and that of higher nervous activity, centered in the cerebral cortex, for which Dr. I. P. Pavlov constructed his theory of the con-

ditioned reflex. The historical development of these two branches has led them along increasingly divergent paths. Dr. Konorski's work has for many years been directed toward bringing them together by applying to the study of the conditioned reflex the techniques and concepts that have contributed so much to present-day understanding of the function of the lower nervous system.

Outstanding work in biochemistry in France is being aided with a \$15,000 grant to the University of Aix-Marseilles. There Professor Pierre Desnuelle, Director of the Institute of Biological Chemistry, and his associates are working on the structure and function of the enzyme systems responsible for the hydrolysis of proteins and the digestion of fats. Several years ago the institute was designated by the French government as one of the two laboratories in the country which would be given special support as centers for graduate work in biochemistry under the so-called "Third Cycle" program. Through the government's assistance Professor Desnuelle's research space will be doubled within the next few years.

Developed and underdeveloped countries alike are concerned with predicting, stimulating, and to varying degrees planning for economic growth. Research projects in the developed countries using sophisticated quantitative techniques can therefore serve two purposes: They can add to knowledge about the economies of these nations; and they can throw light on how economic growth happens generally, and increase the ability to predict it. Two such projects are in progress in Great Britain and Sweden.

At the University of Cambridge Miss Phyllis Deane and her associates in the Department of Applied Economics are conducting a study of how capital formation and technological change in combination have influenced the output of the British economy from 1860 to the present. Economists now believe that cross-relations among capital formation, stock of assets, and growth of output are highly irregular, widely varied among industries, and quantitatively of small magnitude when compared with the contribution of technological change. The last factor has long been neglected chiefly because the necessary data have not been available for a significant length of time. As a result of the Cambridge study, it will be possible to present continuous statistical infor-



LATIN AMERICA

In Latin America in 1962, as in recent years, the Foundation's activities included its own operating programs in virology and agriculture and the support of universities through grants in the fields of medicine and public health, agriculture and the animal sciences, and the humanities and social sciences. Training of professional personnel in these fields also received attention: 137 awards for advanced study in the United States and Europe were made to nationals of 13 countries.

General

The development of a spirit of international collaboration among agricultural scientists in Latin America has been one of the principal goals of the Foundation's agricultural program since its beginning in 1943, and all the Foundation's activities such as awarding scholarships and travel grants, distributing the published results of research, and the internationalization of its food crop improvement projects have contributed indirectly to this objective.

More directly, the Foundation has sponsored periodic meetings of plant scientists. The first, held in Mexico in 1949, had an attend-

ance of 15 delegates. Each three years thereafter meetings were sponsored in Brazil, Colombia, Chile, and Argentina, attended by increasing numbers of scientists representing all the disciplines and all the republics of the region; more than 500 came to the Buenos Aires conference. At this last gathering the delegates voted to form themselves into the legally constituted nonprofit, tax-exempt Latin American Association of Plant Science, and to establish a permanent secretariat. The Inter-American Institute of Agricultural Sciences at Turrialba, Costa Rica, offered office space and a contribution toward the salary of the executive secretary-treasurer. The Foundation made a grant of \$33,000 to help defray other expenses of setting up the new office. It is expected that the association, through dues and other income, will become self-supporting within a relatively short time. The Foundation's grants for previous meetings amount to \$137,000.

The Organization of American States has moved to solve a minor but annoying problem which hampers scientific research in Latin America—the trouble and delay in securing small replacement parts, auxiliary equipment, and essential supplies for the instruments upon which much advanced research now depends. Where major items of equipment or supplies are at issue, the delays can be anticipated by long-range planning. Great difficulties arise, however, when small but essential spare parts or supplies are lacking because of breakage or unanticipated needs in the research facility. The delays, serious enough because of the distance between many Latin American laboratories and supply sources in North America or Europe, are often compounded by import and currency restrictions.

The OAS has developed a plan by which the parts and supplies can be ordered and delivered through its headquarters in Washington and its branches in all the republics. The Latin American states themselves will supply the funds for the operation, but to enable the plan to be put into effect more promptly, the Foundation has appropriated \$50,000 to the OAS.

Argentina

The Rockefeller Foundation made four major grants to institutions in Argentina in 1962, two for the development of medical education and two for projects of a privately endowed foundation which seems to

offer significant promise for the future of private philanthropy in Latin America.

The Faculty of Medical Sciences of the University of Cuyo, in Mendoza, is located in western Argentina not far from the Chilean border. With the aid of private as well as of governmental agencies, the faculty has established full-time positions in the basic sciences which are sufficiently attractive to draw to this interior city of 300,000 a group of researchers and teachers of the highest quality. The Foundation has been helping the faculty since 1941 with a number of training and travel awards and an appropriation of \$100,000. In 1962 a new grant of \$100,000 was made to further strengthen the faculty, which is now looking forward to setting up full-time posts in the clinical departments. Another provincial school of medicine, at the National University of Córdoba, received a modest \$19,000 grant to help its new, modern pharmacology department purchase equipment outside the country. The grant will enable the head of the department to appoint a promising candidate to a full-time post as first assistant, and to continue seven half-time instructors, two full-time technicians, and five ancillary personnel, and four graduate assistants for half-time training without remuneration. The head of the department, incidentally, is a biochemist without a medical degree, and his appointment as departmental chief is in itself a significant and encouraging departure from Latin American academic tradition.

The Di Tella Foundation, in Buenos Aires, was established in 1958 by the Di Tella family for the purpose of aiding the development of the social sciences and arts in Argentina and Latin America at the highest possible level. The endowment is being progressively increased and will reach its maximum toward the end of the 1960's. In addition the family is providing \$3 million for the construction of buildings for the Torcuato Di Tella Institute, the operating arm of the foundation. The institute in turn operates four "centers" for research and teaching: the Center for Economic Research, the Visual Arts Center, the Latin American Center for Advanced Music Composition, and the International Center for Comparative Social Research, each directed by a distinguished Argentine scientist or artist. In 1962 The Rockefeller Foundation made a grant of \$156,000 for the music composition center,

and another of \$87,000 for the comparative social research center.

The creation in Latin America of an advanced-level training center for composers was recommended by Latin American composers and conductors after the music festival held in Caracas, Venezuela, in 1958. Existing conservatories and music schools are adequate at elementary levels but none offers the advanced training needed by composers who seek to attain international standards; for these the only recourse has been to go abroad, an expensive procedure that only a few have been able to afford.

The Di Tella center is designed to obviate this lack. Its full-time director is Alberto Ginastera, ranked by critics with Villa-Lobos and Chavez in the very small group of leading Latin American composers, who is also a teacher and administrator of experience. With him will be an assistant professor and two visiting foreign professors in residence at different times for substantial periods each year. A maximum of 12 advanced students and young composers are selected annually (by a committee made up of Professor Ginastera and two foreign composers) on the basis of the applicant's training and experience and an evaluation of his musical scores. Buenos Aires has a rich musical life with performing groups in symphony, chamber music, opera, and ballet available to give readings, rehearsals, and public performances of works composed by the fellows. The center is presently housed in rented quarters but will move into a specially designed building planned for early construction.

The center will put particular emphasis on the indigenous music of Latin America which has contributed so much to the work of the region's composers. Collaboration between the center and the Indiana University center for Latin American music is planned to provide a means for exchange of students, faculty, and materials between the United States and Latin America.

The fourth and most recently established Di Tella center is the one for comparative social research, whose staff and research programs will be developed in close association with the Department of Sociology and the Sociological Institute of the University of Buenos Aires. It will also work with the Di Tella Center for Economic Research through studies of social change as these relate to economic and social development. In addition, for the first five years, research at the center

will be developed and conducted in cooperation with the International Population and Urban Research group directed by Professor Kingsley Davis at the University of California, Berkeley. The latter group will concentrate on demographic studies; the center will focus on field studies of migration, changes in social structure, problems of urbanization and industrialization, and related matters. Several staff members of the center have had their graduate training under Professor Davis in Berkeley, and he will spend at least one semester in Buenos Aires for on-the-spot collaboration.

Brazil

Three major grants were made to universities in Brazil in 1962, and two to agricultural institutions. The Foundation also continued its share of the cooperative Belém Virus Laboratory.

Two staff members are assigned to the Belém laboratory as part of the Foundation's arthropod-borne virus research program. Situated near the mouth of the Amazon River and accessible to large areas of tropical rain forest, the laboratory staff have for ten years been concerned with the determination of the endemic (and occasionally epidemic) status of a bewildering array of nearly 50 arboviruses found in the Amazon basin. The laboratory has made a massive contribution to knowledge of virus activity in insects, mammals, birds, reptiles, and amphibia of the region. To handle large amounts of material, and to identify and classify so many agents, the laboratory staff have developed or improvised a number of new methods which are proving very useful elsewhere. A picture of an activity of the Belém laboratory appears on page 55.

The Belém arbovirus laboratory functions as part of the Evandro Chagas Institute, with the cooperation of the Special Public Health Service Foundation and the Department of Microbiology of the University of Brazil. The Chagas Institute has enlarged its facilities and increased its staff to provide investigative services for a number of other types of virus in addition to those carried by arthropods.

Two of the three grants to medical schools are in support of the principle of full-time teaching and research. At the Paulista School of Medicine in São Paulo, full-time staff in the basic science divisions



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At the Belém zoo, Brazil, a large boa constrictor is bled and checked for ticks. The blood samples and the parasites will be analyzed in the Belém Virus Laboratory for possible indications of viral infection.

has been the rule since the establishment of the school in 1933, and geographic full-time was instituted in the clinical departments in 1958. The entering class is limited to 60 students, and clerkships in the clinical years and internships are obligatory. As noted in previous reports, the Foundation appropriated a total of \$716,655 toward the expenses of the 1958 reorganization. Recent monetary inflation in Brazil, coupled with changes in the federal administration, has temporarily undermined the financial support upon which the school must depend; the Foundation is helping on a short-term basis so that the school can avoid losing key personnel. Allocations amounting to \$58,750 were made in 1961, and \$63,283 in 1962.

At the Faculty of Medicine of the University of Minas Gerais in Belo Horizonte, the principle of full-time staff has been in effect since 1955 in the preclinical sciences and the faculty has been designated by

the responsible national board as a graduate training center. In 1962 the section of neurology and neurosurgery went on geographic full-time with a director and six associates. The university has remodeled laboratories and offices of the group, and significant research is already under way. The section is also instituting clinical clerkships for students.

In common with most professional schools in Latin America, the University of Minas Gerais must cope with the fact that students who enter from most of the secondary schools are woefully deficient in the sciences and mathematics. A number of schools of medicine have given thought to instituting one- or two-year courses of premedical studies to help meet the deficiency, but Minas Gerais is the first in Brazil to do so. The course will at first be for one year, but it is expected that it can be lengthened to two years in the near future. When this is done, the university plans to include subjects in the humanities and social sciences in the subfreshman course, thus laying the base for an arts and sciences course which might serve all graduate faculties.

Since 1958 the Foundation has provided \$372,500 to the University of Minas Gerais for support of undergraduate and graduate teaching, and for research in the medical sciences. It renewed its aid in 1962 with an allocation of \$97,000 for the full-time staff in neurology, for the premedical course, and for the strengthening of the library.

The third grant to a Brazilian university was to the University of São Paulo for research on the biochemistry of chromosomes in the Department of Biology of the Faculty of Philosophy, Sciences, and Letters.

Studies in genetics represent a distinguished chapter in Brazil's history of scientific accomplishment. With five important centers of genetics Brazil is perhaps second only to the United States in *Drosophila* research and is making significant contributions in human genetics as well. The tradition of investigation in genetics began at São Paulo in 1927, was given renewed impetus in 1943 when Professor Theodosius-Dobzhansky of Columbia University went to São Paulo as a visiting professor under Rockefeller Foundation auspices, and has continued since then under able Brazilian leadership. The Foundation has made a long series of grants in financial support of this work, the latest being one of \$50,000 to the University of São Paulo,

where under the general direction of Dr. Crodowaldo Pavan, head of the Department of Biology, Dr. Francisco Lara is making biochemical analyses of the chromosomes of flies of the genus *Rhynchosciara*. These are a higher organism which seem to be uniquely suitable for studying genetical information transfer and control. In various stages of larval development, some bands of polytene chromosomes increase enormously in size. The evidence is good that these "puffed" bands represent genes in action. In contrast to the microscopic *Drosophila*, these flies are large enough, and have large enough chromosomes, to make possible the correlation of the composition of the nuclear material in particular chromosomal gene sites with the bodily characteristics of specific stages of development. The São Paulo group hopes to begin exploration of these exciting possibilities with a study of the development of function in the salivary glands of these flies.

One of the two grants made to Brazilian agricultural institutions is to aid the basic shift in land use made necessary by recent world changes in the price of coffee. Most Brazilian coffee has been grown on arid soil which covers vast areas of south-central and southern parts of the country. The drop in coffee prices has forced a new look at this soil, and necessitated rapid learning about how to produce livestock efficiently and economically under the semitropical conditions of the area and on tired soils depleted by decades of continuous coffee culture.

Research workers in one of the biochemical laboratories of the Faculty of Medicine, University of Minas Gerais, Brazil.

COFFEE AND HORIZONT



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The Animal Nutrition Research Center of the São Paulo State Secretariat of Agriculture, located at Nova Odessa in this area, is instituting a large-scale research project to investigate the essential aspects of soil, plant, and animal science as they relate to the production of meat, milk, and eggs in this red soil region. The Rockefeller Foundation has made a grant of \$75,000 for the support of the research, in conjunction with a private Brazilian donor and two other American foundations. Five new buildings to house experimental animals and laboratories, financed by the state, are nearing completion, and a tract of 2,400 acres is available for pasture management studies and field experiments. The center is the first of its kind in Brazil, and gives promise of developing into an outstanding animal research station that will have broad regional and international impact.

The Institute of Agronomy, also in the State of São Paulo at Campinas, is nearly 75 years old, has a staff of 150 scientists organized in 33 departments, and 17 experiment stations which permit investigations in the hot humid areas along the coast, the semitropical areas on the plateau, and the areas with temperate climate at the higher elevations. The institute is generously supported by the state, and is actively pursuing numerous research projects in keeping with its distinguished tradition. Its very activity has, however, created a situation in which the staff needs a great deal of equipment which must be bought outside the country, and current exchange controls make such purchases practically impossible. The Rockefeller Foundation has made an appropriation of \$140,000 to help buy this equipment. This amount is in addition to \$216,440 appropriated for the institute since 1949.

Chile

Since 1955 The Rockefeller Foundation has cooperated with the Ministry of Agriculture of Chile in the support of a research and training unit called the Office of Special Studies. Four Foundation staff members are assigned to the office, one of whom serves as its director; their work is described in "The President's Review," pages 61-62. The office also collaborates closely with Chile's colleges of agriculture, and in 1962 some 41 students gained experience in practical field research through participation in the program.

Three major grants were also made to Chilean universities in 1962. One, for \$85,000, was for a project closely related to the Foundation's agricultural program: the strengthening of the Faculty of Agronomy of the University of Concepción. Now eight years old, the faculty has developed into one of the most progressive schools of its kind in Latin America, putting great emphasis on close coordination and integration of teaching, research, and extension activities. Located at Chillán, a small town in the heart of Chile's agriculturally important central valley, the faculty is about three hours by car from the main campus of the university at Concepción. Students take their first two years' work, chiefly in the basic sciences, at Concepción, and then transfer to Chillán for the last three years of the curriculum as resident students, combining academic studies with field experience. An excellent experimental farm of 225 acres of irrigated flat land, owned by the ministry, is adjacent to the Chillán campus, and is used by the faculty as well as by ministry staff for research. The school has had about 130 students; the Foundation's grant and increased aid from the government will enable it to double the enrollment. Office of Special Studies staff collaborate actively both with the faculty and at the experiment station.

A grant of \$50,000 will help the University of Chile, in Santiago, develop a virus research laboratory under the direction of Dr. Guillermo Contreras, a brilliant virologist whose work has won

Measuring wheat in the milling and baking laboratory of the Foundation's cooperative agricultural program, Santiago, Chile. Milling and baking quality, along with yield, disease resistance, maturity, and other characteristics, is taken into account in the selection of improved varieties for release to farmers.



Photograph Excised Here

recognition internationally, especially in the United States. The new virus laboratory will further strengthen the discipline of microbiology in the Faculty of Medicine of the university; previous Foundation grants to the faculty total over \$1 million.

A small grant of \$15,000 for the Economic Research Center of the Catholic University of Chile continues Foundation aid to the center which began in 1956. The Economic Research Center, founded with the cooperation of economists from the United States, is establishing itself as a productive and well-recognized center staffed by full-time Chilean scientists. It is providing assistance to the cause of improving economics not only in Chile but also in universities outside the country. More than 50 Chilean graduate students have worked at the center since its establishment.

Colombia

The Rockefeller Foundation's operating program in agriculture in Colombia has been described in "The President's Review," pages 60-61. Some 16 Foundation staff members, on resident assignment in Bogotá, cooperate as consultants and research project leaders in food crop improvement and in studies in the animal sciences and veterinary medicine. The wheat section of the program has cooperated in a wheat improvement project in Ecuador, as noted in the section of this report on that country, with notable results both in increased production and in encouraging the strengthening of agricultural development in that country. Advanced students and practicing agronomists and animal husbandmen from all the high Andean countries come to Bogotá for practical experience in scientific methodology. Colombia is rapidly approaching self-sufficiency in the production of cereals, and the basis has been laid for advances in the quantity and quality of animal products. The establishment of the National Institute of Agricultural Research, to coordinate research, extension, and post-graduate agricultural education, gives promise that present progress is being given a structural basis that will ensure solid advancement.

The Foundation in 1962 also continued aid to two universities in Colombia that seem to be setting patterns which are influencing the development of higher education in Latin America as a whole: the



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The Foundation's agricultural program in Colombia cooperates in intensive work in the animal sciences. These lambs are being used in studies at the central experiment station, Tibaitatá, for the improvement of sheep in Colombia.

University of the Andes in Bogotá, and the University of Valle in Cali.

The remarkable growth of the University of the Andes has been mentioned in a number of the Foundation's annual reports: its founding by private citizens soon after World War II; its adoption from the beginning of academic standards of such excellence that its students in technical fields can transfer without loss of credits to colleges in the United States; and its creation of a premedical course which has since been expanded into a general preprofessional science and arts curriculum. The Foundation made its first grant to the university in 1951 and its total appropriations amount to about \$1,465,000. In 1962 a grant of \$53,200 was made to continue support to the university's Center for Studies in Economic Development; an illustration of the work of the center is shown on page 23.

The center, since its initiation in 1957, has earned for itself a high reputation for unbiased, authoritative research on important economic problems in Colombia. Its pattern of training and research has evoked such comments as Senator J. William Fulbright's assertion that it provides a model for the future establishment of educational programs and research centers in the developing countries.

A fairly substantial proportion of the center's financing now comes from research contracts; gratifying as these are in their evidence of recognition, they create the situation, often seen in the United States, that research regarded by the center as of highest priority is sometimes not of a kind which attracts contracts. The Foundation's 1962 grant is to support two such projects: a survey of the labor force in Bogotá and the neighboring small industrial and marketing city of Girardot, and a theoretical study of the optimum price at which the coffee export quotas assigned to Colombia by the coffee agreements can be sold in the international market. An important by-product of both projects is the in-service training of young Colombian economists. The new grant brings Foundation support to the center since 1957 to \$130,700.

The University of Valle is setting patterns of excellence and standards of operation which are proving extremely influential not only in its own country but throughout the region. The university was chartered in 1945, and since 1953 the Foundation has appropriated more than \$3,400,000 to assist its advancement. Previous reports have detailed the purposes of the various grants which make up the foregoing total.

Within the past couple of years the university has embarked on a major reorganization plan which promises to have great importance for the future of the concept of the university in Latin America: the establishment of a Basic College through which all students must pass before proceeding to specialized work in the various professional faculties. The two-year curriculum, begun in 1962, requires approximately 20 hours of classes weekly and 40 hours of laboratory and homework. Under the plan a two-year course covers the history of civilization—the historical development of economic and social thought and the evolution of political institutions shown through a few significant events rather than through a chronicle of the totality of the past. A second, one-year course on cultural history deals with literature, art, music, and aesthetics, with emphasis on Spanish literature and thought but with full attention to other aspects of Western culture. A two-year course in social science acquaints the students with the central concepts and methodology of economics, sociology, anthropology, and social psychology. In both years the students will

also take work in the natural sciences—biology, chemistry, physics, and mathematics—this course to replace one formerly required of premedical students. To service all the courses, the library is being greatly enlarged, and a linguistic center has been set up with 75 listening booths and tape recorders to be used chiefly in the teaching of English.

A number of faculty members who will be responsible for the Basic College courses, new to the traditional Latin American curriculum, will gain experience with the needed methods and teaching materials through visits and study in the United States. In the meantime, visiting professors from other countries are helping with the details of setting up the courses.

Steady progress marked the year in the Faculty of Medicine and the School of Nursing, the divisions of the university with which the Foundation has longest been identified. Especially noteworthy is the development of the teaching center in rural medicine in the nearby town of Candelaria. At the Candelaria community health center, students, interns, and residents of the Faculty of Medicine gain experience with the health problems of a rural area, in conjunction with specialists in other aspects of community development who also work in Candelaria. The Foundation is devoting a good deal of attention to community health centers as teaching facilities, an interest which is described more fully elsewhere in this report (pages 31-34).

Allocations from appropriations to the University of Valle in 1962 totaled some \$349,645. Of this, \$80,000 helped the School of Nursing enlarge its facilities to increase its enrollment, and \$70,288 financed cooperation by the University of Texas in establishing the Linguistic Center in Cali. Much of the remainder was used for the expenses of visiting professors, for library acquisitions, for salary supplements, for the purchase of equipment, and for strengthening the administrative structure of the university.

At the university's request, the Foundation has assigned eight of its staff members to Cali as consultants for various aspects of the institution's development. Four are at the Faculty of Medicine, giving most of their attention to the teaching center at the Candelaria unit; one advises in the field of sanitary engineering; one is connected with the School of Nursing; and another is a consultant on problems of



Photograph Excised Here

A member of the Rockefeller Foundation staff in Colombia examines a plant for signs of mosquitoes breeding. The arbovirus field station at Raposo, on the Raposo River near Buenaventura, is a cooperative project of the University of Valle and the Foundation.

community development. The eighth conducts research on arthropod-borne viruses in the university laboratory in Cali and at a field station near Buenaventura in the tropical rain forest region.

Ecuador

Rockefeller Foundation collaboration in the improvement of agricultural education and research in Ecuador began during the second World War through the award of scholarships to promising Ecuadorian agronomists, the provision of improved seed of food crops developed by Foundation staff in Colombia and Mexico, and visits by officers and field staff members for consultation. The return to Ecuador of those trained abroad gradually built up the country's professional personnel, and in 1958 a formal cooperative program could be launched. This was a project for the improvement of wheat, conducted jointly by the Ecuadorian Wheat Commission and the Colombian program of the Foundation. Rapid and spectacular results were achieved, since new wheat varieties from Colombia proved well suited to conditions in Ecuador. At about the same time a keen interest in agricultural education was shown by increasing numbers of officials, educators, and leading citizens of the country, expressed, among other ways, in the construction of a large building for the Faculty of Agronomy and Veterinary Medicine of the Central Univer-



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Investigations in potato planting and soil conservation are being conducted concurrently in this experimental plot, under the auspices of the National Institute of Agricultural Research of Ecuador.

sity, in Quito. The Foundation contributed \$300,000 to help equip the new laboratories, and to aid the appointment of additional full-time professors.

In 1961 progress moved ahead another step through the establishment by the government of a National Institute of Agricultural Research (INIAP) to administer country-wide research for both crop and livestock improvement. INIAP collaborates closely with the faculties of agronomy and veterinary medicine of the Central University at Quito and with the State University at Guayaquil. It operates two main research centers, one in the highlands near Quito and the other on the coast near Guayaquil, and additional substations are planned. Its 1961 budget of one million sucres has been increased to eight million for 1963. The new institute is expected to continue to develop as one of the most effective contributors and participants to improvements which will spread beyond the boundaries of its own country to hemisphere-wide influence for the bettered production of the principal food crops. The Foundation in 1962 made grants amounting to \$290,000 to the institute and to the Central University to purchase equipment, for training, and for technical assistance.

Mexico

The agricultural advance of Mexico over the past decade or so has been so rapid as to deserve designation as a veritable revolution. The country now has surpluses of the basic grains, corn and wheat, over the amounts needed for human consumption. More and more of the farmers with medium-size as well as large holdings are mechanizing their operations, the use of fertilizer has increased every year by astonishing amounts, and plant protection is becoming a routine rather than an exceptional practice. Extension services and facilities for agricultural credit have grown and improved, and farm to market transportation by both rail and highway is more dependable and efficient. Irrigation systems are being built in some of the older agricultural regions to extend the benefits which assured water supplies have already brought to large semiarid areas in the north and northwest.

While changes like these are obvious even to casual inspection, the growing sophistication of professional agriculture which made them possible is not so evident. Under the leadership of a Minister of Agriculture who is himself a trained agronomist, the ministry has been reorganized and strengthened, and publicly supported agricultural education at the college as well as postgraduate level, which is also a responsibility of the ministry, has been steadily upgraded.

These organizational changes have of course affected the nature of the Foundation's agricultural program in Mexico. This began in 1943 as a semiautonomous research and training unit attached to the ministry. As was mentioned in the "The President's Review" (pages 57-60), about three years ago this organization was absorbed into an over-all research unit, the National Institute of Agricultural Research of the ministry, and administration and research project leadership put in the hands of well-qualified Mexican scientists. Organization was further improved in 1962 by the establishment of a National Center for Animal Research, with excellent facilities at Palo Alto, outside Mexico City, and two experiment stations. The Ministry thus has two research units which between them cover the entire spectrum of both export and food plants and the animal sciences. Of the ten Foundation staff members in Mexico, one is head of a section in the plant research unit, two are heads of sections in the animal science center,

and a fourth is serving temporarily as director of the center. The present ability of the ministry to staff the research units with nationals grew from the past emphasis on training, to which the Foundation contributed a substantial share. The Foundation is supporting both units through the service of staff members, by study awards for junior personnel, and by grants for facilities and supplies.

The ministry is moving to consolidate agricultural education, research, and extension by locating the headquarters of the three organizations at Chapingo, about twenty miles east of Mexico City. The undergraduate National School of Agriculture has been at Chapingo since the 1920's. Adjacent to its campus is the El Horno experiment station, where since 1943 Foundation staff have conducted experiments and aided the building of laboratories and facilities. In 1958 a Graduate School was established which has already built up a strong influence both in Mexico and in other Latin American countries. Now in the blueprint stage are new buildings to house the plant research institute and the headquarters of the extension service. The Foundation is also centering at Chapingo its international projects for the improvement of corn, wheat, and potatoes. The "Chapingo complex" seems destined to become one of the strong centers of the Western Hemisphere for agricultural advancement. The Foundation is con-

At a field day for ranchers in Chihuahua, Mexico, a technician from the La Campana experimental ranch explains research results from experiments on the management of a Hereford herd, and the practical recommendations based on them.



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tributing substantially to the financing of the complex, and made a grant of \$110,000 in 1962 for the development of the Graduate School.

Grants made to institutions in Mexico continue the Foundation's previous interests in graduate and professional education and in activities related to its own work in agriculture.

A grant under the last classification was one of \$42,000 to the National Institute of Nutrition, in Mexico City. An autonomous governmental unit, the institute is energetically developing work in three aspects of the field: public health nutrition, clinical nutrition, and research and training, the last being largely centered around the biochemistry section.

The institute, among other projects, is investigating one of the puzzles of nutrition—the apparent lack of symptoms in the undernourished adult. In the past this has been explained as the result of long-continued adaptation to marginal food intake; already institute work is providing quantitative biochemical evidence to support this theory.

The institute is also studying the protein and amino acid content of Mexican food products in a cooperative project with the Foundation's agricultural program staff. Thus far, 75 varieties of beans and 17 races of corn have been analyzed for total protein and for tryptophane, and selected ones for total amino acid content. The early results of this continuing study indicate that the substitution of new varieties of beans and corn for those currently produced could markedly enhance the quality and quantity of protein intake of the Mexican population without any need to modify the food habits of the people. Such a change, if successful, would have a pronounced effect on the problem of protein undernutrition in Mexico and might have wide application in other parts of the world as well.

Two grants to the University of the State of Veracruz continue the Foundation's interest in aiding the strengthening of local universities. One, of \$50,000, will help the Faculty of Veterinary Medicine and Animal Husbandry purchase equipment and materials. The Veracruz area, along the tropical Gulf coast, is one of the most important livestock production regions in Mexico. The city of Veracruz donated the land for the faculty, and the association of livestock growers pledged the receipts of a self-imposed tax to set up the veterinary faculty in 1957. By 1962, 117 students were enrolled in the five-year course

taught by a staff of 17, of whom seven are full-time professors. Animal scientists of the Foundation's staff are cooperating with the faculty in a survey of tropical diseases of animals in the region.

For some time the Foundation has been aiding the faculty of humanities of the state university of Veracruz to set up full-time teaching and research through grants for salary supplementation, and it is probably safe to say that Veracruz now has the leading faculty of humanistic studies among Mexican state universities. A new grant of \$11,600 will help the university strengthen its teaching of English as a second language, with particular attention to increasing the mastery of the language by the secondary and college preparatory school instructors who teach the students before they get to the university.

The School of Medicine of the University of San Luis Potosí received a grant of \$18,500 to extend the principle of full-time staff to the directorship. The Foundation has been making grants to the San Luis Potosí school of medicine since 1953 in support of this principle and for equipment and supplies. Located in one of the more prosperous states of Mexico, the school limits enrollment to entering classes of 80 carefully screened candidates, has basic science departments manned by full-time faculty, is housed in a modern structure, and is adjacent to an up-to-date 350-bed state hospital. There is only one other medical school in Latin America which has a full-time director or dean.

Another grant (of \$32,850) in medicine was made for the Department of Pathology of the National University of Mexico, in Mexico City. This department, one of the best in Latin America, has been on a full-time faculty basis for more than five years. In addition to carrying on very extensive modern pathology services and teaching for the university, the department has initiated a training program for Latin American pathologists and begun a number of research projects in two fields—infectious diseases, which in Mexico continue to be of major importance, and connective tissue disorders. In the period since 1958 the university has introduced the full-time principle into several other of its basic science departments.

The Colegio de México, in Mexico City, is a graduate-level teaching and research institution of great distinction which limits its offerings to the social sciences and humanistic studies. For some twenty



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A researcher of the Faculty of Veterinary Medicine and Animal Husbandry of the University of the State of Veracruz records data concerning cattle under study. Scientists of the Foundation's staff are cooperating with the faculty in studying tropical diseases of animals of the region.

years its faculty have been productive in research and its alumni occupy positions of intellectual leadership in Mexico and in numerous other Latin American countries. Most of the full-time professors or members of research institutes in history, international relations, philosophy, and literature in the publicly supported universities of Mexico were associated with the college during their formative years. The college has been and will probably remain for some time the principal if not the sole source of well-trained, full-time faculty in all of the humanities and some of the social science disciplines for Latin American and especially Mexican smaller universities. Since 1942 the Foundation has appropriated over \$700,000 to the college and in 1962 made two more grants—one of \$52,200 for work in linguistics and Spanish American literature, and another of \$32,000 for the purchase of land and for building costs for an expansion of plant.

Peru

The major grant made in Peru in 1962 was \$100,000 for the newly established Peruvian University of Medical and Biological Sciences, in Lima. Led by Dr. Alberto Hurtado, internationally renowned for

his work in high-altitude biology, the new university is under private auspices, with a board of trustees comprised of 18 influential Peruvians. One trustee donated two square blocks of valuable property in Lima as a site for a future home of the school, and the board as a whole, with contributions from other private individuals, has guaranteed the operating costs of the institution. Now in rented quarters, the school offers courses for all class-years, limiting enrollment in the first-year class to 60; it has a core of 34 full-time faculty posts in the clinical and preclinical departments, and a total faculty of 300. The school also operates the new High Altitude Research Institute with a professional staff of 22 who contribute in the teaching of pathologic physiology in the medical school. The emergence of another privately sponsored institution of higher learning is a recent and encouraging development in Latin America.

West Indies

Two sizeable grants were made in Trinidad in 1962, both to units of the University of the West Indies. One was to the Faculty of Agriculture in St. Augustine, and the other for the support of the Trinidad Regional Virus Laboratory, in Port-of-Spain. Formerly operated by the Foundation, the virus laboratory is now administered by the university, from its main headquarters in Mona, Jamaica.

The Trinidad Regional Virus Laboratory was established in 1953 as part of the Foundation's network of field stations for the study of the arthropod-borne viruses, and was supported cooperatively by the government of Trinidad and Tobago, the United Kingdom government through the Colonial Development and Welfare Scheme, and the Foundation. More recently other West Indian governments have also contributed to the expenses of the laboratory.

The research program of the laboratory was at first directed toward identifying the extent and nature of the insect-borne virus activity in Trinidad and adjoining islands, with occasional excursions to the South American mainland. About eight important viruses have been found, and their activity cycles monitored for a number of years. (The story of Oropouche virus, first isolated in Trinidad in 1955, is told on pages 49-57.) In addition, the virus of vesicular stomatitis of cattle has been isolated from rodents and mites. Because of its frequent confusion with

hoof-and-mouth disease, vesicular stomatitis is of considerable interest to veterinarians, and the finding of its virus in mites adds a new chapter to scientific understanding of this economically important disease. The present program of the laboratory is centered on an ecological study of the Nariva Swamp and Bush Bush Forest in eastern Trinidad, where the intermittent appearance of a number of important viruses, including yellow fever, poses a "mystery" as to their survival processes under natural conditions.

The laboratory has also developed diagnostic facilities for the identification of virus-caused respiratory and gastrointestinal diseases, offering the only service of this kind in the whole Caribbean area.

The laboratory has been under the direction of a Trinidadian scientist for several years. The Foundation has made a grant of \$275,000 to the University of the West Indies for the expenses of the laboratory for three years, and in addition contributes the services of staff members.

The Faculty of Agriculture of the University of the West Indies began 40 years ago as the Imperial College of Tropical Agriculture, principally for research on economic export crops. In recent years it expanded its work to deal with the agricultural problems of the food crops of the Caribbean region, and in 1960 it became part of the University of the West Indies. A Foundation grant of \$75,000 will aid the faculty in strengthening its administrative structure.



Dipping for baby caimans (alligators) in a caiman pen in Nariva Swamp, Trinidad. The reptiles are used along with other animals in studies at the Trinidad Regional Virus Laboratory, in an effort to determine the preferred hosts of different mosquito species.

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AFRICA

Rockefeller Foundation activities in Africa in 1962 continued as in the recent past to be directed primarily toward assistance to the growth and strengthening of emerging universities and toward projects in public health and agriculture. Grants made during the year amounted to more than \$2,300,000.

Congo

Lovanium University in Leopoldville, founded in 1954, has grown into one of the leading African institutions of higher education and an important center for professional training for the French-speaking countries of the continent. From an initial 33 students, its enrollment has increased to more than 600, of whom one quarter are non-Congolese Africans from eight different countries; an additional 46 young women are registered in the recently opened School of Nursing. For the time being, enrollments will be limited by the ability of existing secondary schools to prepare graduates qualified for university entrance. In the interim, in an effort to add to the corps of secondary school instructors, the faculty of the university are cooperating with commercial and technical schools in Leopoldville, and with the gov-

ernment of Leopoldville province in setting up evening and vacation teacher-training courses. On its own campus, Lovanium has started a series of preuniversity courses for students who lack only a few units for entrance, and is offering three- and four-year diploma courses for young Congolese who must be prepared as soon as possible for posts in agronomy, pharmacy, civil engineering, and other vitally important fields, including certain areas in the social sciences. The most outstanding of the students in the diploma courses will be admitted to university standing without further entrance examinations.

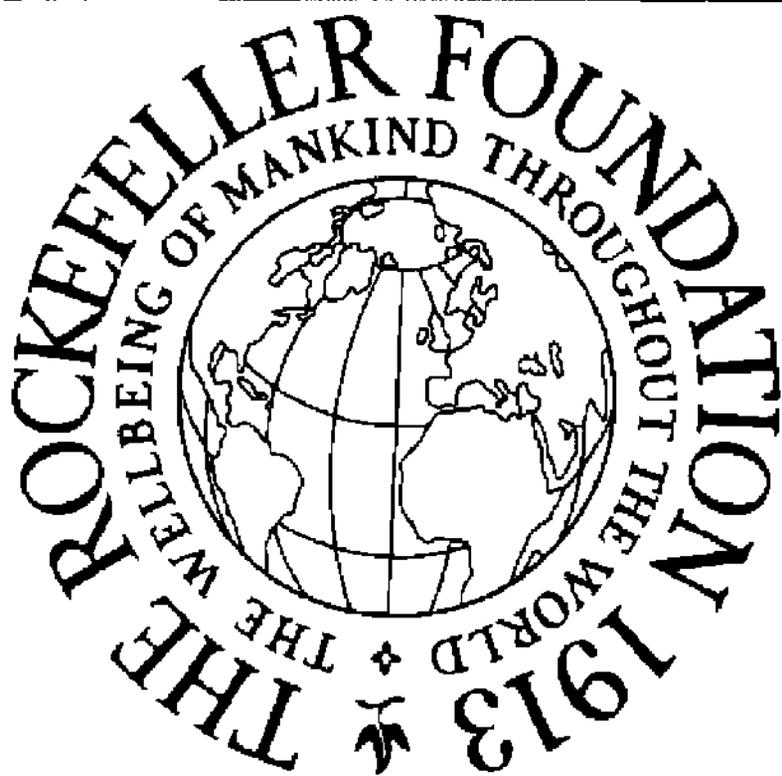
Despite the troubled situation in the Congo and the demands upon their time, the faculty of the university have vigorously pursued research of the highest quality. The average age of the Lovanium faculty is just under 35. Among their researches are projects in the medical and natural sciences and on the political structure of independent Africa, comparative African law, the effect of decolonization on the economic and financial situation in the Congo, and the disappearance of oral literature in Africa.

In the Faculty of Medicine, African students have the opportunity to become familiar with the medical practices and teaching procedures of other schools through contact with foreign medical graduates who are serving as residents in the university hospital. These graduates are invited to Lovanium to complete all or part of their specialization. In addition, they assist the clinical staff, take part in bedside teaching, and collaborate with their professors in advanced research projects.

The present support of Lovanium University comes from the national government of the Congo, and from Belgium. Since 1957 The Rockefeller Foundation has appropriated more than \$725,000 to the university, a substantial part of it for general support in the period since 1960. In 1962 the Foundation made one grant of \$100,000 for the general purposes of the university, and another of the same amount for the purchase of equipment and library materials, and for the support of the young foreign medical graduates invited to do their specialization at the medical school.

Nigeria

Nigeria, with a population of 40 million—the largest in Africa—is in urgent need of expanded facilities for higher education to pro-



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At the School of Nursing of Lovanium University, Leopoldville, student nurses receive instruction in the care of a patient. The university serves as a training center for foreign as well as Congolese students in nursing, medicine, and other disciplines.

vide trained manpower for government, professional services, and industry. Like a number of other new nations in Africa, Nigeria is planning to increase the capacity of existing universities and build several new ones over the next decade, and concomitantly to expand the secondary school system. With at least four additional new universities projected in other African countries, these plans place a heavy strain upon world resources of academic talent. A recent UNESCO survey revealed the need for over 3,500 university staff members to meet current plans for educational development in Africa over the next three years. While other nations are seeking to provide personnel from their universities for a temporary period, it is clear that the eventual solution to the problem is the development of centers in Africa capable of educating an increasing and continuous flow of academically qualified African graduates to man African institutions.

Nigeria is fortunate in having one of the few institutions in English-speaking Africa capable of expanding its programs to produce quali-

fied staff for the country's universities and secondary schools. The University of Ibadan, established in 1948 and now led by Dr. Kenneth O. Dike, plans to increase its undergraduate enrollment from 1,500 to 3,500 in the period ending in 1966, and to provide graduate training for at least 250 doctoral candidates. The plan also includes the creation of new faculties of engineering and veterinary medicine, and the addition of seven new departments in existing faculties.

Since 1953 The Rockefeller Foundation has appropriated over \$1 million to the University of Ibadan; allocations made this year have totaled more than \$400,000. Of the new funds, 64,300 Nigerian pounds (about \$182,000) will give partial support to new ventures dealing with the nutritional problems of rural communities, and \$200,000 will help stimulate new forms of expression in African drama.

The Institute of Child Health of the University of Ibadan, directed by Dr. W. R. F. Collis, was established in 1959 to work jointly with government and university personnel on the development of demonstration and training programs for field workers. It is hoped that through the institute, programs will be organized to alter village food production and the basic dietary habits of the rural populations.

Initial agricultural and health surveys made in rural areas near Ilesha in the Western Region of Nigeria revealed that malnutrition had stunted the growth of the villagers and greatly limited their capacity for work.

To help remedy this situation, Dr. Collis and his colleagues are currently planning to develop a demonstration extension service in cooperation with the university's Faculty of Agriculture and the agricultural section of the Western Region government. As the extension service develops, others will be established in the Eastern and Northern Regions of Nigeria.

In addition, surveys are now being conducted in the Eastern Region, under the direction of the same unit that handled the earlier investigations. The over-all program promises to be of significant value in relating agricultural methods to nutritional status and health in rural communities of Africa.

The university has offered studies in drama and theatre arts in its English department for the past five years, consisting of courses in the history of Western drama, elements of theatrical production,

and theatre in the twentieth century, along with practical work in the production of plays and operas for public presentation.

Under the direction of Geoffrey Axworthy, Senior Lecturer in English, the expanded program will increase the range of instruction and emphasize theatrical production that will encourage playwriting, directing, and acting to express contemporary cultural interests in Nigeria (a photograph appears on page 38). Attention will also be given to developments in drama in other parts of the world.

The new emphasis will include the development of Nigerian talent and the use of specially qualified visiting experts, mainly from the United States, to assist in technical direction, instruction in speech and movement, and other aspects of theatrical art.

Foundation funds will enable the university to recruit visiting specialists for the program.

Sudan

Established in 1956 by the government of the newly independent Republic of the Sudan, the University of Khartoum has major responsibility for training the technical and professional personnel needed to staff the country's steadily expanding educational system and government agencies. Of the 180 million Sudanese pounds recently budgeted by the government for the development of the economy and for educational and social services over a ten-year period, about 15 million have been earmarked for strengthening and expanding facilities and staff at the University of Khartoum. The Rockefeller Foundation is helping the university meet some of its most immediate needs for scientific equipment, library purchases, and new staff in the Faculties of Arts, Economic and Social Studies, Agriculture, Veterinary Science, and Medicine with a 1962 grant of \$500,000.

The Departments of Physics, Chemistry, and Geography, which will receive equipment to implement advanced courses, are embarking on programs especially adapted to the resources and physical features of the land. Major programs in natural products chemistry and in atmospheric physics are already under way.

The Faculties of Agriculture and Veterinary Science, which also require additional equipment, are attempting to prepare students for careers under conditions of great agronomic and geographic diversity. These faculties are concerned with such subjects as the improvement

of irrigation techniques on the flood plains of the Nile, arid lands research, and the development of tropical agriculture in the humid southern portion of the Sudan.

In the Department of Economics, work in statistics is being initiated to meet the increasingly urgent need for economic and demographic statisticians in government services and private industry, and in the university itself. Additional personnel and equipment will be provided by the Foundation's grant. The appropriation will also be used to purchase periodicals for the central library and specialized text and reference books for the Departments of Political Science and English.

East Africa (Kenya, Tanganyika, and Uganda)

The University of East Africa, which will be inaugurated in 1963, has been in process of development for several years. First proposed in 1958, the concept of coordinating institutions in three different countries moved through a number of steps which culminated with the organization of a Provisional Council for the university in June, 1961. The Provisional Council currently consists of the

A mobile animal research laboratory belonging to the East African Agriculture and Forestry Research Organization, used in studies of the wildlife of the area. In this picture, a technician prepares slides for an animal blood test.



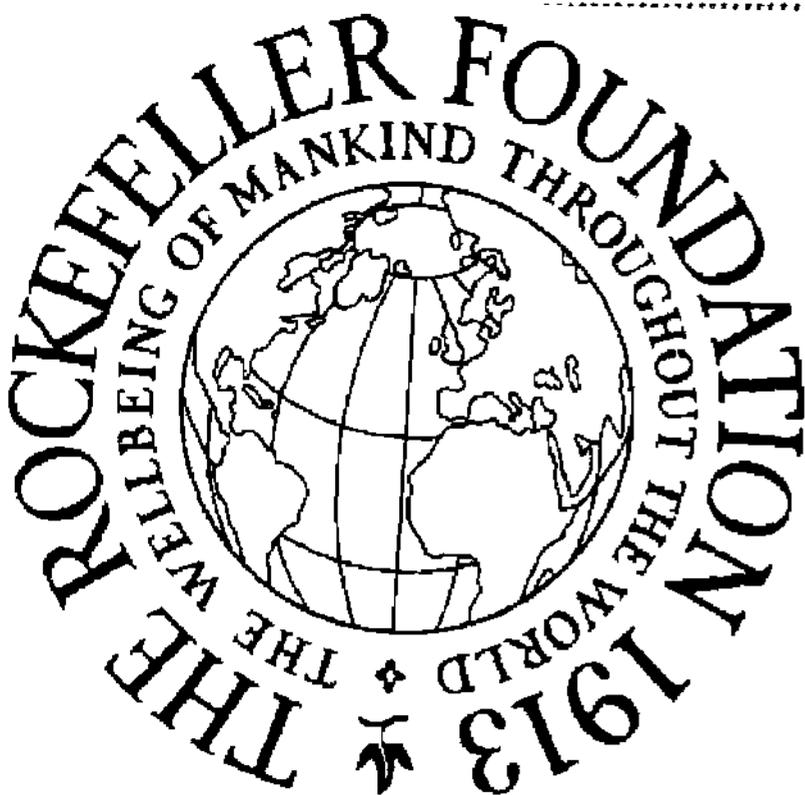
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principals of Makerere University College at Kampala, Uganda, the University College at Dar es Salaam, Tanganyika, and the Royal College at Nairobi, Kenya, and the chairmen of the college councils; also included are the ministers of education of Kenya, Uganda, and Tanganyika, and other officials concerned with education. The council has headquarters in Entebbe, Uganda.

The University of East Africa derives great strength from Makerere University College and the Royal College, both of which have earned enviable reputations as a result of their high academic standards and able faculties. The recent creation of the University College of Tanganyika, with its Faculty of Law, filled a need for additional educational opportunities for East African students, and is adding balance and further strength to the concept of a single university to serve the several territories.

To assist the efforts to integrate the institutions, the Foundation allocated funds totaling more than \$1 million in 1962 for programs in the three colleges and to encourage the coordination of research and teaching.

Entrance to the Royal College, Nairobi, Kenya, one of the constituent institutions of the newly created University of East Africa.



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For the newly organized Faculty of Veterinary Medicine at Nairobi and Kabete, Kenya, and in support of research in the Faculty of Science, the Foundation appropriated \$650,000 to the Royal College. Under current plans veterinary teaching and research in the pre-clinical fields will be conducted at Nairobi, and the clinical training will be given at Kabete and at the headquarters of the East African Veterinary Research Organization, a regional study unit, located in Muguga. Members of the organization will have an opportunity to become professors of the Faculty of Veterinary Medicine and to devote time to research, teaching, or extension activities. The faculty, when it reaches full strength, will have 19 staff members. Veterinary colleges in the United Kingdom, Germany, and Switzerland are planning to send educators to serve on the faculty during its developing stages.

Since early 1961, staff positions in the various departments of the Faculty of Science in Nairobi have been filled by experienced scientists from the United Kingdom, South Africa, and the territories of East Africa. Twenty-five of 67 faculty posts are currently being held by Africans recruited from other institutions. To facilitate the training of a local corps of scientists as rapidly as possible, the faculty is developing honors courses and research programs for graduate studies. A 1961 grant helped the Royal College initiate a degree program in the Faculty of Science.

Major grants amounting to more than \$325,000 were made to Makerere University College in Uganda during 1962. One, of \$180,000, will be used to help the Department of Preventive Medicine initiate field training for medical students, and research programs to investigate disease and public health problems of the area. The work is being conducted cooperatively with the Department of Pediatrics at a new health center being developed at Kasangati (photographs appear on pages 28 and 33). Clinical clerkships and courses in field epidemiology will be offered at the center.

For the Makerere Faculty of Agriculture, the Foundation appropriated \$60,000 to further an expanded research and teaching program in animal husbandry, agricultural engineering, crop husbandry, and agricultural economics. The faculty at Makerere is also playing a leading role in the development of agricultural education institutions

throughout East Africa. Through its Council on Agricultural Education, the University of East Africa exerts strong influence on two schools devoted to the training of young agricultural scientists in farm management and in crop and animal improvement. One is the newly created college of agriculture at Morogoro, Tanganyika; the other is Egerton College in Njoro, Kenya.

Another program being developed by the University of East Africa concerns the training of local graduates for administrative positions in the constituent colleges. This program, under the administration of Sir Bernard de Bunsen, principal of Makerere, will provide for the training of three persons over a four-year period. Assisted by a \$55,000 grant, the program may include some training at a university abroad, but for the most part, studies will be conducted at the East African colleges. The Foundation also made a grant of \$29,925 for the establishment of a professorship in development economics at Makerere University College in 1962.

An entirely new Faculty of Arts is in the making at the University College in Tanganyika. The Foundation has appropriated \$60,000 for the recruitment of a corps of scholars to staff six departments—history, literature, mathematics, economics, political science, and education. University College officials are planning for the major professors of these subjects to be in residence at Dar es Salaam for one year in advance of the formal opening of the faculty, to lay the groundwork for courses and organization.

To develop a local corps of physicians capable of dealing with rural health problems in East Africa, a new four-year training plan is being established by the Ministry of Health and Labour of Tanganyika, in the Medical Training Center at Princess Margaret Hospital in Dar es Salaam. The curriculum provides for 11 months of instruction annually, with heavy emphasis on practical laboratory and field work oriented to rural and community medicine. The first two years of study will be concentrated on basic biology, chemistry, anatomy, and physiology, and will introduce the students to problems of maternal and child health and clinical work. In the third and fourth years, students will spend most of their time in the wards of the Princess Margaret Hospital, which is equipped with 524 beds and offers full services for ward training.

Following their basic studies, graduates will work for two years as interns in well-supervised rural centers before being licensed as medical practitioners for service in government and mission units. Foundation funds amounting to \$152,000 will assist the medical center in the expansion of its teaching laboratories and in the recruitment of an additional full-time staff member to direct the teaching of the physiological sciences.

The ability of certain wild animals to thrive by grazing the coarse, sparse vegetation found in many semiarid areas where domestic cattle cannot support life, suggests that in some parts of East Africa land may best be utilized by cropping wild game upon it. In some other parts it might be possible to increase the food-producing capacity of the land by grazing and browsing wild and domestic animals over the region simultaneously—different species of domesticated stock also vary widely in their ability to forage under adverse conditions. Apparently wild animals employ some physiological means for the conservation and use of water that domesticated animals do not have or have only in lesser degree.

Dr. W. J. A. Payne of the East African Agriculture and Forestry Research Organization, a specialist on the nutrition and management of cattle, plans to expand his research to compare the abilities of different species of cattle and wild animals to survive and to produce meat and milk in drought-stricken areas, and in regions where the forages are low in protein value. To make the necessary observations and analyses Dr. Payne and his associates needed a mobile animal physiology laboratory equipped and supplied for field observations. A grant of \$20,000 provided the funds for the mobile laboratory and the associated equipment.



MIDDLE EAST

In 1962 The Rockefeller Foundation made grants in Turkey, Pakistan, and Israel. Three reflected the Foundation's interest in the medical and associated fields, and one its desire to assist in the preservation of the ancient and rich culture of the Middle East.

In recent years the Turkish government has given highest priority to a long-range effort to upgrade education at all levels, with major emphasis on those fields where the need for substantial numbers of professionally competent personnel is most urgent. One of these is nursing. In 1961 the Turkish Senate passed a decree establishing a School of Nursing and Health Sciences to provide a high level of education for the country's future teachers of nursing and nursing service administrators. The school is a constituent part of the University of Ankara.

The task of creating the new school was turned over to Professor Ihsan Dogramaci, head of the Department of Child Health of the university's medical school, who is acting as temporary dean. The pediatric department, which Dr. Dogramaci has headed since 1954, provides patient care of the highest quality integrated with research labora-

ories and a teaching program of international standard. The department now serves as a demonstration unit and a model not only for Turkey but also for several other Middle Eastern countries which provide about ten per cent of the medical students at Ankara. A number of Dr. Dogramaci's colleagues in leading American medical schools have become interested in his efforts and support them actively. The Rockefeller Foundation has contributed some \$327,000 for strengthening the department and the associated Research Institute of Child Health.

Under Dr. Dogramaci's leadership, teaching in the school of nursing began in improvised quarters in September, 1961, the first class consisting of 30 students selected from 60 applicants, four of whom were Iranians from the top group of their respective high schools. Among the faculty were three American educators with graduate degrees from Columbia University. As the school develops, it is planned to add teaching in related fields, such as dietetics, hospital administration, and physical therapy.

Funds for the physical plant of the school, including buildings for classes, laboratories, a large auditorium, and a dormitory, have been provided by the university, the Ministry of Health, and private citizens. Construction has already begun.

In order to speed the growth of the school, Dr. Dogramaci hopes to invite specialists in various fields from foreign countries, especially the United States, to assist with development and teaching. Since foreign exchange is impossible to obtain for this purpose, the Foundation has made an appropriation of \$110,000 to the university for the School of Nursing and Health Sciences.

The University of Ankara, through its Institute of Turkish and Islamic Art, is also pioneering in an important effort to preserve, study, and disseminate information about Muslim art and culture. Founded in 1953 and still directed by Professor Suut Kemal Yetkin, now the rector of the university, the institute has been actively engaged in research on the historical backgrounds of Turkish and Islamic art, in collecting photographs of buildings and works of art, in building up a library, and in publishing monographs and papers. The staff also carries on a teaching program and conducts conferences; in 1959 the institute's first International Congress on Turkish and Islamic Art was

attended by 53 specialists from ten countries. A new building now under construction will allow the institute to develop more fully its international research aspects, including the offering of temporary appointments to attract foreign scholars.

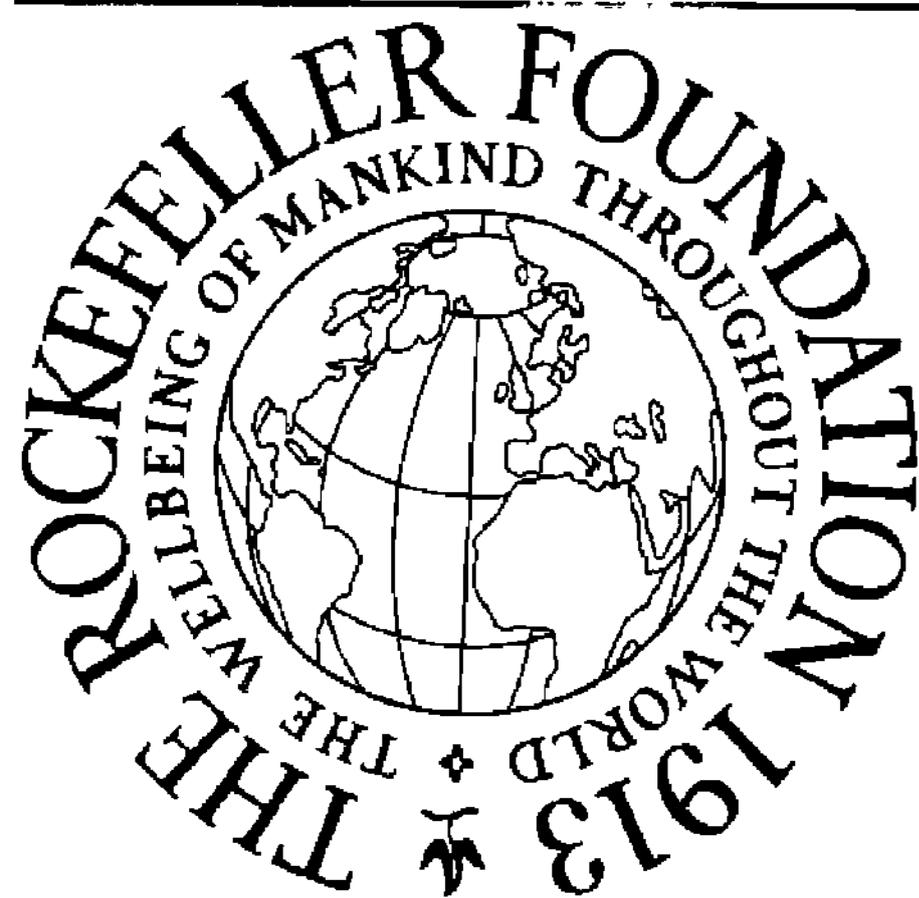
Like the other divisions of the university, the institute is hampered by severe currency restrictions in buying books or equipment or paying other expenses which require foreign exchange. The Foundation has made a grant of \$15,000 to help the institute acquire essential photographic equipment and to build up its library collection.

Total Rockefeller Foundation assistance to the University of Ankara since 1950 amounts to nearly \$725,000.

A small grant (\$16,000) to the University of Dacca in East Pakistan will help the Department of Biochemistry, headed by Professor Kamal Ahmad, purchase some essential research instruments. At present the laboratory operates entirely at the postgraduate level, but undergraduate courses are planned for the near future. A number of interesting lines of research are being followed by laboratory groups: nutritional biochemistry, with special reference to calcium deficiency which might be overcome by means of calcium-enriched rice; the chemical identification of antibiotics from soil microorganisms; and the isolation and study of active compounds from plants used in folk medicine. Dr. Ahmad's department is the only biochemical unit in any Pakistani university.

In keeping with its policy of encouraging research on the arthropod-borne (arbo) viruses in other laboratories in addition to its own, the Foundation has made a grant of \$24,000 to support the work of Dr. Natan Goldblum and his group at the Hadassah Medical School of the Hebrew University of Jerusalem, in Israel.

Dr. Goldblum was the investigator who first recognized West Nile fever and isolated its virus during an epidemic outbreak in Israel in 1954. West Nile fever is known to be highly endemic in Egypt and widely distributed in Africa and India. The severity of the 1954 and following epidemics in Israel was probably due to the presence in that country of recently arrived nonimmune adults. In general, encephalitis is still a fairly serious problem in Israel, where about 400 cases occur each year, principally during the summer months. Some of these are known to be caused by enteric viruses. Thus far only a small pro-



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A veterinarian, at the Hadassah Medical School of the Hebrew University of Jerusalem, Israel, bleeds a turkey for viral tests.

portion have been shown definitely to result from West Nile infections; the presence of other arboviruses has been suggested by some small-scale surveys.

At the Hebrew University, Dr. Goldblum now has the time and staff to extend and intensify his arbovirus studies; the Ministry of Health is encouraging him to make a broad attack on the encephalitis problem and has given him special assistance for the work. The funds from the Foundation will be used for the purchase of equipment. Dr. Goldblum's group is well situated for fundamental research on viral biology in a region which forms a bridge between Africa and Asia and is little known from the virological standpoint.



INDIA

The Rockefeller Foundation's activities in India in 1962 continued as in the recent past to consist of its staff-operated cooperative projects in medical education, virus research, and agricultural education and research, together with grants to Indian institutions to support related interests in these fields and in the social sciences.

Through most of the year two Foundation staff members were connected with the All India Institute of Medical Sciences in New Delhi, one as a consultant on general development and the other as an adviser for the teaching center in rural medicine at the community health unit in the village of Kurali outside New Delhi. Previous reports have commented on the key role of the All India Institute in medical education in India. It was established in 1956 to offer a comprehensive program of undergraduate and graduate medical education of the highest standard, to serve as a model for other colleges, and to meet the rapidly expanding need for teachers of medicine in India. The institute, located on a campus of 150 acres at the outskirts of the city, is approaching the end of the construction period; housing for students and professional and other staff, and buildings with offices,

laboratories, and classrooms for the preclinical and the clinical departments, the outpatient department, and the school of nursing, have been constructed, and the final unit of the teaching hospital is in the planning stage. An excellent faculty has been built up, and the graduate residencies are increasingly being sought by candidates for advanced or specialized training. Courses at the Kurali teaching and research center, an integral part of the institute's curriculum, are being steadily strengthened to give emphasis to the kind of training in rural medicine which is imperative in all countries with large rural populations and limited resources of medical care personnel and facilities.

Eleven Rockefeller Foundation staff members were assigned to the Indian Agricultural Program during 1962. As has already been described (pages 62-64) their work is in two general areas: agricultural education and crop improvement. In agricultural education, staff members act as consultants to India's leading center for graduate training in the agricultural sciences—the Indian Agricultural Research Institute in New Delhi. Since its conversion to a strictly graduate-level institution beginning in 1958, the institute, with an excellent physical plant and experimental farm, and an outstanding faculty, has contributed importantly to supplying India's need for highly qualified agricultural research workers and teachers. The staff have also worked with the officials who are planning the expansion of undergraduate agricultural education through the creation of new state institutions which, like land-grant colleges in the United States, will coordinate teaching with research and extension activities.

The crop improvement program is cooperative with national and state agencies devoted to the improvement of maize and of sorghum and the millets. The government has provided an extensive system of main and regional experiment stations to facilitate the breeding of improved varieties and studies of their adaptation, and a highly competent staff of scientists and technicians has been trained. The success of the work, as evidenced by the creation of five new maize varieties within a relatively short time, is illustrated on page 63.

Four staff members collaborate in the work of the Virus Research Centre, at Poona, on the Deccan plains east of Bombay, which is administered by the Indian Council of Medical Research. Two are at



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The improvement of sorghum, an important food crop in India, is one of the objectives of the Foundation's cooperative agricultural program.

the Poona laboratories, one is at a field station in a village in the Shimoga District of Mysore State, and the fourth is at a field station in Vellore, functioning in collaboration with the Christian Medical College Hospital. The work in the Shimoga District is concentrated on the epidemiology of Kyasanur Forest disease and that at Vellore on Japanese B encephalitis. Kyasanur Forest disease has a history of an alarming flare-up in India followed by a long period of relative innocuousness as a public health menace but of unmistakable continued activity in nature. Preliminary data seem to indicate that Japanese B encephalitis has followed a similar pattern. Several years of observation and careful investigation will be required before the puzzling questions about the epidemiology of these diseases can be answered.

Kyasanur Forest disease, of particular interest to the Poona virus research center staff, was originally discovered in Mysore State during a spectacular epidemic in 1957 which took a number of lives. Investigation of the outbreak began when reports were received in Poona that monkeys were dying in the jungle in Shimoga District; later studies have shown that the disease was so severe among monkeys as to greatly reduce the monkey population in that area. The disease is transmitted by ticks, and is related to a group of tick-borne viruses called the Russian spring-summer encephalitis complex, hitherto observed only in northern temperate regions. Laboratory staff are seeking answers to a number of questions about the apparently sudden appearance in tropical India of this relative of the northern group. Had the virus been prevalent in the forests of Shimoga District for some time before the 1956-1957 outbreak brought it dramatically to attention? If, on the other hand, it freshly "invaded" the territory in that season, where did it come from and by what route? If it was already present, what were the natural reservoirs and the cycles of transmission? Do birds play any role in the maintenance of this virus or in its spread to other areas? If it had already existed in the forest for some time, what factors caused the sudden epizootic in monkeys and epidemic in man? Other questions concern the distribution of the virus in Mysore State and its relation to immunologically similar viruses in northeast India, the roles of different species of ticks in its transmission and maintenance, and the possibility that it is transmitted by vectors other than ticks, perhaps by mites.

Recent studies indicate that the incidence of Kyasanur Forest disease, among both men and monkeys, is presently very low, but frequent isolations of the virus from rodents show that it is still quite active in the forest, though in a very restricted area, and that it is probably maintained normally in extrahuman and extrasimian cycles of transmission.

On the other side of the Indian subcontinent from Poona, the Calcutta School of Tropical Medicine is instituting a virus research section in recognition of the increasing evidence pointing to the importance of virus diseases in the tropics. The school is recruiting staff and arranging for the construction of an additional floor on one wing of the school to house the unit. Three members of the new

virus section, including its director, have had periods of training at the Poona virus research center. The Foundation is cooperating in this development through the contribution of a small grant (\$15,000) for the purchase of specialized equipment. The Foundation has a long record of modest assistance to the school since its establishment.

Several major grants made to institutions in India in 1962 were for the further development of international studies in the social sciences, and for medical education.

The sum of \$150,000 was appropriated to the Indian School of International Studies in New Delhi, principally for use in developing its library collections of research materials on the major areas of Asia. Since it was founded in 1955 the school has steadily strengthened its position as the leading South Asian center of Ph.D. training and advanced research in international relations. Appropriately, it places special emphasis on studies of Asian countries and regions, and their relations with each other and with the rest of the world.

The school admits selected scholars who have completed an M.A. degree in a basic social science discipline in a recognized university and offers a three-year training and research program for the doctoral degree. Of the 25 faculty members, 16 hold full-time appointments; the students number nearly 100. All those who have completed the course and some who are still working on their dissertations are presently employed as university or college teachers of social science and international relations, or are in research, editorial work, or government.

The school shares the library of the Indian Council of World Affairs, consisting of some 71,000 volumes, over 1,050 current periodicals, and extensive collections of documents, press clippings, and microfilms of otherwise unavailable sources; a picture taken in the library's reading room appears on pages 24-25. The funds from the Foundation will be used over the next five years to accelerate the collection of Asian-language materials, including a major effort to secure basic documentation in the Chinese language. The East Asian Research Center of Harvard University, directed by Professor John K. Fairbank, is cooperating in the selection and acquisition of the new collection.

A grant of \$114,700 to the University of Lucknow, in the capital city of the state of Uttar Pradesh, will serve three purposes. About \$55,000 will help purchase research equipment for the Department of Biochemistry of the Faculty of Science, and up to \$21,000 will similarly be used for equipment for the Department of Pharmacology of the university's King George's Medical College; in both cases the equipment is not available in India and must be bought with foreign exchange.

A third amount, approximately \$38,700, will go toward the cost of constructing and equipping additional facilities for the Sarojini Nagar center, to which interns of the King George's Medical College are regularly assigned as part of their training experience; the grant is conditional on the contribution of an equal sum for the same purpose by the state government of Uttar Pradesh.

As was noted in the comments on the All India Institute of Medical Sciences and elsewhere in this report, the Foundation is particularly interested in experiments which can lead to the incorporation of the elements of rural medicine into the traditional medical curriculum.

Staff members of the Virus Research Centre, Poona, examine a monkey for ticks. Ticks carry Kyasanur Forest disease, which affects both monkeys and human beings, and which is currently under intensive study at the center.



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One effective plan by which this may be done is through the creation of community health centers which can function in the curriculum as teaching units, much as do conventional teaching hospitals and outpatient departments. A practical difficulty in implementing this plan in many countries is the isolated location of most rural health centers and their meager facilities. To function effectively they must have quarters where students and staff can live for the assigned period, and space and equipment for modern medical care in a teaching situation. For the Sarojini Nagar health center, Foundation funds and the matching amount from the state will provide the costs of constructing and equipping, in three subcenters, rural clinics each with about four beds, a hostel for about ten interns, and quarters for medical and paramedical staff. The Department of Social and Preventive Medicine, which administers the rural medicine training plan, expects that when the students can live in the villages the value of their experience will be greatly increased.

The King George's Medical College, founded in 1911, is one of the older professional schools in India and one of the few medical colleges which are connected with a university. Previous Foundation aid to the King George's Medical College totals approximately \$400,000.

More than ten years ago the Christian Medical College in Vellore embarked on a pioneering effort to develop a good hospital record system especially adapted to Indian requirements. That these efforts have been successful is now generally recognized throughout the country, and the impact on medical care, medical education, and research has been substantial. An official of the World Health Organization, after inspecting the Vellore system, reported that the hospital "is well on the way to become a model demonstration and training unit for India and for the Region. It could provide training for medical record librarians of a kind best suited to the needs of the country."

The college is quite capable of running a training program, but some increase in personnel is required in order to free teaching staff from routine duties, and funds for supplies and equipment are also needed. The Foundation is assisting the creation of the training unit by a grant of \$30,000. Previous Foundation assistance to the Christian Medical College in Vellore amounts to more than \$500,000.



FAR EAST

Most of the grants made by The Rockefeller Foundation in the Far East in 1962 were for interests closely related to the Foundation's own operating programs, particularly the one in the agricultural sciences.

Philippines

The International Rice Research Institute is located in Los Baños, about 40 miles southeast of Manila, on a site adjacent to the College of Agriculture of the University of the Philippines. The institute, a joint undertaking of the Ford and Rockefeller Foundations with the cooperation of the government of the Philippines, was formally dedicated on February 7, 1962, though some investigations were under way before that date. A brief discussion of the institute's work appears elsewhere in this report (pages 64-66).

The buildings of the institute's research center are grouped around a central plaza. On one side is the administrative building, which in addition to offices includes the library, the auditorium, and rooms for seminars and classes. Facing it is the laboratory building, sub-

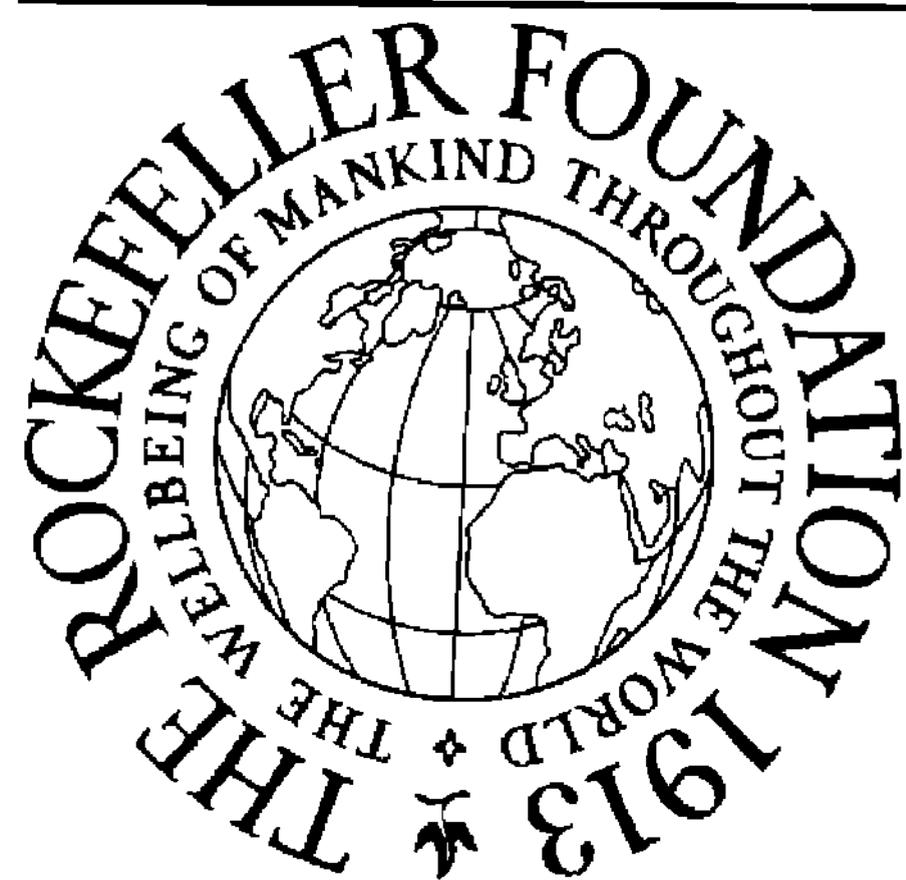
divided into working space for the main scientific disciplines. On the third side are dining and recreational rooms, and a dormitory for sixty research fellows. A large service building and four greenhouses complete the research installation. Two miles away is a group of residences for 25 staff families. A dormitory for women employees and a few additional staff residences are planned for construction in 1963. All the facilities were designed with attention to functional and aesthetic qualities, setting a standard of excellence for agricultural research centers throughout the world.

The institute is an incorporated philanthropic, tax-exempt organization established under Philippine law, governed by an autonomous Board of Trustees with representation from six different countries and from the Ford and Rockefeller Foundations.

Its construction was financed by capital grants from the Ford Foundation totaling \$7,150,000, and its international cooperative research program is supported by additional grants from that foundation. The Rockefeller Foundation has assumed responsibility for the operation of the institute; for its costs in 1963 the Foundation made an outright appropriation of \$515,000; previous grants for the same purpose total \$819,000. In addition, The Rockefeller Foundation contributes the services of six of its staff members, one of whom is the institute's director.

A major purpose of the institute is to offer advanced training opportunities for rice specialists from the countries of Southeast Asia which depend on rice as their principal food. In 1962, 27 individuals were received at the institute for training, 10 from Thailand and 17 from the Philippines; of these, 24 elected to work toward master's degrees at the College of Agriculture under a cooperative arrangement between the college and the institute. Under this arrangement, the research fellows take class work at the college and conduct thesis research at the institute; professional staff of the institute have professorial rank at the college. Additional trainees expected in 1963 will represent Indonesia, Taiwan, and Malaya, as well as Thailand and the Philippines.

Field and laboratory research was initiated on a substantial scale during the year. In the plant breeding program, immediate attention is being given to the selection of early-maturing, high-yielding tropical



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Agricultural experts at the International Rice Research Institute have been studying the use of different implements for the cultivation of rice; in this field, a rotary hoe is in use.

varieties with short, stiff straw. A world rice collection of 6,867 entries from 73 countries has been assembled; in 1962, 5,800 of these were evaluated in preliminary field tests and 800 were chosen for further study. Not unexpectedly, great variation among varieties has been encountered. The time required for growing to maturity varies from 110 days to more than 150. Crude protein content ranges from 5.6 per cent for a popular Philippine variety to 10-12 per cent for some United States entries. A number have substantial resistance to "blast," the most important disease of rice; others seem almost completely susceptible. Resistance to an economically important insect pest, the rice stem borer, varies from 9 to 49 per cent. These studies have already pinpointed varieties which promise to be extremely useful as parental material for introducing desirable characteristics into reliable commercial varieties.

The maturity-period studies seem fundamentally significant. One great weakness of agriculture in the Far Eastern rice bowl is the inefficient use of land. A short-season rice which could be planted and harvested in a relatively short period would leave time for the growing of a second crop on the same land. The alternate crop could be a legume to enrich the soil, or it could be a different food or cash crop to increase nutritional variety or money income. The few countries in Southeast Asia which already practice double cropping on a large scale are the ones which are making the most rapid agricultural advances.

Additional studies of soils, agronomic practices, and other aspects of rice cultivation are also under way at Los Baños.

The International Rice Research Institute, even in the short time since its completion, has attracted widespread attention as a center that devotes itself to the study of all means of increasing the production of the world's most important food grain. Cooperation with the College of Agriculture and with other Far Eastern rice research programs is providing mutual strength to the research program of the institute and to the educational, research, and extension activities of the other organizations. It is expected that the cooperation can be strengthened and deepened as the institute's program progresses.

Japan

The genetics and evolution of wheat and rice, two of the world's most important food grains, are being studied intensively by a group of geneticists in Japan under the general leadership of Dr. Hitoshi Kihara, now director of the National Institute of Genetics in Misima. In 1962, the Foundation assisted these studies through a grant of \$60,000 to the institute and another of \$37,700 to Kyoto University, where Dr. Kihara formerly taught.

The original wheat domesticated by Neolithic man was "einkorn," a simple plant with seven pairs of chromosomes. From it evolved modern bread wheat with 21 pairs, of which seven come from the original einkorn. The work of Dr. Kihara and his associates has shown that another set of seven pairs comes from a species of wild grass of the genus *Aegilops*, which still flourishes as a weed in the Middle Eastern region where einkorn was domesticated. The source of the

third set of seven pairs of chromosomes, however, is still uncertain. Working on the assumption that this third set comes from some other *Aegilops* species, Kyoto University biologists have made two collecting trips to the Middle East and formed a collection of nearly 1,400 species of *Aegilops* and nearly 1,900 different wheats. The Kyoto group, now headed by Dr. Kosuke Yamashita, are continuing the effort to identify specifically the source of the third set of chromosomes, to throw light on the development of the cultivated forms of wheat in different parts of the world, and to incorporate into commercially grown wheats such useful genes as those that condition rust resistance, earliness, spring growth habit, and other important traits.

Since he assumed the directorship of the National Institute of Genetics, Dr. Kihara and his co-workers have turned their attention to the problem of the origin of rice and of the relationship between the several wild types and the broad range of cultivated varieties of this crop. Better understanding of the complex phylogenetic relations among the species of *Oryza* is of valuable assistance to practical breeding programs, for it permits greater efficiency in the development of more productive varieties resistant to insects and diseases. Dr. Kihara and his colleagues have collected approximately 3,700 strains of rice, representing some 26 species or types, from many different countries. While some further collecting remains to be done, the main effort of the group is now directed to the systematic analysis of the present collection.

Dr. Kihara is a member of the Board of Trustees of the International Rice Research Institute, and the work of the Misima group is closely correlated with that of the scientists at Los Baños.

Hokkaido, the northernmost island in Japan, is a frontier area of hills and rolling lands, long, cold winters, and cool, damp summers. These are not conditions which favor the cultivation of rice, and in recent years increasing attention has been given to expanded use of the arable land for dairy and livestock production. To make this possible, Japanese agronomists are devoting attention to the improvement of grasses and legumes and to the management of pastures. Four organizations on the island interested in this objective have now planned a coordinated research program: Hokkaido University, Obihiro Zootechnical University, the National Tokachi Experiment



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A professor of the Faculty of Agronomy, Hokkaido University, Japan, checks American seed for experimental forage plantings.

Station, and the Prefectural Tokachi Agricultural Experiment Station. The Foundation in the past has made grants to two of these institutions for forage and pasture research; in 1962 it made a new grant of \$28,700 to Hokkaido University, Sapporo, in support of the coordinated research effort.

Two grants were made to institutions in Tokyo, both in furtherance of projects which the Foundation has supported previously: \$120,000 to the University of Tokyo for the improvement of its library, and \$90,000 to the International House of Japan, Inc., for support of its general program.

The central library building of the University of Tokyo was constructed after the earthquake of 1923 with funds contributed per-

sonally by Mr. John D. Rockefeller, Jr., and since 1938 The Rockefeller Foundation has made a series of grants for the training of librarians, for the cataloguing of the collections, and for the improvement of services. Previous Foundation grants to the International House of Japan total more than \$860,000.

Thailand

The internationalization of The Rockefeller Foundation's maize improvement work from its beginning in Mexico in 1943 to Colombia, India, and the Far East has been noted elsewhere in this report. More particularly, the technical cooperation of a member of the Foundation's Indian Agricultural Program staff with a maize improvement program in Thailand is illustrated on page 43. The Thai work is cooperative between the Department of Agriculture of the federal government, headed by Prince M. C. Chakrabandhu, and Kasetsart University, the national school of agriculture of Thailand. A number of technicians in the program are receiving in-service experience in the Indian Agricultural Program, and plant materials from Latin America, via India, are being employed for the selection and breeding of better-adapted varieties. In addition, the Foundation has made a grant of \$16,000 to Kasetsart University, Bangkok, for equipment and supplies needed for the corn improvement project.

Singapore

Some 37 years ago, The Rockefeller Foundation appropriated \$210,000 to help endow chairs of biochemistry and bacteriology in the King Edward VII College of Medicine, which has since become part of the University of Singapore. Following several small grants, chiefly for travel by faculty members, the Foundation made a grant of \$73,800 in 1956 for the support of virus research in the Department of Bacteriology. Now headed by Dr. Lim Kok Ann, the Department of Bacteriology is developing a strong teaching and research program with emphasis on virology. In addition to regular teaching duties, the department has accepted responsibility for a special course in virology sponsored by the World Health Organization for laboratory workers in Southeast Asia, with particular attention to arthropod-transmitted virus diseases. The department has also been designated

as a WHO Regional Center for poliomyelitis and influenza research and by the government of Singapore as a center for the care and administration of yellow fever vaccine.

The Malay Peninsula is an important center for the investigation of Japanese B encephalitis virus. So widespread is infection from this agent that practically all adults are immune and cases are seen only in very young children. However, about ten per cent of those cases diagnosed by laboratory means terminate fatally, and in many of the others there is definite evidence of brain damage following infection. It is certain that this disease is responsible for a large, though as yet undetermined, amount of mental crippling.

An outbreak of dengue beginning in June, 1960, was carefully followed by the Singapore group. Some 200 cases were observed in the Singapore general hospital alone; on the whole they were less serious than those seen in recent outbreaks in Manila and Bangkok, and no fatalities resulted. However, evidence of former infectious activity by other arthropod-borne viruses was also discovered in the dengue investigations; in particular, antibodies against Chikungunya virus were demonstrated in about ten per cent of the sera examined.

It was in Malaya also that a virus of the Russian spring-summer encephalitis complex was isolated from ticks in the middle 1950's, prior to the flare-up of the tick-borne Kyasanur Forest disease virus in southern India in 1956-1957.

The Rockefeller Foundation's staff conducting research on arthropod-borne viruses has kept in close touch with the Singapore scientists for the last decade. In view of the key importance of the peninsula as a virus "crossroads," and to increase the extent of the work directed by Dr. Lim Kok Ann, the Foundation in 1962 made a new grant of \$26,370.

Australia

In 1962 The Rockefeller Foundation made a grant of £10,000 (approximately \$22,600) to assist the Department of Pathology of the University of Sydney in purchasing a new high-resolution electron microscope. Of the remainder of the cost of the instrument and of its installation and housing—about £24,000—more than £16,000 was contributed from private sources.

GRANTS AND STUDY AWARDS • 1962

GRANTS MADE IN THE UNITED STATES

*MNS: Medical and Natural Sciences; AS: Agricultural Sciences;
HSS: Humanities and Social Sciences; G: General; F: Fellow; S: Scholar*

New England

AMERICAN EDUCATIONAL THEATRE ASSOCIATION, New Haven, Connecticut: participation in educational and community theatre productions in the United States, by Pedro Mortheiru, Chilean director; \$219; (HSS)

DARTMOUTH COLLEGE, Hanover, New Hampshire: research on the state of traditional schools of philosophy in Communist China, by Professor Wing-tsit Chan; \$10,000; (HSS)

DR. ALBERT E. DIMOND, chief, Department of Plant Pathology and Botany, Connecticut Agricultural Experiment Station, New Haven: to lecture on plant pathology at the National Institute of Livestock Technology, Castelar, Argentina; \$875; (AS)

EXPENSES OF CONSULTATIONS for the planning of a cooperative program of research on medical care, to be conducted by the Department of Preventive Medicine, Boston University, Massachusetts; the Comprehensive Care and Rehabilitation Clinic, Thayer Hospital, Waterville, Maine; and the Department of Preventive Medicine, Queen's College, University of St. Andrews, Dundee, Scotland; \$2,000; (MNS)

HARVARD UNIVERSITY, Cambridge, Massachusetts:

Support of a pilot study in family planning in Santiago, Chile, by the Department of Demography and Human Ecology, School of Public Health, Boston, in collaboration with the Department of Preventive Medicine, Faculty of Medicine, University of Chile; \$14,000; (MNS)

Research in Europe on the relations between the legal profession and the church in the fifteenth and sixteenth centuries, by Dr. Myron P. Gilmore, professor of history; \$10,000; (HSS)

A curriculum study, by the School of Public Health, Boston; \$9,500 for a three-year period; (MNS)

Dr. George A. Saxton, Jr., School of Public Health, Boston; to visit Makerere University College, University of East Africa, Kampala, Uganda, for discussions concerning the Department of Preventive Medicine and Kasangati Health Centre; \$3,475; (MNS)

DR. ROY EMIL LUGINBUHL, professor of animal diseases, University of Connecticut, Storrs; to observe current research in virology at veterinary institutions in India, Africa, and Europe; \$4,900; (MNS)

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge:

A systematic investigation of various proposals for disarmament and arms control in terms of the kind of international security organizations and forces appropriate or necessary to them; \$25,000; (HSS)

To invite Dr. George Szekely, Department of Anatomy, Medical School, University of Pecs, Hungary, to serve as a visiting investigator; \$2,500; (MNS)

TUFTS UNIVERSITY, Fletcher School of Law and Diplomacy, Medford, Massachusetts: partial expenses of a conference on the future role of the International Court of Justice; \$10,000; (HSS)

YALE UNIVERSITY, New Haven, Connecticut:

Construction of a building to house the Department of Epidemiology and Public Health of the School of Medicine and the central virus laboratory of The Rockefeller Foundation; \$1,500,000 through 1964, payable as the university secures matching funds from other sources; (MNS)

Research on the history of the British Parliament during the period 1660-1690, by Professor Basil D. Henning; \$21,000 for a ten-year period; (HSS)

Development of a program in Caribbean linguistics; \$10,000; (HSS)

Research in South Asia on early Asian history, by Dr. Paul Mus, professor, Indic and Far Eastern Languages and Literature; \$5,200; (HSS)

Bernard Kohn, instructor in city planning; to investigate architecture and urban design in India; \$3,200; (HSS)

Middle Atlantic

ACADEMY OF AMERICAN POETS, New York: development of poetry programs at educational institutions throughout the United States; \$9,450 for a three-year period; (HSS)

AMERICAN COUNCIL OF LEARNED SOCIETIES, New York: preparation of a revised edition of the *Encyclopedia of Islam*, under the auspices of the Royal Netherlands Academy of Sciences, Amsterdam; \$45,000; (HSS)

AMERICAN LAW INSTITUTE, Philadelphia, Pennsylvania: completion of a Model Penal Code with commentaries; \$15,000; (HSS)

AMERICAN ORNITHOLOGISTS UNION, Ithaca, New York: to invite Dr. Bohumir Rosicky, Institute of Parasitology, Czechoslovak Academy of Sciences, Prague, to serve as a visiting scientist; \$850; (MNS)

ASIA SOCIETY, New York: support of its program for the development of councils on selected countries of Asia; \$110,000 for a two-year period; (HSS)

BROOKLYN COLLEGE, New York: study of Paul Akselrod and the development of Menshevism, 1903-1917, by Dr. Abraham Ascher, assistant professor of history; \$7,900; (HSS)

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE, New York: development of training programs for young foreign service officers from newly independent nations; \$1,097,500 through September, 1968; (HSS)

AUGUSTUS J. CARROLL, business officer, Upstate Medical Center, State University of New York, Syracuse: to visit Cali, Colombia, to advise University of Valle officials concerning budgetary and general administrative affairs; \$1,840; (MNS)

COLUMBIA UNIVERSITY, New York:

Completion of a research building for the training of teachers and research workers at the College of Physicians and Surgeons; \$400,000; (MNS)

Provision of specialized training in Chinese Communist law and legal institutions for Stanley B. Lubman, School of Law; \$10,000; (HSS)

Studies of nineteenth-century American political thought, by Eric McKittrick, associate professor of history; \$10,000; (HSS)

Dr. Joseph F. Schacht, professor of Arabic and Islamics; to study recent developments in East African Islam, and to consult with officials of the University of East Africa; \$6,825; (HSS)

Continued study of the making of American foreign policy and the role of the United States in world affairs, by Dr. Ekkehart Krippendorf, visiting research fellow, Institute of War and Peace Studies; \$5,220; (HSS)

Creative work in composition, by Professor Douglas S. Moore, Department of Music; \$5,000 for an 18-month period; (HSS)

Dr. Theodosius Dobzhansky, professor of zoology; to collect species of *Drosophila paulistorum* in Venezuela and British Guiana; \$2,830; (MNS)

CORNELL UNIVERSITY, Ithaca, New York:

Development of a special orientation program for foreign graduate students in agriculture at the New York State College of Agriculture; \$50,000 for a five-year period; (AS)

Development of a training program in linguistics for Egyptian teachers of English; \$5,000; (HSS)

Completion of a study of the arts in Indonesia, by Mrs. Claire Holt; \$4,120; (HSS)

Mrs. Judith M. Hudson, research assistant, Southeast Asia Program; to conduct a field study of modern art in Indonesia; \$2,000 for a two-year period; (HSS)

Professor Max Black, Department of Philosophy; to advise on philosophical studies at selected universities, principally in South and Southeast Asia; \$1,800; (HSS)

Dr. A. A. Johnson, acting head, Department of Plant Breeding, New York State College of Agriculture; to attend a technical meeting of the Food and Agriculture Organization of the United Nations on seed production, control, and distribution, in Rome, Italy; \$880; (AS)

COUNCIL ON RELIGION AND INTERNATIONAL AFFAIRS, New York: development of its program of seminars on international responsibility for postgraduate scholars from abroad; \$10,000 for a three-year period; (HSS)

EDUCATIONAL BROADCASTING CORPORATION, New York: program development; \$200,000; (HSS)

INSTITUTE FOR ADVANCED STUDIES IN THE THEATRE ARTS, New York: support of its program in world drama; \$32,000 for a three-year period; (HSS)

INSTITUTE OF INTERNATIONAL EDUCATION, New York: construction of a building for its Center for International Education; \$100,000; (G)

INTERNATIONAL SCHOOLS FOUNDATION, INC., New York: equipment and materials for the American International School, New Delhi, India; \$10,000; (AS)

HERBERT MACHIZ, theatre director, New York: to assist in the preparation of a training and production program at the Little Carib Theatre, Port-of-Spain, Trinidad; \$1,210; (HSS)

MEDICAL LIBRARY ASSOCIATION, INC., Philadelphia, Pennsylvania:

Expenses of medical librarians from overseas in connection with their attendance at the Second International Congress on Medical Librarianship, to be held in Washington, D.C., in 1963; \$10,000; (MNS)

Provision of basic reference books to selected Latin American medical school libraries; \$1,000; (MNS)

MEDICAL LIBRARY CENTER OF NEW YORK, New York: expenses of converting a portion of a newly acquired building for library purposes; \$100,000 for a three-year period, payable as the center secures \$200,000 from other sources; (MNS)

DR. GEORGE C. MILES, chief curator, American Numismatic Society, New York: to make a survey of the contents of national coin collections in the Middle East,

and to consult with directors of antiquities and museums in this area; \$2,625; (HSS)

DR. ALFRED EZRA MIRSKY, professor and member, The Rockefeller Institute, New York: to observe current biological research at scientific institutions in India; \$3,500; (MNS)

MODERN LANGUAGE ASSOCIATION OF AMERICA, New York: development of a program to improve Chinese language teaching; \$10,000; (HSS)

NATIONAL HEALTH COUNCIL, New York: development of a coordinated program for the establishment of uniform accounting and reporting by national voluntary health and welfare agencies, to be conducted in cooperation with the National Social Welfare Assembly, New York; \$74,000 for a three-year period; (C)

NEW YORK PRO MUSICA ANTIQUA, INC., New York: development of its program of presentations of music composed prior to 1700; \$15,000 for a four-year period; (HSS)

NEW YORK PUBLIC LIBRARY, New York: support of a program under which the official gazettes of foreign countries can be made readily available for scholarly and professional use; \$7,650; (HSS)

NEW YORK UNIVERSITY, New York: to invite M. Soedjatmoko, director, Pembangunan Publishing Company, Djakarta, Indonesia, to serve as a visiting lecturer in Southeast Asian studies; \$1,857; (HSS)

PITTSBURGH PLAYHOUSE SCHOOL OF THE THEATER, INC., Pennsylvania: partial expenses of the Vanguard Classroom Project, to be conducted in cooperation with the Pittsburgh Board of Education; \$9,000 for an 18-month period; (HSS)

PRINCETON UNIVERSITY, New Jersey:

Research and writing of the fourth volume of a biography of President Woodrow Wilson, by Professor Arthur S. Link, editor of *The Papers of Woodrow Wilson*; \$12,500; (HSS)

Continued research and writing on Lenin and the origins of Soviet foreign policy, by Louis Fischer, research associate, Center for International Studies; \$8,000; (HSS)

RUTGERS, THE STATE UNIVERSITY, New Brunswick, New Jersey: to invite Emilio Carballido, Mexican dramatist, to help initiate an exchange program with Mexican dramatists and writers; \$550; (HSS)

SOCIAL SCIENCE RESEARCH COUNCIL, New York: support of its program of research fellowships and grants in aid for a period of not less than ten years; \$1,500,000; (HSS)

ST. LUKE'S HOSPITAL, New York: partial expenses of plans for the construction of additional facilities, chiefly for nutrition research; \$10,000; (MNS)

SYRACUSE UNIVERSITY, New York: study of foreign policy at the grass roots, by Dr. Gerard J. Mangone, professor of political science, Maxwell Graduate School of Citizenship and Public Affairs; \$7,300; (HSS)

TEMPLE UNIVERSITY, Philadelphia, Pennsylvania:

Miss Jane Stewart, associate director, School of Nursing, Temple University Hospital; to confer with Indian officials and Rockefeller Foundation staff members in India, and to visit Indian schools of nursing; \$3,100; (MNS)

School of Medicine; development of an experimental summer study program in tropical medicine and virology; \$2,500; (MNS)

UNION THEOLOGICAL SEMINARY, New York: support of its Program in Religious Drama; \$36,000; (HSS)

UNION UNIVERSITY, ALBANY MEDICAL COLLEGE, New York: expenses of two faculty members in connection with their visit to British Guiana to explore the possible development of a cross-cultural clinical clerkship program; \$2,550; (MNS)

UNITED STATES NATIONAL STUDENT ASSOCIATION, Philadelphia, Pennsylvania: expenses of increasing the association's staff in Latin America; \$25,500 for a three-year period; (HSS)

UNIVERSITY OF PENNSYLVANIA, Philadelphia: studies of Argentine nationalism, under the direction of Professor Arthur P. Whitaker, Department of History, in association with the university's Foreign Policy Research Institute; \$15,000 through June, 1965; (HSS)

UNIVERSITY OF PUERTO RICO, San Juan:

School of Medicine; development of a teacher exchange program with other medical schools in the United States, Latin America, the Caribbean, and Europe; \$9,325; (MNS)

Mrs. Myriam Castro de Castañeda, director, School of Nurse Midwifery, Department of Obstetrics and Gynecology, School of Medicine; to observe nurse-midwifery training programs at medical institutions in Latin America; \$1,845; (MNS)

South

AGRICULTURAL RESEARCH SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE, Washington, D.C.: expenses of state and federal scientists participating in the Wheat Genetics Congress, Svalöf, Sweden; the First International Barley

Genetics Symposium, Wageningen, Netherlands; and the Eleventh International Congress of Genetics, the Hague, Netherlands; \$10,000; (AS)

ATLANTIC COUNCIL OF THE UNITED STATES, INC., Washington, D.C.: economic research on the implications of an expanded Common Market, by the Atlantic Institute, Paris, France; \$30,000 for a two-year period; (HSS)

HISTORIC ANNAPOLIS, INC., Maryland: completion of design proposals to conserve and integrate historic assets in the future development of Annapolis; \$10,000; (HSS)

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT, Economic Development Institute, Washington, D.C.: provision of collections of basic publications on economic development problems to selected agencies and institutions in developing French-speaking countries; \$25,000; (HSS)

JOHNS HOPKINS UNIVERSITY, Baltimore, Maryland:

Comparative study of the quality of hospital obstetrical care rendered by nurse-midwives and by interns, under the direction of Dr. Allan C. Barnes, Department of Gynecology and Obstetrics; \$90,000 for a six-year period; (MNS)

Study of irrigation techniques in Rhodesia and Nyasaland and their relationship to the socioeconomic conditions of the people of this area; \$6,000 for a two-year period; (AS)

Dr. Majid Khadduri, professor of Middle East studies, School of Advanced International Studies, Washington, D.C.; to visit libraries and consult with scholars in the Middle East and Europe in connection with the preparation for publication of a definitive translation and commentary on Shaybani's *Siyar*; \$3,405; (HSS)

NATIONAL ACADEMY OF SCIENCES, Washington, D.C.:

Expenses in connection with completion of the academy building; \$100,000; (C)

Studies of the biological effects of atomic radiation on living organisms; \$32,000; (MNS)

Expenses in connection with the reorganization of the Office of the Foreign Secretary; \$10,000; (MNS)

Publication of bulletins on the races of maize in Ecuador and Venezuela, by the Maize Committee; \$6,000 for a two-year period; (AS)

Research on solar stills on South Pacific islands; \$3,000; (MNS)

NORTH CAROLINA STATE BOARD OF HEALTH, Raleigh: completion of a commitment relating to an epidemiological study of syphilis sponsored by the International Health Division of The Rockefeller Foundation from 1941 to 1947; \$1,211.25; (MNS)

ORGANIZATION OF AMERICAN STATES, Washington, D.C.: distribution of equipment and supplies to research programs in Latin American institutions, by the Division of Science Development of the Pan American Union; \$50,000; (MNS)

PERMANENT COMMITTEE FOR THE OLIVER WENDELL HOLMES DEVISE, Washington, D.C.: preparation of a history of the Supreme Court; \$22,500 through 1965; (HSS)

PURCHASE OF 1,200 COPIES of the collected papers of Dr. John B. Grant, to be published by the Johns Hopkins University Press, Baltimore, Maryland, for donation to subscribers to the *American Journal of Hygiene*; \$4,500; (MNS)

DR. ROBERT SIDNEY SMITH, professor of economics, Duke University, Durham, North Carolina: to visit Cali, Colombia, in connection with the development of the Faculty of Economics of the University of Valle; \$1,100; (HSS)

SMITHSONIAN INSTITUTION, Washington, D.C.:

Partial expenses of photographing selected Chinese art masterpieces in Taiwan; \$10,000; (HSS)

Field studies in Brazil of the relationship of birds to arthropod-transmitted virus disease, under the direction of Dr. Philip S. Humphrey, curator, Division of Birds, United States National Museum, Washington, D.C.; \$4,800; (MNS)

SOUTHERN REGIONAL COUNCIL, INC., Atlanta, Georgia: contribution toward its general program; \$50,000; (C)

TEXAS AGRICULTURAL AND MECHANICAL COLLEGE SYSTEM, College Station: research on fundamental problems of nutrition in ruminant animals, under the direction of Dr. William C. Ellis, Department of Animal Husbandry; \$62,850 for a five-year period; (AS)

TEXAS RESEARCH FOUNDATION, Renner: preparation and publication of a monograph on cultivated potatoes and their wild relatives, by Dr. Donovan S. Correll, head, Botanical Laboratory; \$10,000; (AS)

TEXAS TECHNOLOGICAL COLLEGE FOUNDATION, Lubbock: to enable Dr. B. L. Allen, professor of soils, to undertake a thin-section study of soils collected in the Papaloapan Basin, Mexico; \$1,000; (AS)

TULANE UNIVERSITY OF LOUISIANA, New Orleans: research in virology in the Department of Microbiology, School of Medicine, under the direction of Dr. Morris F. Shaffer; \$7,500; (MNS)

UNIVERSITY OF FLORIDA, Gainesville:

Comparative study of changes in the utilization and financing of techniques of political persuasion during phases of socioeconomic development in industrial

societies, by Dr. Arnold J. Heidenheimer, associate professor of political science; \$9,900; (HSS)

Research on the role of the military in Mexico from 1808 to 1857, by Professor Lyle N. McAlister, chairman, Department of History; \$4,815; (HSS)

UNIVERSITY OF NORTH CAROLINA:

Research on the changing position of the Negro in American society, by the Institute for Research in Social Science, Chapel Hill; \$44,000 through August, 1964; (HSS)

State College of Agriculture and Engineering, Raleigh; development of research and teaching in agricultural economics and rural sociology at the Agrarian University, La Molina, Lima, Peru; \$150,000; (HSS)

UNIVERSITY OF TEXAS, Austin:

To organize and direct courses in the teaching of English at the University of Valle, Cali, Colombia; \$70,288 through September, 1964; (HSS)

Institute of Latin American Studies; expenses of a one-year visiting professorship in economic and social history of Latin America; \$10,000; (HSS)

Dr. Ernest F. Haden, professor of romance languages, and Leo Engler, assistant to the director, International Office; to visit Cali, Colombia, for two weeks in connection with the development of an English-language program at the University of Valle; \$1,700; (HSS)

WEST VIRGINIA UNIVERSITY, Morgantown: study of curricula composition and organization applicable to the development of a proposed college of agriculture at Morogoro, Tanganyika; \$10,000 for a two-year period; (AS)

WEST VIRGINIA UNIVERSITY FOUNDATION, INC., Morgantown: to enable Dr. Rodney Philip True, professor of plant pathology, College of Agriculture, Forestry, and Home Economics, West Virginia University, to study recent developments in forest pathology research in the United States and Canada, and to purchase equipment for his studies; \$2,150; (AS)

Central West

AMERICAN LIBRARY ASSOCIATION, Chicago, Illinois: expenses of Lee Walton Finks, librarian, Virginia Military Institute, Lexington, in connection with his appointment as cataloguer to the University of East Africa; \$10,000 for a 14-month period; (G)

AMERICAN SYMPHONY ORCHESTRA LEAGUE, INC., Charleston, West Virginia: study of community arts councils, by Ralph Burgard, executive secretary, St. Paul Council of Arts and Sciences, Minnesota; \$6,065 for a two-year period; (HSS)

ASSOCIATION FOR ASIAN STUDIES, INC., Ann Arbor, Michigan: to assist the initial preparation of a biographical history of China during the Ming dynasty; \$10,000; (HSS)

ASSOCIATION OF AMERICAN MEDICAL COLLEGES, Evanston, Illinois: to assist the establishment and operation of a Division of International Medical Education; \$200,000 through June, 1966; (MNS)

DR. HUGH CUNNINGHAM, assistant taxonomist, Section of Faunistic Surveys and Insect Identification, Illinois Natural History Survey, Urbana: to conduct entomological studies in Colombia; \$2,200; (AS)

MISS KATHARINE ELLEN FAVILLE, dean, College of Nursing, Wayne State University, Detroit, Michigan: to observe teaching and nursing service administration at nursing centers in Poland; \$1,700; (MNS)

DR. KENNETH J. FREY, professor of farm crops, Department of Agronomy, Iowa State University of Science and Technology, Ames: to confer with specialists in small grains improvement in Great Britain and on the Continent; \$2,500; (AS)

FUND FOR THE INTERNATIONAL CONFERENCE OF AGRICULTURAL ECONOMISTS, INC., Chicago, Illinois: partial operating expenses of the International Association of Agricultural Economists; \$15,000 for a two-year period; (HSS)

ILLINOIS STATE NORMAL UNIVERSITY: to appoint Dr. Edward L. Mockford, Department of Biological Sciences, to the School of Agriculture and Livestock, Technological Institute and School of Advanced Studies of Monterrey, Mexico, as visiting professor of entomology for a six-month period; \$7,500; (AS)

INDIANA UNIVERSITY, Bloomington:

Establishment of a center for the study and performance of Latin American music, under the direction of Professor Juan Orrego-Salas; \$97,000 for a five-year period; (HSS)

Study of the relationship of religion and foreign policy in the diplomatic history of Russia and Greece in the nineteenth century, by Dr. Barbara Jelavich, assistant professor of history; \$8,500 for a 16-month period; (HSS)

Expenses of the chairman and two members of the Inter-University Committee on Travel Grants in connection with their visit to Czechoslovakia, Hungary, and Bulgaria to explore the feasibility of establishing a program of academic exchanges between the three countries and the United States; \$1,500; (HSS)

INSTITUTE OF FOOD TECHNOLOGISTS, Chicago, Illinois: support of an international oilseed symposium, to be held in Japan; \$9,500; (AS)

MARQUETTE UNIVERSITY, Milwaukee, Wisconsin: development of an exchange program between the School of Medicine and the Department of Experimental Research, Medical University of Budapest, Hungary; \$4,250; (MNS)

MIAMI UNIVERSITY, Oxford, Ohio: research on population trends in the United States, by the Scripps Foundation for Research in Population Problems; \$30,000; (HSS)

OHIO AGRICULTURAL EXPERIMENT STATION, Wooster: studies of *Verticillium* wilt of tomato; \$2,760 for a two-year period; (AS)

OHIO STATE UNIVERSITY, Columbus:

Research in plant pathology at the College of Agriculture and Home Economics, under the direction of Dr. C. C. Allison, professor of botany and plant pathology; \$10,000; (AS)

Continued research on the fungal synthesis of inexpensive microbial protein, under the direction of Dr. W. D. Gray, Department of Botany and Plant Pathology, College of Agriculture and Home Economics; \$10,000; (AS)

UNIVERSITY OF CHICAGO, Illinois:

Economic research, under the direction of Professor Harry G. Johnson, Department of Economics; \$44,140 for a three-year period; (HSS)

Research on problems of contemporary political theory, with special reference to the conflict between Western and Communist political values and institutions, by Professor Hans J. Morgenthau, director, Center for the Study of American Foreign Policy; \$10,000; (HSS)

Study of the effect of agricultural research on the transformation of traditional agriculture into a productive sector of the economy of a developing country, under the direction of Professor Theodore William Schultz, Department of Economics; \$8,000 for a three-year period; (AS)

UNIVERSITY OF ILLINOIS, Urbana:

Dr. Oscar Lewis, Department of Anthropology; to visit Latin American centers of sociology; \$2,975; (HSS)

Continued work on the preparation of a biography of Charles Sanders Peirce, by Dr. Max H. Fisch, Department of Philosophy; \$2,050; (HSS)

UNIVERSITY OF KANSAS, Lawrence: study of the implications of the post-Stalin changes in Soviet agriculture, with particular emphasis on the 1962 administrative reorganization, by Dr. Roy D. Laird, associate professor, Department of Political Science; \$7,000; (HSS)

UNIVERSITY OF MICHIGAN, Ann Arbor:

Development of a seminar in Islamic art and architecture in the Department of the History of Art, under the direction of Professor Oleg Grabar; \$17,900 for a three-year period; (HSS)

Study of parliamentary representation in Great Britain, under the direction of Dr. Donald E. Stokes, senior study director, Survey Research Center; \$8,800 for a three-year period; (HSS)

UNIVERSITY OF MINNESOTA, St. Paul:

Dr. Clyde M. Christensen, professor of plant pathology, Department of Plant Pathology, Institute of Agriculture; to attend meetings of the Association of Cereal Research in Germany and the International Association of Cereal Chemistry in Austria, and to visit research centers concerned with grain storage problems in England and Denmark; \$2,500; (AS)

Genetic studies of Ethiopian hard wheats in the Institute of Agriculture; \$2,500; (AS)

Dr. E. H. Rinke, Department of Agronomy and Plant Genetics, Institute of Agriculture; to attend a conference of the European and Mediterranean Maize Group in Rome, Italy; \$925; (AS)

UNIVERSITY OF NOTRE DAME, Indiana: partial expenses of a symposium on religion and social change in Latin America; \$6,300; (HSS)

UNIVERSITY OF WISCONSIN, Madison:

Continued research on the human genetics of Eskimos, under the direction of Professor William S. Laughlin, Department of Anthropology; \$8,000; (MNS)

Dr. A. J. Riker, professor of plant pathology, College of Agriculture; to confer with forest pathology specialists in the United States and Latin America; \$4,550; (AS)

Dr. R. E. Nichols, professor of veterinary science, College of Agriculture; to confer with agricultural and veterinary scientists in Africa; \$3,440; (AS)

WASHINGTON UNIVERSITY, St. Louis, Missouri: to invite Dr. John G. Ormerod, Institute of Water Research, Oslo, Norway, to confer with specialists in the microbiology of natural water supplies in the United States; \$2,320; (AS)

West

CALIFORNIA COLLEGE OF MEDICINE (formerly the College of Osteopathic Physicians and Surgeons), Los Angeles: toward the cost of its conversion into a medical school; \$250,000 for a five-year period; (MNS)

CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena: study of the factors that comprise revolution and counterrevolution, by Dr. James C. Davies, professor of political science; \$10,000; (HSS)

DR. EDWIN H. LENNETTE, chief, Viral and Rickettsial Disease Laboratory, Department of Public Health, Berkeley, California: to visit virus laboratories in South America and Trinidad, and to attend the Seventh International Congresses on Tropical Medicine and Malaria in Rio de Janeiro, Brazil; \$2,450; (MNS)

MARION A. MILCZEWSKI, director of libraries, University of Washington, Seattle: to visit Cali, Colombia, to survey, study, and plan for the future library of the

University of Valle, with particular reference to the College of Basic Studies; \$6,525; (HSS)

UNIVERSITY OF ARIZONA, Tucson: research on water resources in relation to social and economic growth in an arid environment, under the direction of Professor Maurice M. Kelso, Department of Agricultural Economics, College of Agriculture; \$38,500 for a two-year period; (HSS)

UNIVERSITY OF CALIFORNIA:

Berkeley:

Comparative studies in Latin American demography, under the direction of Professor Kingsley Davis, Institute of International Relations; \$175,000 for a five-year period; (HSS)

Study of large cities in advanced industrial civilizations, by Allan Temko, lecturer, Department of Journalism; \$15,000 for a 15-month period; (HSS)

Support of the American Committee on Arthropod-borne Viruses; \$10,000; (MNS)

Research on the integrative impact of international organization on international relations, by Dr. Ernst B. Haas, associate professor of political science; \$8,000; (HSS)

Research on the evolution of the legal system of the People's Republic of China, by Gene T. Hsiao, research associate, School of Law; \$7,500 for a two-year period; (HSS)

Miss Thelma Ingles, graduate student and former Director of Medical and Surgical Nursing at Duke University; to visit the University of Valle, Cali, Colombia, for discussions with School of Nursing and university officials and with Rockefeller Foundation staff members; \$1,180; (MNS)

Dr. Henry Rapoport, professor of chemistry; to enable him to continue to serve as a research consultant in natural products at the Institute of Agricultural Chemistry, Ministry of Agriculture, Rio de Janeiro, Brazil; \$563.27; (AS)

Davis:

Dr. Lysle D. Leach, chairman, Department of Plant Pathology; to assist investigations of sugar beet seedling diseases at the Faculty of Agronomy, University of Concepción, Chillán, Chile, and to participate in a conference on agronomic subjects; \$3,300; (AS)

Los Angeles:

Miss Louise Darling, librarian, Biomedical Library; to serve as a consultant to the library of the Medical School, National University of Honduras, Tegucigalpa; \$1,450; (MNS)

Riverside:

Research by Dr. Paul DeBach, entomologist, Citrus Experiment Station, College

of Agriculture, at the Institute of Ecology and Agricultural Experimentation, Ministry of Agriculture, Rio de Janeiro, Brazil; \$9,700; (AS)

Dr. James Merrill Wallace, pathologist and lecturer, Department of Plant Pathology, College of Agriculture; to observe plant virus diseases, consult with officials and workers regarding methods of control, and assist in the planning of improved research on plant diseases at research centers in the Philippines, Taiwan, Japan, and Hawaii; \$3,550; (AS)

Dr. Seymour D. Van Gundy, assistant nematologist, Department of Nematology, College of Agriculture; to visit centers of research and teaching in nematology in England and on the Continent, and to attend an international symposium on nematology in Scotland; \$2,515; (AS)

UNIVERSITY OF HAWAII, Honolulu:

To enable Alan Hovhaness, American composer, to study Japanese music in Tokyo and Osaka; \$9,500; (HSS)

Research on the diplomatic and military relations between Japan and the Soviet Union from 1931 to 1945, under the direction of Dr. Alvin D. Coox; \$9,225 through October, 1964; (HSS)

Expenses of Latin American and Canadian participants in the Trans-Pacific Conference on Scholarly Publishing; \$910; (HSS)

UNIVERSITY OF NEW MEXICO, Albuquerque: studies of the historical and contemporary role of the military in Latin America, under the direction of Professor Edwin Lieuwen; \$25,000 for a 30-month period; (HSS)

UNIVERSITY OF OREGON, Eugene: research on the origins and characteristics of the small properties of the Argentine pampa, by Professor Gene E. Martin, Department of Geography; \$8,950. (HSS)

STUDY AWARDS

CADDELL, JOAN LOUISE b. 1927. M.D., Univ. of Pennsylvania 1953. Pediatrics (F). Appointed from School of Med., Yale Univ. Place of study: Uganda, 1962-. (MNS)

DONATO GUADALUPE, BASILISA b. 1932. B.S., Columbia Univ. 1961. Public Health Nursing (S). Appointed from Univ. District Hosp., Caparra Heights, Puerto Rico. Places of study: Puerto Rico and U.S.A., 1962-. (MNS)

EL-DABH, HALIM b. 1921. M.F.A., Brandeis Univ. 1954. Music (F). Freelance composer, New York. Place of study: Ethiopia, 1962-. (HSS)

SPECIAL PROGRAMS

STUDIES IN INTERNATIONAL RELATIONS (HSS)

AUSTRALIAN NATIONAL UNIVERSITY, Canberra: study of Asian-African nonalignment foreign policies, by Dr. John W. Burton, visiting fellow, Department of International Relations, Research School of Pacific Studies; \$6,000;

CASE INSTITUTE OF TECHNOLOGY, Cleveland, Ohio: study of the effect on United States policy of the relationships among the various European agencies, by Dr. Harold L. Nieburg, assistant professor of political science; \$8,000;

CLAREMONT UNIVERSITY COLLEGE, California: analysis of the foreign policies of the United States and the Soviet Union, by Dr. Fred Warner Neal, professor of international relations and government; \$3,000;

COLUMBIA UNIVERSITY, New York:

Preparation of a book on the relations of contemporary ideologies to international politics, by Edmund O. Stillman and William W. Pfaff, research fellows, Russian Institute; \$13,000;

Completion of a study of comparative economies of tropical African countries, by Dr. William A. Hance, professor of economic geography; \$7,500;

Analysis of the policies of the Soviet Union and the Arab states since 1945, by Dr. Oles M. Smolansky, specialist in Soviet-Arab relations; \$7,000;

Study of implications for international relations of the education of Chinese living in selected countries of Southeast Asia, by Dr. C. T. Hu, associate professor of education, Teachers College; \$7,000;

Study of the politics of tradition in India, by Dr. Wayne A. Wilcox, instructor in government; \$5,000;

Continued research on United States relations with the Vatican from 1783 to the present, by Dr. Alan F. Westin, associate professor, Department of Public Law and Government; \$1,500;

DUKE UNIVERSITY, Durham, North Carolina:

Study of local and regional government in China from 1930 to 1955, by Dr. Donald G. Gillin, associate professor of history; \$4,400;

Completion of a volume of a work tentatively entitled *The Coming of the Second World War, 1933-1939*, by Dr. William E. Scott, assistant professor of history; \$4,250;

GRADUATE INSTITUTE OF INTERNATIONAL STUDIES, Geneva, Switzerland: research and writing on the American factor in German foreign and military policy from

1939 to 1941, by Saul P. Friedlander, head, Scientific Bureau, Ministry of Defense, Tel Aviv, Israel; \$4,530;

HARVARD UNIVERSITY, Cambridge, Massachusetts: study of the political process of the Chinese Communist system, by Dr. John M. H. Lindbeck, associate director, East Asian Research Center; \$5,000;

HUMBOLDT STATE COLLEGE, Arcata, California: research on the evolution of American policy toward Germany and its impact on German politics after 1945, by Dr. John Gimbel, assistant professor of history; \$8,420;

JOHNS HOPKINS UNIVERSITY, Baltimore, Maryland:

Study of the use of the military establishment as an instrument of foreign policy, by Dr. Paul Y. Hammond, research associate, School of Advanced International Studies, Washington, D.C.; \$8,000;

Study of the political and strategic implications of American overseas military bases and installations, by Dr. David W. Tarr, research assistant, School of Advanced International Studies, Washington, D.C.; \$7,000;

Comprehensive study of German foreign policy during the period of the Weimar Republic, by Dr. Hans W. Gatzke, professor of history and chairman of the Committee on International Studies; \$5,000;

OCCIDENTAL COLLEGE, Los Angeles, California: comparative study of trade and development in Japan, Hong Kong, Puerto Rico, and Jamaica, by Dr. Joseph E. Haring, associate professor of economics; \$2,250;

THE RAND CORPORATION, Santa Monica, California: a systematic, theoretical study of negotiation, by Dr. Fred C. Iklé, Social Science Department; \$5,500;

ST. ANTONY'S COLLEGE, UNIVERSITY OF OXFORD, England: study of German social and political thought from 1933 to 1945, by Walter Laqueur, editor of *Survey*; \$6,720;

UNIVERSITY OF CALIFORNIA, Los Angeles: research on changes and variations in the Soviet Union's policies toward the underdeveloped areas of the world, by Dr. David T. Cattell, associate professor of political science; \$5,650;

UNIVERSITY OF DENVER, Colorado: research for a study tentatively entitled "Ghana's Foreign Policy: A Study in African Neutrality and American Response," by Dr. George W. Shepherd, Jr., assistant professor of international relations; \$3,000;

UNIVERSITY OF MELBOURNE, Australia: study of the evolution of the Indian Ministry of External Affairs, by H. A. Wolfsohn, senior lecturer, Department of Political Science; \$5,200;

170 GRANTS MADE IN 1962

UNIVERSITY OF MICHIGAN, Ann Arbor: study of German foreign policy during the Nazi era, by Dr. Gerhard L. Weinberg, associate professor of history; \$5,700;

UNIVERSITY OF SOUTH CAROLINA, Columbia: study of the moves toward regional unity in West African foreign policy, by Dr. I. William Zartman, assistant professor of international studies; \$7,000;

UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles: study of the evolution of the office of the ambassador, by Dr. Donald E. Queller, associate professor of history; \$4,500;

UNIVERSITY OF WASHINGTON, Seattle:

Research on Franco-German relations in regard to the development of an integrated Western Europe, by Dr. F. Roy Willis, assistant professor of history; \$7,500;

Study of relations between Japan and the United States from the late eighteenth century to the present, by Dr. Robert J. C. Butow, associate professor, Department of History and Far Eastern and Russian Institute; \$3,150;

VASSAR COLLEGE, Poughkeepsie, New York: study of the American response to neutralism, by Dr. Cecil V. Crabb, Jr., chairman, Department of Political Science; \$3,300.

STUDIES IN LEGAL AND POLITICAL PHILOSOPHY (HSS)

COLORADO STATE UNIVERSITY, Fort Collins: study of the political philosophy of Dr. Albert Schweitzer, by Dr. Manuel M. Davenport, associate professor of philosophy; \$4,000;

COLUMBIA UNIVERSITY, New York:

Continued research on the growth of the Roman legal system in which jurists' law predominated, by Dr. A. Arthur Schiller, School of Law; \$4,000;

Research on the democratization of suffrage in Great Britain in 1867, by Miss Gertrude Himmelfarb, research fellow in history; \$3,500;

GESCHWISTER SCHOLL FOUNDATION, Ulm, Germany: continued research on the prerequisites for a durable democracy in Germany, by Gert Kalow, lecturer, Ulm School of Design; 4,200 German marks (about \$1,092);

JOHNS HOPKINS UNIVERSITY, Baltimore, Maryland: research on the impact of the interaction between urbanism and American democratic doctrine on the political development of the United States, by Dr. Francis E. Rourke, professor of political science; \$6,000;

- KYOTO UNIVERSITY**, Japan: research on revolutionary thought in Russia's historical development from 1870 to the early twentieth century, by Dr. Kichitaro Katsuda, assistant professor of law, Law School; \$7,350;
- LEBANON VALLEY COLLEGE**, Annville, Pennsylvania: research on the philosophical foundations of the major decisions involving First Amendment liberties of the United States Supreme Court from 1919 to 1961, by Dr. Benjamin A. Richards, Department of Philosophy and Religion; \$6,000;
- LOYOLA UNIVERSITY**, Chicago, Illinois: research on the political philosophy of Hegel, by the Reverend Thomas N. Munson, S.J., assistant professor of philosophy; \$3,000;
- OBERLIN COLLEGE**, Ohio: research on the relevance of Plato's political thought to modern political theory, by Dr. Nathan A. Greenberg, assistant professor of classics; \$3,920;
- ST. STEPHEN'S COLLEGE**, Dover, Massachusetts: research for a study tentatively entitled "Modern Institutional Theory: Rule of Law in a Free Society," by the Reverend Joseph A. Broderick, O.P., professor of moral philosophy and jurisprudence; \$4,000 for a 14-month period;
- STANFORD UNIVERSITY**, Palo Alto, California: study of the limits of criminal law, by Professor Herbert L. Packer, School of Law; \$10,000;
- UNIVERSITY OF ANKARA**, Turkey: research on the political thought of the Young Turks during the period of exile, 1895-1908, by Dr. Serif Arif Mardin, assistant in constitutional law, Institute of Administrative Sciences; \$1,800;
- UNIVERSITY OF CALIFORNIA**, Berkeley: research for a comprehensive analysis of Soviet thought on world politics, by Dr. Julian Towster, professor of political science; \$10,000;
- UNIVERSITY OF CHICAGO**, Illinois: study of the interrelations in the political philosophies of Hobbes, Locke, and Spinoza, by Dr. Joseph Cropsey, assistant professor, Department of Political Science; \$8,500;
- UNIVERSITY OF MINNESOTA**, Minneapolis: preparation of a variorum edition of François Hotman's *Franco-Gallia*, by Dr. Ralph E. Giesey, assistant professor of history; \$1,950;
- UNIVERSITY OF NOTRE DAME**, Indiana: research on the role of the lawyer in revolutions, by Dr. Anton-Hermann Chroust, professor of law; \$1,000;
- VICTORIA UNIVERSITY OF MANCHESTER**, England: study of the modern European state, by Dr. Brian Chapman, Department of Government; \$7,240;

WILLIAMS COLLEGE, Williamstown, Massachusetts: completion of a study of the relationship between intraparty groupings in the major American political parties, political doctrine, and government policy, from 1787 to the present, by Dr. James MacGregor Burns, professor of political science; \$3,500;

YALE UNIVERSITY, New Haven, Connecticut:

Research on the development of the political philosophy of John Stuart Mill from 1820 to 1860, by Dr. Joseph Hamburger, assistant professor of political science; \$6,900;

Research for a comparative evaluation of the judicial functions of the British House of Lords and the United States Supreme Court, by Professor Robert B. Stevens, Law School; \$4,200.

VIRUS RESEARCH PROGRAM

FOR VIRUS RESEARCH IN THE UNITED STATES; \$485,850. (MNS)

GRANTS MADE IN CANADA

DR. JAMES W. RYAN, Montreal General Hospital: to collaborate on research in pharmacology with Professor Mauricio Rocha e Silva, Department of Pharmacology, Faculty of Medicine, University of São Paulo, Ribeirão Preto, Brazil; \$875; (MNS)

UNIVERSITY OF TORONTO: to enable three faculty members of the School of Nursing to observe selected nursing programs in the United States and Canada; \$3,000 for a two-year period. (MNS)

GRANTS MADE IN EUROPE

*MNS: Medical and Natural Sciences; AS: Agricultural Sciences;
HSS: Humanities and Social Sciences; F: Fellow; S: Scholar;
BMRC: British Medical Research Council*

FRANCE

PROFESSOR ALEXANDRE BENNIGSEN, deputy director of studies, École Pratique des Hautes Études, Sixth Section, Paris, and his assistant, Miss Chantal Quelquejay: to gather research materials in the Middle East on the history of Russian and Middle Eastern Muslims; \$4,050; (HSS)

DR. ROGER CERF, Department of Physics, University of Strasbourg: to attend a colloquium on ultrasonics, and to visit centers for ultrasonic research in the United States; \$950; (MNS)

UNIVERSITY OF AIX-MARSEILLES: research in biochemistry, under the direction of Professor Pierre Desnuelle, Institute of Biological Chemistry; \$15,000 for a five-year period; (MNS)

GERMANY

DR. HANS ANGER, professor of social psychology, University of Cologne: to visit research centers in social psychology in the United States; \$4,000; (HSS)

DR. WOLFGANG L. BAUER, assistant professor of Chinese language and culture, University of Munich: to conduct research and participate in a seminar on modern China at the University of Washington, Seattle; \$3,125; (HSS)

UNIVERSITY OF HEIDELBERG: completion of a comparative description and analysis of the political conceptions of the major colonial powers since World War I, by Professor Rudolf von Albertini, Department of History; \$5,450; (HSS)

IRELAND

UNIVERSITY OF DUBLIN, Trinity College:

Research in genetics, under the direction of G. W. P. Dawson, head, Department of Genetics; \$10,000; (MNS)

Research in zoology, under the direction of Professor J. N. R. Grainger; \$8,000; (MNS)

Travel expenses of participants in a symposium on medical education; \$3,000; (MNS)

ITALY

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, Rome: preparation of a soil map of South America; \$9,876 for a two-year period; (AS)

UNIVERSITY OF FERRARA: research in biochemistry, under the direction of Dr. S. Pontremoli, Institute of Biochemistry; \$10,000; (MNS)

UNIVERSITY OF MILAN:

Research in genetics, under the direction of Professor Claudio Barigozzi, Institute of Genetics; \$18,500 for a three-year period; (MNS)

Completion of a volume on Italian intervention in World War I, and a study of foreign policy and public opinion in Italy from 1870 to 1945, by Dr. Brunello Vigezzi, instructor in modern history, Institute of Medieval and Modern History; \$8,720 for a 26-month period; (HSS)

UNIVERSITY OF PARMA: research in human genetics, under the direction of Professor L. L. Cavalli-Sforza; \$22,500 for a three-year period; (MNS)

UNIVERSITY OF ROME:

Research in genetics, under the direction of Professor Giuseppe Montalenti, Institute of Genetics; \$45,000 for a three-year period; (MNS)

Research on the structure of biologically active compounds, under the direction of Professor Giordano Giacomello, Institute of Pharmaceutical Chemistry and Toxicology; 10,080,000 Italian lire (about \$16,700) for a three-year period; (MNS)

POLAND

ACADEMY OF MEDICINE, Gdansk: research equipment for the II Clinic of Internal Medicine; \$3,500; (MNS)

ACADEMY OF MEDICINE, Warsaw: research equipment and supplies for the Department of Pathologic Anatomy; \$2,300; (MNS)

CENTRAL AGRICULTURAL LIBRARY, Warsaw:

Andrzej Pakosz, Documentation Center; to observe services at the library of the United States Department of Agriculture, Washington, D.C., and to visit other libraries in the United States; \$2,880; (AS)

Mrs. Irena Wielburska, librarian; to visit the library of the Agricultural College of Norway, Vollebekk, to study and cooperate in the Scandia Plan, and to visit agricultural libraries in the Scandinavian countries; \$1,300; (AS)

COLLEGE OF AGRICULTURE, Lublin:

Dr. Jacek Orzechowski, adjunct; to visit centers of agricultural engineering education and research in the United States, the United Kingdom, and on the Continent; \$5,865; (AS)

Dr. Bartlomiej Miczulski, adjunct; to visit centers of plant protection research in the United States, the United Kingdom, and on the Continent; \$5,275; (AS)

COPERNICUS UNIVERSITY, Torun:

Equipment for research in the Department of Neurophysiology and Comparative Physiology; \$10,000; (MNS)

Equipment for research in plant physiology, under the direction of Dr. Marian Michniewicz; \$7,700; (MNS)

Professor Joseph St. Mikulski, Department of Conservation and Ecology; to observe current research in ecology and limnology at institutions in the United States and Europe; \$3,200; (MNS)

H. DUBNIAK, director, Department of Agricultural and Forestry Studies, Ministry of Higher Education, Warsaw: to visit centers of plant protection research in the United Kingdom and on the Continent; \$4,150; (AS)

EXPENSES OF A TRAVELING SEMINAR, in England and Finland, of Polish nurses selected by the Ministry of Health and Social Welfare, Warsaw; \$10,000; (MNS)

JAGIELLONIAN UNIVERSITY OF CRACOW: research equipment for the Institute of Comparative Anatomy; \$2,500; (MNS)

DR. MIECZYSLAW ANTONI JANICKI, head, Meat Research Division, Institute of Animal Physiology and Nutrition, Bydgoszcz: to visit centers of animal research in Sweden, Great Britain, Canada, and the United States; \$4,150; (AS)

POLISH ACADEMY OF SCIENCES:

Cracow:

Research equipment for the Pharmacological Institute, under the direction of Professor Janusz Supniewski; \$10,000; (MNS)

Warsaw:

Research in neurophysiology, under the direction of Professor Jerzy Konorski, Nencki Institute of Experimental Biology; \$23,000 for a two-year period; (MNS)

Research equipment and materials for the Department of Biochemistry, Nencki Institute of Experimental Biology; \$6,000; (MNS)

PROFESSOR JERZY SZAPIRO, director, Neurosurgical Clinic, Academy of Medicine, Łódź: to observe current research in neurosurgery and the organization of neurosurgical centers at medical institutions in the United States and Canada; \$3,000; (MNS)

UNIVERSITY OF LODZ: research equipment for the Institute of Microbiology; \$1,200; (MNS)

UNIVERSITY OF WARSAW: research library materials for the Institute of Genetics, under the direction of Professor W. Gajewski; \$2,500; (MNS)

SWEDEN

MISS MARGARETE AKESSON, director, Royal Veterinary College Library, Stockholm: to visit libraries in the United States; \$2,995; (AS)

UNIVERSITY OF UPPSALA:

Economic research on the construction of a quarterly macroeconomic forecasting model, under the direction of Professor Herman A. O. Wold, Institute of Statistics; \$18,000 for a two-year period; (HSS)

Dr. Sune Carlson, Institute of Business Economics and Business Finance; to undertake research on international business finance in Africa and Europe; \$2,500; (HSS)

SWITZERLAND

GRADUATE INSTITUTE OF INTERNATIONAL STUDIES, Geneva: advanced training of graduate students from Africa and Asia; basic research and advanced training in international relations; training and research on military factors in international relations; and research in economic development; \$285,000 for a five-to ten-year period; (HSS)

INTERNATIONAL PRESS INSTITUTE, Zurich: support of its program for the Asian press, under the direction of A. G. P. Vittachi; \$212,000 through March, 1965; (HSS)

WORLD HEALTH ORGANIZATION, Geneva: preparation of a *Bibliography of Hookworm Diseases*; \$5,100; (MNS)

UNITED KINGDOM

SYDNEY D. BAILEY, writer on international affairs, London: to visit the United Nations headquarters in New York for research in connection with the revision of his book, *The General Assembly of the United Nations*; \$2,200; (HSS)

COMMONWEALTH AGRICULTURAL BUREAUX, Farnham Royal: purchase of sets of series of abstract and review journals for distribution to selected agricultural libraries in Latin America, India, and Japan; \$26,000; (AS)

DR. N. R. GRIST, lecturer in virus diseases, Department of Virology, University of Glasgow; to observe current research and teaching in virology at medical centers in the United States and Canada while en route from Singapore to Glasgow; \$1,000; (MNS)

INTERNATIONAL LAW ASSOCIATION, London: study of the extraterritorial application of restrictive trade legislation, with specific reference to the countries of the Common Market and Atlantic basin; \$10,000; (HSS)

JOHN INNES INSTITUTE, Bayfordbury: studies of the genetics of the potato species of South America, by Dr. Kenneth S. Dodds and N. W. Simmonds; \$5,000; (AS)

DR. DEREK H. LAPWOOD, senior scientific officer, Department of Plant Pathology, Rothamsted Experimental Station, Harpenden: to visit the Inter-American Potato Improvement Project in Mexico and selected potato improvement centers in the United States and Canada; \$5,800; (AS)

ROWETT RESEARCH INSTITUTE, Aberdeen: expenses of nutrition specialists from developing countries in connection with their attendance at the Sixth International Congress of Nutrition, in Edinburgh; \$10,000; (MNS)

UNIVERSITY OF BIRMINGHAM:

Major research equipment for the Departments of Biochemistry, Chemical Physiology, Medical Biochemistry, Genetics, Zoology and Comparative Physiology, Botany, and Microbiology; \$250,000; (MNS)

Consultations by British and European economic historians and demographers on plans for comparative studies of the relationships between population change and economic growth; \$1,870; (HSS)

UNIVERSITY OF CAMBRIDGE:

Research in animal behavior, under the direction of Dr. William H. Thorpe, Sub-department of Animal Behavior, Department of Zoology; £23,330 (about \$66,500) for a three-year period; (MNS)

Economic research, under the direction of Miss Phyllis Deane, Department of Applied Economics; £15,550 (about \$44,320) for a three-year period; (HSS)

Research and writing on world history, by Professor Geoffrey Barraclough, St. John's College; £6,536 (about \$18,630) for a two-year period; (HSS)

Dr. Malcolm R. Fisher, university lecturer in economics; to conduct research in labor economics in Geneva, Switzerland; \$1,500; (HSS)

178 GRANTS MADE IN 1962

UNIVERSITY OF EDINBURGH:

Partial expenses of a symposium on the genetics of colonizing species; \$5,000 through December, 1963; (MNS)

Continued study of the relationship between science and the visual arts during the twentieth century, by Professor C. H. Waddington, Institute of Animal Genetics; \$500; (HSS)

UNIVERSITY OF LONDON:

Completion of a study of sociological theory, by Dr. Ronald Fletcher, lecturer in sociology, Bedford College; £2,185 (about \$6,225); (HSS)

Dr. E. J. Hobsbawm, reader in history, Birkbeck College; to study early forms of social revolt in several Latin American countries; \$3,775; (HSS)

Advanced studies in genetics and mathematics in preparation for research on demographic aspects of human genetics, by John Hajnal, reader in demography, London School of Economics and Political Science; \$2,500; (HSS)

Dr. R. L. Wain, professor of agricultural chemistry, Wye College; to visit centers of plant science research in the United States; \$2,225; (AS)

Professor A. L. Basham, professor of South Asian history, School of Oriental and African Studies; to visit universities in the Philippines and India; \$850; (HSS)

UNIVERSITY OF OXFORD:

Completion of research for the second volume of a study of *The Life and Times of Ernest Bevin*, by Alan L. C. Bullock, master, St. Catherine's College; £2,000 (about \$5,700) for a two-year period; (HSS)

Dr. Bent Einer Juel-Jensen, assistant, Department of Regius Professor of Medicine, School of Medicine; to observe the organization and operation of student health centers in the United States; \$1,700; (MNS)

Completion of research for an analysis of the structure, policies, and practices of the German banking system, by Roger G. Opie, fellow in economics, New College; £200 (about \$570); (HSS)

UNIVERSITY OF READING: equipment for hypothalamic studies, under the direction of Dr. John Tindal, National Institute for Research in Dairying, Shinfield; \$10,000; (AS)

YUGOSLAVIA

UNIVERSITY OF SARAJEVO: research equipment for the Institute of Epidemiology, Medical Faculty; \$1,800. (MNS)

STUDY AWARDS

DENMARK

VIND, KARL b. 1933. Cand.Polit., Univ. of Copenhagen 1958. Mathematical Economics (F). Appointed from Univ. of Copenhagen. Place of study: U.S.A., 1962-. (HSS)

FRANCE

BADOUAILLE, MARIE-LOUISE b. 1927. State Dipl., Post Grad. School of the French Red Cross, Paris, 1957. Nursing Education (S). Appointed from Post Grad. School of the French Red Cross. Place of study: U.S.A., 1962-. (MNS)

SARDA, LOUIS CHARLES ROGER b. 1932. D.Sc., Univ. of Aix-Marseilles 1958. Biochemistry (F). Appointed from Univ. of Aix-Marseilles. Place of study: U.S.A., 1962-. (MNS)

SCHRAM, STUART REYNOLDS b. 1924. Ph.D., Columbia Univ. 1954. Chinese Studies (F). Appointed from Natl. Foundation of Polit. Science, Paris. Place of study: U.S.A., 1962-. (HSS)

NETHERLANDS

BOON, GERARD KAREL b. 1928. Ph.D., Netherlands School of Econ., Rotterdam, 1962. Economics (F). Appointed from Netherlands School of Econ. Place of study: U.S.A., 1962-. (HSS)

NORWAY

ARNER, ODDVAR b. 1929. M.A., Univ. of Oslo 1956. Sociology (F). Appointed from Inst. for Social Research, Oslo. Place of study: U.S.A., 1962-. (HSS)

CHRISTIE, NILS b. 1928. Ph.D., Univ of Oslo 1960. Sociology (F). Appointed from Univ. of Oslo. Place of study: U.S.A., 1962-. (HSS)

MEINICH, PER b. 1931. M.A., Univ. of Oslo 1955. Economics (F). Appointed from Univ. of Oslo. Place of study: U.S.A., 1962-. (HSS)

VALEN, HENRY HALFDAN b. 1926. M.A., Univ. of Oslo 1954. Political Sociology (F). Appointed from Inst. for Social Research, Oslo. Place of study: U.S.A., 1962-. (HSS)

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POLAND

BANACH-POGAN, EUGENIA b. 1919. D.Sc., Jagiellonian Univ., Cracow, 1950. Botany (F). Appointed from Jagiellonian Univ. Place of study: Canada, 1962-. (MNS)

GRODZINSKI, WLADYSLAW b. 1934. Ph.D., Jagiellonian Univ., Cracow, 1962. Animal Ecology (F). Appointed from Jagiellonian Univ. Place of study: U.S.A., 1962-. (MNS)

KALUZA, JOZEF b. 1929. M.D., Jagiellonian Univ. and Acad. of Med., Cracow, 1954. Neuro-oncology (F). Appointed from Polish Acad. of Sciences, Cracow. Place of study: U.S.A., 1962-. (MNS)

KILARSKI, WINCENTY b. 1931. D.Sc., Jagiellonian Univ., Cracow, 1961. Electron Microscopy (F). Appointed from Jagiellonian Univ. Place of study: U.S.A., 1962-. (MNS)

KLECZKOWSKI, KAZIMIERZ b. 1924. D.Sc., Inst. of Biochemistry and Biophysics, Polish Acad. of Sciences, Warsaw, 1958. Biochemistry (F). Appointed from Inst. of Biochemistry and Biophysics. Place of study: U.S.A., 1962-. (MNS)

MORAWIECKA, BRONISLAWA b. 1926. D.Biol.Sci., Univ. of Wroclaw 1958. Biochemistry (F). Appointed from Univ. of Wroclaw. Place of study: U.S.A., 1962-. (MNS)

ORLOWSKI, MARIAN b. 1923. M.D., Univ. of Wroclaw 1959. Enzymology (F). Appointed from III Med. Clinic, Acad. of Med., Wroclaw. Place of study: U.S.A., 1962-. (MNS)

ROLICKA, MARIA b. 1920. D.Sc., Univ. of Łódź 1960. Microbiology (F). Appointed from Univ. of Łódź. Place of study: U.S.A., 1962-. (MNS)

SWEDEN

ASPLUND, EVA BRITA MARIANNE b. 1919. R.N., School of Nursing, Karlstad, 1947. Nursing Education (s). Appointed while in the United States on a Florence Nightingale International Foundation scholarship. Place of study: U.S.A., 1962-. (MNS)

UNITED KINGDOM

FISHER, KENNETH WALTER b. 1931. Ph.D., Univ. of London 1957. Microbiology (F). Appointed from Hammersmith Hosp., London. Place of study: U.S.A., 1962-. (BMRC)

HOCKADAY, THOMAS DEREK RONALD b. 1929. B.M., Univ. of Oxford and Middlesex Hosp. School 1955. Medicine (F). Appointed from Radcliffe Infirmary, Oxford. Place of study: U.S.A., 1962-. (BMRC)

HUEHNS, ERNST REINHARD b. 1928. B.M., Univ. Coll., London, 1950. Biochemistry (F). Appointed from Univ. Coll. Place of study: U.S.A., 1962-. (BMRC)

MARTIN, EDWARD MAURICE b. 1929. Ph.D., Univ. of London 1960. Virology (F). Appointed from Natl. Inst. for Med. Research, London. Place of study: U.S.A., 1962-. (BMRC)

SHALDON, CYRIL b. 1927. M.Chir., Univ. of Cambridge and Middlesex Hosp. 1959. Surgery (F). Appointed from Bristol Royal Infirmary. Place of study: U.S.A., 1962-. (BMRC)

SMITH, JOHN HAROLD b. 1927. B.A., London School of Econ. and Polit. Science 1950. Sociology (F). Appointed from London School of Econ. and Polit. Science. Place of study: U.S.A., 1962-. (HSS)

TYM, ROBERT b. 1929. M.B., Univ. of Sheffield 1953. Neurosurgery (F). Appointed from Manchester Royal Infirmary. Place of study: U.S.A., 1962-. (BMRC)

WORLD HEALTH ORGANIZATION

LEITE-RIBEIRO, MARIA OFELIA DA VEIGA MALTA EMAUZ b. 1929. R.N., Professional School of Nursing, Lisbon, Portugal, 1950. Psychiatric Nursing (F); Nursing Education (F). Appointed from (1) Professional School of Nursing; (2) World Health Organization. Places of study: Canada and U.S.A., 1951-1952; U.S.A., 1962-. (MNS)

VAN DER HOFF, NICOLAAS MARTINUS b. 1920. M.D., Univ. of Leiden, Netherlands, 1956. Public Health (F). Appointed from World Health Organization. Place of study: U.S.A., 1962-. (MNS)

YUGOSLAVIA

LIKAR, MIHA b. 1923. D.Sc., Univ. of Ljubljana 1959. Arboviruses (F). Appointed from Univ. of Ljubljana. Place of study: U.S.A., 1962-. (MNS)

GRANTS MADE IN LATIN AMERICA

*MNS: Medical and Natural Sciences; AS: Agricultural Sciences;
HSS: Humanities and Social Sciences; G: General; F: Fellow; S: Scholar*

ARGENTINA

INSTITUTE OF BIOLOGY AND EXPERIMENTAL MEDICINE, Buenos Aires: equipment for research in neurophysiology, under the direction of Dr. Juan H. Tramezani and Dr. Jorge M. Affanni; \$10,000; (MNS)

DR. NORMA METTLER, Section of Virus and Rickettsial Diseases, Department of Microbiology, School of Medicine, University of Buenos Aires: to observe current virus and rickettsial research while in the United States; \$1,300; (MNS)

NATIONAL INSTITUTE OF AGRICULTURAL TECHNOLOGY, Buenos Aires:

International travel expenses of foreign professors participating in special training courses of the institute; \$10,000 for a two-year period; (AS)

Ing. Domingo R. Pasquale, director, Balcarce Experiment Station; to visit potato research programs in Colombia and Mexico, and to attend the Potato Association of America meetings in Madison, Wisconsin; \$1,900; (AS)

NATIONAL UNIVERSITY OF CORDOBA: research and teaching in the Institute of Pharmacology, Faculty of Medical Sciences, under the direction of Dr. Ricardo Landaburu; \$19,000 for a three-year period; (MNS)

ING.AGR. EVITO ENRIQUE TOMBETTA, head, Milling and Baking Test Laboratory, Pergamino Agricultural Experiment Station, Buenos Aires: to visit wheat breeding programs in Mexico; \$1,300; (AS)

TORCUATO DI TELLA INSTITUTE, Buenos Aires:

Establishment of a Latin American Center for Advanced Music Composition, under the direction of Professor Alberto Ginastera, Argentine composer and teacher; \$156,000 for a three-year period; (HSS)

Research on social structure and social change in Latin American countries, under the direction of Professor Gino Germani, International Center for Comparative Social Research; \$87,000 for a three-year period; (HSS)

UNIVERSITY OF CUYO, Mendoza: development of the Faculty of Medical Sciences; \$100,000 through March, 1965; (MNS)

BRAZIL

ADOLFO LUTZ INSTITUTE, São Paulo: equipment for arbovirus research in the Laboratory of Public Health; \$8,000; (MNS)

DR. WARWICK ESTEVAM KERR, scientific director, São Paulo State Foundation to Support Research: to observe administration procedures at scientific research foundations in the United States, Canada, and Europe; \$2,400; (MNS)

NATIONAL ARTISTIC AND HISTORIC PATRIMONY, Rio de Janeiro: equipment for art conservation and film making; \$10,000 for a two-year period; (HSS)

MISS MARIA DO ROSARIO SOUTO NOBREGA, teacher of obstetrics, School of Nursing, University of Recife: to observe midwifery training programs at medical institutions in Latin America, and to attend the Inter-American Midwives Convention in Lima, Peru; \$1,880; (MNS)

PAULISTA SCHOOL OF MEDICINE, São Paulo:

Development of a curriculum emphasizing laboratory experience in the basic sciences, clerkships during the clinical years, and obligatory internships; \$63,283; (MNS)

Dr. Walter Sidney Pereira Leser, professor of preventive medicine and director, Institute of Preventive Medicine; to observe the teaching of preventive medicine and other aspects of medical education at medical institutions in the United States; \$2,250; (MNS)

ENG. LINCOLN MONTEIRO RODRIGUES, agronomist engineer, Ministry of Agriculture, Rio de Janeiro: to undertake advanced training at the University of Wisconsin, Madison; \$2,850; (AS)

SÃO PAULO STATE SECRETARIAT OF AGRICULTURE, São Paulo:

Institute of Agronomy, Campinas; research equipment and materials, greenhouses, and publications for the library; \$140,000 for a three-year period; (AS)

Animal Nutrition Research Center, Department of Animal Production, Nova Odessa; field and laboratory equipment and materials; \$75,000 for a three-year period; (AS)

UNIVERSITY OF MINAS GERAIS, Belo Horizonte: development of a premedical curriculum, the library, and the Departments of Physiological Sciences and Pathology, Faculty of Medicine; \$97,000; (MNS)

UNIVERSITY OF RIO GRANDE DO SUL, Pôrto Alegre:

Dr. Rubens Mario Garcia Maciel, professor of propaedeutic medicine, Faculty of Medicine; to study teaching methods at centers of internal medicine in the United States; \$2,775; (MNS)

Dr. Casemiro Victorio Tondo, head, Biophysics Section, Institute of Natural Sciences, Faculty of Philosophy; to observe current teaching and research at biophysics laboratories in the United States; \$2,575; (MNS)

UNIVERSITY OF SAO PAULO:

Research on the biochemistry of chromosomes in the Department of Biology, Faculty of Philosophy, Sciences, and Letters; \$50,000 for a three-year period; (MNS)

Dr. Eduardo Moacyr Krieger, assistant professor of physiology, Faculty of Medicine, Ribeirão Preto; to study instrumentation in cardiovascular research at medical institutions in the United States; \$2,975; (MNS)

Dr. Kurt Klotzel, assistant professor, Department of Tropical and Infectious Diseases, Faculty of Medicine; to study research techniques in neurophysiology, in cooperation with Professor Alexander Geiger, at the College of Medicine, University of Illinois, Chicago; \$2,675; (MNS)

Dr. Jorge Alberto Petersen, Department of General and Animal Physiology, Faculty of Philosophy, Sciences, and Letters; to observe research and the organization of marine biological laboratories while in Europe; \$2,440; (MNS)

CHILE

CATHOLIC UNIVERSITY OF CHILE, Santiago:

Development of a research and training program in economics and agricultural economics in the Economic Research Center; \$15,000 for a 30-month period; (HSS)

Expenses of a visiting professor in sociology in the Department of Sociology for a one-year period; \$6,550; (HSS)

SERGIO GUTIERREZ-OLIVOS, Chilean Ambassador to Argentina: to visit centers of international studies in the United States and Mexico; \$265; (HSS)

UNIVERSITY OF CHILE, Santiago:

Development of a virus research laboratory in the Faculty of Medicine, under the direction of Dr. Guillermo Contreras; \$50,000 for a three-year period; (MNS)

To assist the Faculty of Medicine with expenses of Latin American medical educators and representatives of the Association of American Medical Colleges in connection with their participation in the Third Conference of Latin American Faculties of Medicine; \$10,000; (MNS)

Dr. Ricardo Katz, head, Department of Gastroenterology, Department of Medicine "E," Faculty of Medicine; to study recent developments in gastroenterology at medical centers in the United States; \$2,800; (MNS)

Dr. Carmen Grado Diaz, assistant professor, Institute of Physiology, Faculty of Medicine; to observe current research on phospholipids and ribonucleic acids at biochemistry laboratories while in North America; \$2,100; (MNS)

Dr. Ruy Barbosa, dean, School of Agronomy; to visit centers of agricultural education and research in Costa Rica, Honduras, Mexico, and the United States; \$1,750; (AS)

Dr. Raúl Fernandez D., assistant, Genetics Laboratory, Institute of Biology, Faculty of Medicine; to study research techniques with human chromosomes at the University of São Paulo, Brazil, under the direction of Dr. Crodowaldo Paván, Department of Biology; \$1,300; (MNS)

UNIVERSITY OF CONCEPCION:

Field and laboratory equipment, a greenhouse, and library materials for the Faculty of Agronomy, Chillán; \$85,000 for a two-year period; (AS)

Continued support of a writers' workshop; \$10,000; (HSS)

COLOMBIA

NATIONAL UNIVERSITY OF COLOMBIA, Bogotá:

Equipment for research, under the direction of Dr. Orlando Fals-Borda, dean, Faculty of Sociology; \$15,000 for a three-year period; (HSS)

Research on the assimilation into the city of the immigrating family, by the Faculty of Sociology; \$3,733; (HSS)

Dr. Ernesto Wills Olaya, dean, Faculty of Veterinary Medicine and Animal Husbandry; to visit schools of veterinary medicine in Guatemala and Mexico, and to attend the Fourth Pan American Congress of Veterinary Medicine and Animal Husbandry in Mexico City; \$725; (AS)

DR. EMIGDIO PINZON, subdirector, Division of Agricultural Research, Ministry of Agriculture, Bogotá: to visit centers of veterinary medicine in Mexico, and to attend the Fourth Pan American Congress of Veterinary Medicine and Animal Husbandry in Mexico City; \$665; (AS)

UNIVERSITY OF THE ANDES, Bogotá:

Support of two economic research projects, to be conducted in the Center for Studies in Economic Development; 425,438 Colombian pesos (about \$53,200) for a three-year period; (HSS)

Graduate study, by Miss Beatriz Castilla Samper and Mrs. Mary H. West at the English Language Institute, University of Michigan, Ann Arbor, and materials for teaching English and German as foreign languages; \$5,800; (HSS)

Julio Zuluaga, registrar and academic secretary; to observe the organization and administration of the registrar's office at Texas Western College, El Paso; \$3,275; (MNS)

UNIVERSITY OF ANTIOQUIA, Medellín:

Support of a university-wide program to develop the teaching of English; \$10,000 through 1963; (HSS)

Dr. Jaime Botero, coordinator of teaching, Department of Obstetrics and Gynecology, Faculty of Medicine; to observe the nurse-midwifery training program of the University of Puerto Rico, San Juan, while en route from the United States to Colombia; \$500; (MNS)

UNIVERSITY OF VALLE, Cali:

Construction of new facilities for the School of Nursing; \$80,000; (MNS)

Library development and expenses of visiting professors in the Faculty of Architecture; \$65,000 through 1965; (HSS)

Laboratory equipment for its new Linguistic Center; \$45,000 through 1964; (HSS)

Equipment for teaching and research in chemistry in the Faculty of Engineering; \$30,000; (MNS)

Development of administrative services, including extension of the offices in the central administration building; \$25,000; (C)

Development of the program of the College of Basic Studies; 118,700 Colombian pesos (about \$14,250); (C)

To invite Dr. Timothy Loeb to serve as a visiting assistant professor of biology; \$10,782; (MNS)

Dr. Eduardo Lourido, director, Pilot Health Center, Candelaria; to study the epidemiology of tuberculosis in Caracas, Venezuela, and to visit tuberculosis control programs in Puerto Rico; \$3,200; (MNS)

Dr. Guillermo Orozco, assistant professor, Faculty of Medicine; to observe the organization and training programs of departments of medicine at medical centers in the United States and Puerto Rico; \$2,525; (MNS)

Eng. Alberto Ghitis Blanco, dean, Faculty of Engineering; to observe modern administrative procedures and teaching programs in physics at schools of engineering in the United States; \$2,450; (MNS)

Dr. Alfonso Lopez Villegas, chief, Department of Ophthalmology, Faculty of Medicine; to observe recent developments in teaching and research in ophthalmology at medical centers in the United States; \$2,450; (MNS)

Dr. José Raúl Alvarez Gutiérrez, associate professor of bacteriology, Faculty of Medicine; to receive advanced laboratory training at the National Institute of Tuberculosis, Caracas, Venezuela; \$2,100; (MNS)

Miss Josefina Ferro, director, Public Health Nursing Auxiliary Course, School of Nursing; to observe nursing auxiliary programs at public health centers in Puerto Rico, Guatemala, and Costa Rica, and to attend a seminar on administrative leadership in Puerto Rico; \$1,840; (MNS)

XAVIER UNIVERSITY, Bogotá: development of the library of the Medical School; \$5,000; (MNS)

COSTA RICA

INTER-AMERICAN INSTITUTE OF AGRICULTURAL SCIENCES:

San José:

Survey of projects and personnel engaged in bean research at key institutions in Latin America; \$3,000; (AS)

Expenses of Dr. Guy W. Adriance, professor emeritus, Horticulture Section, Texas Agricultural and Mechanical College System, College Station; Dr. Walter Reuther, chairman, Citrus Experiment Station, University of California, Riverside; and Dr. Damon Boynton, dean, Graduate School, Cornell University, Ithaca, New York; in connection with their participation in a symposium on temperate zone fruits in the tropical highlands in Antigua, Guatemala; \$1,500; (AS)

Turrialba:

Establishment and operation of a secretariat for the Latin American Association of Plant Science; \$33,000 for a four-year period; (AS)

Additional reference materials for an in-service training program for agricultural librarians; \$10,000; (AS)

Participation in a teaching and research program on maize improvement at the Graduate School, National School of Agriculture, Chapingo, Mexico, by Dr. Mario Gutiérrez G., plant geneticist; \$10,000; (AS)

ECUADOR

CENTRAL UNIVERSITY OF ECUADOR, Quito: equipment for the Faculty of Agronomy and Veterinary Medicine and expenses of laboratory assistants for soil research cooperative with the National Institute of Agricultural Research, Quito; \$17,000 for a five-year period; (AS)

NATIONAL INSTITUTE OF AGRICULTURAL RESEARCH, Quito: provision of technical assistance, in-service training of local personnel, and field and laboratory equipment; \$273,000 for a five-year period; (AS)

EL SALVADOR

DR. ALFONSO TREJOS WILLIS, director, Department of Microbiology, School of Medicine, University of El Salvador, San Salvador: to observe teaching and research at medical centers in the United-States and Canada; \$1,490; (MNS)

GUATEMALA

UNIVERSITY OF SAN CARLOS, Guatemala City: expenses of Dr. Ernesto Villagrán and Dr. Luis Alfredo García, Faculty of Veterinary Medicine, in connection with their visit to the Large Animal Clinic, Faculty of Veterinary Medicine, University of San Marcos, Lima, Peru; \$1,800; (AS)

MEXICO

COLEGIO DE MEXICO, Mexico City:

Teaching and research in linguistics and Spanish American literature; \$52,200 through September, 1965; (HSS)

Development of its program in the humanities and social sciences; \$32,000; (HSS)

Partial expenses of a colloquium, to be attended primarily by Latin American scholars interested in contemporary history; \$10,000; (HSS)

EXPENSES IN CONNECTION WITH THE ORGANIZATION of the Fourth Pan American Congress of Veterinary Medicine and Animal Husbandry in Mexico City, Mexico; \$5,000; (AS)

MEXICAN CENTER OF WRITERS, Mexico City: further support for the compilation, editing, and translation into English of an anthology of Mexican literature, under the direction of Lysander Kemp; \$1,800; (HSS)

NATIONAL INSTITUTE OF ANTHROPOLOGY AND HISTORY, Mexico City: to enable Dr. Luis Vargas y Vargas to consult with authorities at conservation laboratory installations in museums in the United States and at New York University's Institute of Fine Arts; \$1,600; (HSS)

NATIONAL INSTITUTE OF NUTRITION, Mexico City: research in biochemistry and nutrition; \$42,000 for a two-year period; (MNS-AS)

NATIONAL SCHOOL OF AGRICULTURE, Chapingo: development of the Graduate School; \$110,000; (AS)

NATIONAL UNIVERSITY OF MEXICO, Mexico City:

Research in the Department of Pathology, School of Medicine, under the direction of Dr. Ruy Pérez Tamayo; \$32,850 for a three-year period; (MNS)

Equipment and supplies for the Department of Microbiology and Parasitology, under the direction of Dr. Francisco Biagi; \$6,000; (MNS)

To enable the Director of Cultural Diffusion and the directors of the university press and bookstore to participate in the 1962 meeting of the Association of American University Presses, and to visit university presses while in the United States; \$1,800; (HSS)

Dr. Jesús Estudillo Lopez, professor of poultry pathology, School of Veterinary Medicine; to attend the International Congress of Poultry Husbandry in Bogotá, Colombia, and to visit poultry science centers in Venezuela and Peru; \$865; (AS)

Development of seminars on the fundamentals of contemporary public law in the Institute of Comparative Law; \$300; (HSS)

UNIVERSITY OF COAHUILA, Saltillo: expenses of two representatives of the Antonio Narro College of Agriculture in connection with attendance at the Second Conference on Agricultural Higher Education in Medellín, Colombia; \$2,000; (AS)

UNIVERSITY OF SAN LUIS POTOSI: establishment of the post of Director of the School of Medicine on a full-time basis, and research and teaching equipment for the school; \$18,500 through June, 1966; (MNS)

UNIVERSITY OF THE STATE OF VERACRUZ:

Field and laboratory equipment and materials for the Faculty of Veterinary Medicine and Animal Husbandry; \$50,000 for a three-year period; (AS)

Development of its program for the teaching of English; \$11,600 through September, 1964; (HSS)

PROFESSOR JEAN MARIO MATHIEU VEILLARD, School of Agriculture, Technological Institute and School of Advanced Studies of Monterrey: to undertake advanced training at the University of Illinois, Urbana; \$600; (AS)

PABLO VELASQUEZ, librarian, National Institute of Agricultural Research, Mexico City: to attend a meeting of Latin American agricultural librarians at the Inter-American School of Librarianship, University of Antioquia, Medellín, Colombia; \$880; (AS)

PERU

AGRARIAN UNIVERSITY, La Molina, Lima:

Dr. Ferruccio Accame, dean, Faculty of Zootechnology; to attend the meetings of the American Dairy Science Association in College Park, Maryland; \$1,125; (AS)

Dr. Octavio Velarde, dean, Faculty of Agriculture; to attend the Inter-American Meeting of Deans in Medellín, Colombia, and to visit the Rockefeller Foundation Colombian Agricultural Program; \$900; (AS)

ING. ABELARDO BARACCO GANDOLFO, technical director, Agricultural Research and Development Service, Ministry of Agriculture, Lima: to visit agricultural and livestock development programs in Colombia, Costa Rica, Mexico, and the United States; \$2,250; (AS)

NATIONAL UNIVERSITY OF ENGINEERING, Lima:

Research on the legal and administrative aspects of planning legislation in Peru, under the direction of Dr. Carlos Zuzunaga Flórez, professor of planning legislation, Planning Institute of Lima; 250,000 soles (about \$10,000) for a two-year period; (HSS)

Library books on urban and regional planning for the Planning Institute of Lima; 67,355 soles (about \$2,765); (HSS)

PERUVIAN UNIVERSITY OF MEDICAL AND BIOLOGICAL SCIENCES, Lima:

Development of the Faculty of Medicine; \$100,000; (MNS)

Dr. Alberto Hurtado, dean; to observe the organization and curricula of medical schools in Brazil while en route from Peru to Switzerland; \$600; (MNS)

UNIVERSITY OF SAN MARCOS, Lima: development of a postgraduate short course in clinical medicine for the treatment of large animals, to be given by the Faculty of Veterinary Medicine; \$10,000; (AS)

VENEZUELA

DR. CELESTINO BONFANTI, director of the library, Faculty of Agronomy, Central University of Venezuela, Maracay: to visit centers of documentation in the United States and Mexico; \$2,020; (AS)

WEST INDIES

Jamaica

INSTITUTE OF JAMAICA, Kingston: herbarium cabinets for the Department of Botany; \$7,600; (AS)

PURCHASE OF A COLLECTION OF BASIC BOOKS in international relations for the Ministry of Foreign Affairs and Commonwealth Relations, Kingston; \$4,500 through 1963; (HSS)

UNIVERSITY OF THE WEST INDIES, Mona:

Support of the Trinidad Regional Virus Laboratory, Port-of-Spain; \$275,000 for a three-year period; (MNS)

Study of folk music and dance of the West Indies in relation to its adaptation for use by performing arts companies, under the direction of Alan Lomax, American composer; \$9,860; (HSS)

To assist the Faculty of Medicine in the development of an interchange lectureship program in obstetrics and gynecology with the University of Ibadan, Nigeria, and the Institute of Obstetrics and Gynecology, London, England; \$5,600; (MNS)

Dr. Geoffrey P. Chapman, lecturer, Department of Botany; to conduct studies of the sweet potato in Mexico; \$1,100; (AS)

Dr. Arthur D. Skelding, professor of botany; to conduct studies of the sweet potato in Mexico; \$1,100; (AS)

Trinidad

LITTLE CARIB THEATRE, Port-of-Spain:

To invite Errol John, West Indian playwright, to serve as a writer-in-residence and production consultant; \$6,500; (HSS)

Jeff Henry, dance instructor; to observe and study dance styles in Haiti, Mexico, and Brazil; \$4,950; (HSS)

UNIVERSITY OF THE WEST INDIES, St. Augustine:

Expenses of a temporary, full-time principal in the Faculty of Agriculture; \$75,000 for a three-year period; (AS)

Dennis Frederick Osbourn, lecturer, Department of Agriculture; to visit grassland and crop husbandry centers in Puerto Rico, Jamaica, the United States, and Mexico; \$900. (AS)

AGRICULTURAL OPERATING PROGRAMS

FOR OPERATING PROGRAMS in Chile, Colombia, and Mexico, and the Inter-American Food Crop Improvement Program; \$707,000.

VIRUS RESEARCH PROGRAMS

FOR VIRUS RESEARCH in Brazil and Colombia; \$98,900.

STUDY AWARDS

ARGENTINA

BINIA, ALBERTO b. 1933. M.D., Univ. of Cuyo, Mendoza, 1958. Physiology (F). Appointed from Univ. of Cuyo and Natl. Council of Scientific and Tech. Research, Buenos Aires. Place of study: U.S.A., 1962-. (MNS)

192 GRANTS MADE IN 1962

CALDERONI, Atilio Victor b. 1917. Ing.Agr., Univ. of Buenos Aires 1945. Plant Science—Pathology (s). Appointed from Natl. Inst. of Agric. and Livestock Tech., Balcarce. Place of study: Mexico, 1962-. (AS)

DUFAU, MARIA LUISA b. 1938. M.D., Univ. of Cuyo, Mendoza, 1962. Endocrinology (F). Appointed from Univ. of Cuyo. Place of study: U.S.A., 1962-. (MNS)

GALLI, IGNACIO OSVALDO b. 1931. Ing.Agr., Univ. of Buenos Aires 1956. Animal Science—Animal Husbandry (s). Appointed from Agric. Exper. Station, Concordia. Place of study: U.S.A., 1962-. (AS)

LANGER, SALOMON ZENDER b. 1936. M.D., Univ. of Buenos Aires 1960. Pharmacology (F). Appointed from Univ. of Buenos Aires. Place of study: U.S.A., 1962-. (MNS)

LUCIANO, AURELIO b. 1931. Ing.Agr., Univ. of Buenos Aires 1956. Plant Science—Genetics and Breeding (s). Appointed from Natl. Inst. of Agric. and Livestock Tech., Buenos Aires. Place of study: U.S.A., 1962-. (AS)

QUINTANA, FERDINAND JOSEPH b. 1919. Ing.Agr., Natl. Univ. of La Plata 1947. Entomology (s). Appointed from Natl. Inst. of Agric. and Livestock Tech., Balcarce. Place of study: U.S.A., 1962-. (AS)

SAFONT, JULIO b. 1925. Ing.Agr., Univ. of Buenos Aires 1950. Plant Science—Genetics and Breeding (s). Appointed from Natl. Inst. of Agric. and Livestock Tech., Buenos Aires. Place of study: U.S.A., 1962-. (AS)

BRAZIL

AJZEN, HORACIO b. 1929. M.D., Paulista School of Med., São Paulo, 1955. Internal Medicine (F). Appointed from Paulista School of Med. Place of study: U.S.A., 1962-. (MNS)

ALBUQUERQUE, EDSON XAVIER DE b. 1936. M.D., Univ. of Recife 1959. Neuropharmacology (F). Appointed from Univ. of Recife. Place of study: U.S.A., 1962-. (MNS)

ALMEIDA NEVES, ARMANDO GIL DE b. 1934. M.D., Univ. of Minas Gerais, Belo Horizonte, 1960. Biochemistry (F). Appointed from Univ. of Minas Gerais. Place of study: U.S.A., 1962-. (MNS)

AMIN AUR, RHOMES JOAO b. 1930. M.D., Univ. of Paraná, Curitiba, 1953. Pediatrics (F). Appointed from Paulista School of Med., São Paulo. Place of study: U.S.A., 1962-. (MNS)

- ANTONIO, ABILIO b. 1935. M.D., Univ. of São Paulo, Ribeirão Preto, 1960. Pharmacology (F). Appointed from Univ. of São Paulo. Place of study: U.S.A., 1962-. (MNS)
- ARAUJO, PAULO LENER PEIXOTO DE b. 1935. M.D., Univ. of Minas Gerais, Belo Horizonte, 1960. Preventive Medicine (F). Appointed from Univ. of Minas Gerais. Place of study: U.S.A., 1962-. (MNS)
- AZEVEDO, ISALTINA GOULART DE b. 1917. Lic.Phil., Univ. of Minas Gerais, Belo Horizonte, 1957. Public Health Nursing (s). Appointed from Univ. of Minas Gerais. Place of study: U.S.A., 1962- (MNS)
- BERGAMIN FILHO, HENRIQUE b. 1931. Ph.D., Univ. of São Paulo 1961. Chemistry (s). Appointed from Univ. of São Paulo. Place of study: U.S.A., 1962-. (AS)
- BLUMENSCHNEIN, ALMIRO b. 1931. Livre Docente, Univ. of São Paulo, Piracicaba, 1961. Plant Science—Genetics and Breeding (s). Appointed from Univ. of São Paulo. Place of study: U.S.A., 1962-. (AS)
- DANGELO, JOSE GERALDO b. 1931. M.D., Univ. of Minas Gerais, Belo Horizonte, 1958. Anatomy (F). Appointed from Univ. of Minas Gerais. Place of study: U.S.A., 1962-. (MNS)
- FREITAS, CLAUD FLORIANO TRENCH DE b. 1936. B.Agr., Natl. School of Agric., Rio de Janeiro, 1957. Agricultural Economics (s). Appointed from Dept. of Agric., State of São Paulo. Place of study: U.S.A., 1962-. (HSS)
- GOMIDE, JOSE ALBERTO b. 1934. Eng. Agr., Agric. Univ., Viçosa, 1956. Plant Science—Agronomy (s). Appointed from Agric. Univ. Place of study: U.S.A., 1962-. (AS)
- MACHADO, MARCELLO MARCONDES b. 1933. M.D., Univ. of São Paulo 1958. Basic Medical Sciences (F). Appointed from Univ. of São Paulo. Place of study: U.S.A., 1962-. (MNS)
- MONTEIRO, WARTON b. 1936. B.S., Univ. of Minas Gerais, Belo Horizonte, 1960. Plant Science—Genetics and Breeding (s). Appointed from Univ. of Minas Gerais. Place of study: U.S.A., 1962-. (AS)
- RAICK, ALBERTO NICOLAU b. 1933. M.D., Univ. of Brazil, Rio de Janeiro, 1959. Electron Microscopy (F). Appointed from Univ. of Minas Gerais, Belo Horizonte. Place of study: U.S.A., 1962-. (MNS)
- RUEGG, ELZA FLORES b. 1929. B.S., Univ. of São Paulo 1955. Plant Science (s). Appointed from Inst. of Biol., São Paulo. Place of study: U.S.A., 1962-. (AS)

SOUZA, ANGELO JORGE DE b. 1932. B.A., Univ. of Brazil, Rio de Janeiro, 1956. Economics (s). Appointed from Getulio Vargas Foundation, Rio de Janeiro. Place of study: U.S.A., 1962-. (HSS)

VAROLI, GILDA b. 1918. Librarianship, Univ. of São Paulo 1956. Library Science (s). Appointed from Inst. of Biol., São Paulo. Place of study: U.S.A., 1962-. (AS)

WORTMANN, HANNELORE b. 1938. R.N., Univ. of Rio Grande do Sul, Pôrto Alegre, 1959. Nursing Education (s). Appointed from Univ. of Rio Grande do Sul. Place of study: U.S.A., 1962-. (MNS)

CHILE

ACEVEDO ACEVEDO, JUAN b. 1934. Ing.Agr., Catholic Univ. of Chile, Santiago, 1959. Genetics—Plant Breeding (s). Appointed from Min. of Agric., Santiago. Place of study: U.S.A., 1962-. (AS)

ALVAREZ MARIN, JAIME b. 1934. M.D., Catholic Univ. of Chile, Santiago, 1959. Neurophysiology (F). Appointed from Catholic Univ. of Chile. Place of study: U.S.A., 1962-. (MNS)

AVENDANO, RAUL E. b. 1936. Agron., Univ. of Chile, Santiago, 1959. Plant Science—Agronomy (s). Appointed from Min. of Agric., Santiago. Place of study: U.S.A., 1962-. (AS)

CONTRERAS TAPIA, DAVID b. 1924. Agron., Univ. of Chile, Santiago, 1951. Agronomy (s). Appointed from Univ. of Chile. Place of study: U.S.A., 1962-. (AS)

COVARRUBIAS BERRIOS, EDMUNDO b. 1933. M.D., Univ. of Chile, Santiago, 1958. Human Genetics (F). Appointed from Univ. of Chile. Place of study: U.S.A., 1962-. (MNS)

CUBILLOS, LUZ DEL CARMEN FERNANDEZ DE b. 1932. Ing.Agr., Univ. of Chile, Santiago, 1957. Plant Science—Pathology (s). Appointed from Min. of Agric., Temuco. Places of study: Mexico and Colombia, 1962-. (AS)

CUBILLOS PLAZA, ALBERTO b. 1933. Ing.Agr., Univ. of Chile, Santiago, 1957. Plant Science—Pathology (s). Appointed from Min. of Agric., Temuco. Places of study: Mexico and Colombia, 1962-. (AS)

DE CASTRO, SERGIO ALEJANDRO b. 1930. M.A., Univ. of Chicago 1958. Economics (s). Appointed from Catholic Univ. of Chile, Santiago. Place of study: U.S.A., 1962-. (HSS)

- DOGGENWEILER FIGUEIROA, CARLOS b.** 1938. M.D., Catholic Univ. of Chile, Santiago, 1961. Biophysics (F). Appointed from Catholic Univ. of Chile. Place of study: U.S.A., 1962-. (MNS)
- DONCKASTER, RAUL b.** 1926. M.D., Univ. of Chile, Santiago, 1951. Electron Microscopy Applied to Parasitic Protozoa (F). Appointed from Univ. of Chile. Place of study: U.S.A., 1962-. (MNS)
- IZQUIERDO, GONZALO b.** 1932. Lic., Univ. of Chile, Santiago, 1961. History (F). Appointed from Univ. of Chile. Place of study: U.S.A., 1962- (HSS)
- KRARUP HJORT, AAGE b.** 1933. Ing.Agr., Univ. of Chile, Santiago, 1957. Agronomy (s). Appointed from Univ. of the South, Valdivia. Place of study: U.S.A., 1962-. (AS)
- KUKOLJ FABIJANAC, SMILJAN b.** 1933. M.D., Univ. of Chile, Santiago, 1957. Renal Physiology and Clinical Aspects of Renal Diseases (F). Appointed from San Borja Hosp., Univ. of Chile. Place of study: U.S.A., 1962-. (MNS)
- LUDERS SCHWARZENBERG, ROLF JURGEN b.** 1935. M.B.A., Univ. of Chicago 1960. Economics (s). Appointed from Catholic Univ. of Chile, Santiago. Place of study: U.S.A., 1962-. (HSS)
- MARCUS WOLF, FRANK b.** 1933. M.D., Univ. of Chile, Santiago, 1958. Biochemistry (F). Appointed from Univ. of Chile. Place of study: Australia, 1962-. (MNS)
- MOYANO, JOSE GREGORIO b.** 1937. Ing.Agr., Catholic Univ. of Chile, Santiago, 1962. Soil Science (s). Appointed from Catholic Univ. of Chile. Place of study: U.S.A., 1962-. (AS)
- MUNOZ, OSCAR E. b.** 1938. Ing.Com., Univ. of Chile, Santiago, 1962. Economics (s). Appointed from Univ. of Chile. Place of study: U.S.A., 1962-. (HSS)
- ORTIZ, FERNANDO C. b.** 1931. Agron., Univ. of Chile, Santiago, 1957. Plant Science —Genetics and Breeding (s). Appointed from Min. of Agric., Santiago. Place of study: U.S.A., 1962-. (AS)
- RACZYNSKI, MICHAEL b.** 1935. Ing.Agr., Catholic Univ. of Chile, Santiago, 1960. Agronomy (s). Appointed from Min. of Agric., Santiago. Place of study: U.S.A., 1962-. (AS)
- SILVA, PATRICIO b.** 1934. Lic., Univ. of Chile, Santiago, 1961. Economics (s). Appointed from Univ. of Chile. Place of study: U.S.A., 1962-. (HSS)
- SUSAETA SAENZ DE SAN PEDRO, ELADIO b.** 1931. M.S., Univ. of Michigan 1957.

Economics (s). Appointed from Univ. of Chile, Santiago. Place of study: U.S.A., 1962-. (HSS)

UTHOFF BOTKA, MICHAEL b. 1943. Student, Ballet School, Univ. of Chile, Santiago. Dance (s). Appointed from Univ. of Chile Ballet. Place of study: U.S.A., 1962-. (HSS)

COLOMBIA

ACOSTA JARMA, LUIS OSWALDO b. 1928. D.V.M., Natl. Univ. of Colombia, Bogotá. Animal Nutrition—Physiology (s). Appointed from Min. of Agric., Bogotá. Place of study: U.S.A., 1962-. (AS)

ANTELO IGLESIAS, ANTONIO b. 1923. Ph.D., Univ. of Madrid, Spain, 1960. Education (F). Appointed from Univ. of Valle, Cali. Place of study: U.S.A., 1962-. (HSS)

ARENAS Q., MARCO AURELIO b. 1932. M.A., Teachers Coll., Columbia Univ. 1962. Applied Linguistics (s). Appointed from Univ. of Valle, Cali. Place of study: U.S.A., 1962-. (HSS)

CORREA, WALTER b. 1936. B.S., Univ. of Antioquia, Medellín, 1960. Chemistry (s). Appointed from Univ. of Valle, Cali. Place of study: U.S.A., 1962-. (MNS)

CRUZ, FERNANDO b. 1939. B.S., Michigan State Univ. 1960. Economics (s). Appointed from Natl. Univ. of Colombia, Palmira. Place of study: U.S.A., 1962-. (HSS)

DE LANNOY, JEAN-LOUIS b. 1932. Lic., Catholic Univ. of Louvain, Belgium, 1961. Sociology (s). Appointed from Natl. Univ. of Colombia, Bogotá. Place of study: U.S.A., 1962-. (HSS)

DIEZ, GONZALO b. 1925. Civil Engineer, Univ. of Cauca, Popayán, 1949. Physics (s). Appointed from Univ. of Valle, Cali. Place of study: U.S.A., 1962-. (MNS)

GALLO CARDONA, JORGE TULIO b. 1936. D.V.M., Univ. of Caldas, Manizales, 1959. Animal Science—Animal Husbandry (s). Appointed from Min. of Agric., Bogotá. Place of study: U.S.A., 1962-. (AS)

GALLO LEMA, GILBERTO b. 1923. Lic. in Biol. and Chem., Natl. Normal School, Bogotá, 1944. Biochemistry (F). Appointed from Univ. of Valle, Cali. Place of study: Spain, 1962-. (MNS)

GUTIERREZ, EDMUNDO b. 1934. Civil Engineer, Natl. Univ. of Colombia, Medellín, 1957. Physics (s). Appointed from Univ. of Valle, Cali. Place of study: U.S.A., 1962-. (MNS)

- HINCAPIE NIETO, JOSE OMAR** b. 1932. D.V.M., Univ. of Caldas, Manizales, 1962. Animal Pathology (s). Appointed from Min. of Agric., Bogotá. Place of study: U.S.A., 1962-. (AS)
- ISAZA BOTERO, RAFAEL** b. 1934. Economista, Univ. of the Andes, Bogotá, 1960. Economics (s). Appointed from Univ. of the Andes. Place of study: U.S.A., 1962-. (HSS)
- LOPEZ OCAMPO, RAFAEL** b. 1928. Ing.Agr., Univ. of Caldas, Manizales, 1961. Plant Pathology (s). Appointed from Div. of Agric. Research, Bogotá. Place of study: U.S.A., 1962-. (AS)
- LUQUE, ORLANDO RAFAEL DE** b. 1932. B.S., Natl. Univ. of Colombia, Bogotá, 1959. Cellular Physiology (s). Appointed from Univ. of the Andes, Bogotá. Place of study: U.S.A., 1962-. (MNS)
- MARMOLEJO, MARIA J.** b. 1930. R.N., Univ. of Costa Rica, San José, 1954. Nursing Education (F); Public Health Nursing (s). Appointed from (1) Univ. Hosp., Cali; (2) Public Health Nursing Auxiliary Course, Candelaria. Places of study: Puerto Rico, 1958-1959; U.S.A., 1962-. (MNS)
- MEDINA, PABLO** b. 1934. M.D., Univ. of Valle, Cali, 1961. Bacteriology (F). Appointed from Univ. of Valle. Place of study: England, 1962-. (MNS)
- MEJIA J., HERNAN** b. 1935. M.A., Vanderbilt Univ. 1960. Economics (s). Appointed from Univ. of the Andes, Bogotá. Place of study: U.S.A., 1962-. (HSS)
- MENDOZA, JOSE DE J.** b. 1923. Naval Engineer. Colombian Naval Academy, Cartagena, 1945. Thermal Engineering (F). Appointed from Univ. of Valle, Cali. Place of study: U.S.A., 1962-. (MNS)
- MESA PEREZ, ELIZABETH** b. 1934. Cert., Caro y Cuervo Inst., Bogotá, 1961. Intercultural Understanding—Linguistics (F). Appointed from Univ. of Valle, Cali. Place of study: U.S.A., 1962-. (HSS)
- ORTEGA, FRANCISCO JOSE** b. 1938. Economista, Univ. of the Andes, Bogotá, 1960. Economics (s). Appointed from Univ. of the Andes. Place of study: U.S.A., 1962-. (HSS)
- OSPINA-ORTIZ, JAIME** b. 1930. Ph.D., Javeriana Univ., Bogotá, 1958. Education (F). Appointed from Univ. of Valle, Cali. Place of study: Mexico, 1962-. (HSS)
- PATINO HERNANDEZ, OMAR** b. 1933. D.V.M., Natl. Univ. of Colombia, Bogotá, 1961. Animal Science—Animal Husbandry (s). Appointed from Min. of Agric., Bogotá. Place of study: U.S.A., 1962-. (AS)
- PATINO ROSSELLI, CARLOS** b. 1928. Licence-ès-Lettres, Univ. of Paris, France, 1952.

- Intercultural Understanding—Linguistics (F). Appointed from Univ. of the Andes, Bogotá. Place of study: U.S.A., 1962-. (HSS)
- POSADA, GERMAN b. 1927. Ph.D., Univ. of Hamburg, Germany, 1958. Education (F). Appointed from Univ. of Valle, Cali. Place of study: Mexico, 1962-. (HSS)
- POSADA, JEANNE b. 1924. M.A., Univ. of Wisconsin 1947. Political Science (s). Appointed from Natl. Univ. of Colombia, Palmira. Place of study: U.S.A., 1962-. (HSS)
- POSADA OCHOA, LAZARO b. 1930. M.S., Kansas State Univ. of Agric. and Applied Science 1960. Entomology (s). Appointed twice from Min. of Agric., Bogotá. Place of study: U.S.A., 1958-1960; 1962-. (AS)
- RESTREPO CORTES, LUIS HEBERTO b. 1920. B.A., Natl. Normal School, Bogotá, 1945. Intercultural Understanding—Linguistics (F). Appointed from Univ. of Valle, Cali. Place of study: U.S.A., 1962-. (HSS)
- RESTREPO LOPEZ, FABIO b. 1936. Lic.Bib., Univ. of Antioquia, Medellín, 1960. Library Science (s). Appointed from Univ. of Antioquia. Place of study: U.S.A., 1962-. (HSS)
- RODRIGUEZ ZAMBRANA, ENRIQUE b. 1925. B.S.A., Univ. of Florida 1957. Plant Science (s); Plant Science—Horticulture (F) (s). Appointed twice from Antonio Narro Coll. of Agric., Saltillo, Mexico, and once from Min. of Agric., Bogotá. Places of study: Mexico, 1954-1955; U.S.A., 1956-1957; 1962-. (AS)
- SANCHEZ, ORLANDO VALENTIN b. 1927. Ing.Agr., Natl. Univ. of Colombia, Palmira, 1953. Plant Science—Agronomy (s). Appointed from Min. of Agric., Espinal. Place of study: U.S.A., 1962-. (AS)
- SANCHEZ POTES, CARLOSTADIO b. 1929. M.S., State Coll. of Agric. and Engineering of the Univ. of North Carolina 1958. Soil Science (s). Appointed twice from Min. of Agric., Bogotá. Place of study: U.S.A., 1956-1958; 1962-. (AS)
- VELASCO, BLANCA b. 1937. R.N., Natl. Univ. of Colombia, Bogotá, 1956. Public Health Nursing (s). Appointed from Univ. of Valle, Cali. Place of study: Colombia, 1962-. (MNS)
- VELEZ, BERENICE OSORIO DE b. 1936. Lic.Bib., Univ. of Antioquia, Medellín, 1960. Library Science (s). Appointed from Univ. of Antioquia. Place of study: U.S.A., 1962-. (HSS)
- VELEZ RAMIREZ, HILDEBRANDO b. 1929. D.V.M., Univ. of Caldas, Manizales, 1958. Veterinary Science—Anatomy (F). Appointed from Univ. of Caldas. Place of study: Brazil, 1962-. (AS)

VILLAVECES, ROBERTO b. 1939. Economista, Univ. of the Andes, Bogotá, 1961. Economics (s). Appointed from Univ. of the Andes. Place of study: U.S.A., 1962-. (HSS)

COSTA RICA

BORNEMISZA, ELEMER b. 1930. M.S., Univ. of Florida 1958. Soil Science (s). Appointed from Inter-American Inst. of Agric. Sciences, San José. Place of study: U.S.A., 1962-. (AS)

COTO MONGE, ALVARO b. 1927. Ing.Agr., Univ. of Costa Rica, San José, 1952. Plant Science—Pathology (s); Plant Breeding (s). Appointed twice from Min. of Agric., San José. Places of study: U.S.A., 1959-1960; Mexico, 1962-. (AS)

FONSECA TORTOS, EUGENIO b. 1930. Lic. in Law, Univ. of Madrid, Spain, 1957. Sociology (s). Appointed from Univ. of Costa Rica, San José. Place of study: U.S.A., 1962-. (HSS)

LENDVAYOVA, OLGA b. 1925. Cert. in Library Science, Univ. of Buenos Aires, Argentina, 1958. Library Science (s). Appointed from Inter-American Inst. of Agric. Sciences, Turrialba. Place of study: U.S.A., 1962-. (AS)

MONTOYA ARMAS, LUIS ARTURO b. 1930. M.S., Inter-American Inst. of Agric. Sciences, San José, 1958. Biometry (s). Appointed from Inter-American Inst. of Agric. Sciences, Turrialba. Place of study: Mexico, 1962-. (AS)

ECUADOR

GUERRERO P., TOMAS A. b. 1924. Ing.Agr., Central Univ. of Ecuador, Quito, 1952. Plant Science—Horticulture (s). Appointed from Central Univ. of Ecuador. Place of study: U.S.A., 1962-. (AS)

PALADINES MOSQUERA, OSVALDO LEONEL b. 1931. M.S., Univ. of Maryland 1958. Animal Science—Dairy Science (s); Animal Science—Animal Husbandry and Nutrition (s). Appointed twice from Inter-American Coop. Agric. Service, Quito. Place of study: U.S.A., 1958; 1962-. (AS)

ROMERO ROMO, GALO EDMUNDO b. 1934. Ing.Agr., Central Univ. of Ecuador, Quito, 1959. Plant Science—Breeding (s). Appointed from Natl. Wheat Comm., Quito. Place of study: U.S.A., 1962-. (AS)

EL SALVADOR

MONCADA, ALFONSO b. 1931. M.D., Univ. of El Salvador, San Salvador, 1959. Cardio-Pulmonary Physiology (F). Appointed from Univ. of El Salvador. Place of study: U.S.A., 1962-. (MNS)

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SANTOS, MARIO ANTONIO b. 1925. Dr., Grad. School of Chem. Sciences, San Salvador, 1955. Biochemistry (F). Appointed from Univ. of El Salvador, San Salvador. Place of study: U.S.A., 1962-. (MNS)

GUATEMALA

FUMAGALLI CULEBRO, ASTOLFO b. 1926. B.Sc., Iowa State Univ. of Science and Tech. 1959. Plant Science—Agronomy (s). Appointed from Natl. Inst. of Agric. and Livestock Tech., Guatemala City. Place of study: U.S.A., 1962-. (AS)

JUAREZ PEREZ, JORGE LUIS b. 1932. Ing.Agr., Univ. of San Carlos 1960. Plant Science—Genetics and Breeding (s). Appointed from Natl. Inst. of Agric. and Livestock Tech., Quezaltenango. Place of study: Mexico, 1962-. (AS)

HONDURAS

FERNANDEZ DE CORDOVA HUERTA, FERNANDO b. 1935. M.S., Univ. of Florida 1960. Soil Science (s). Appointed from Pan American Agric. School, Tegucigalpa. Place of study: U.S.A., 1962-. (AS)

MEXICO

AMAYA CELIS, ARNOLDO b. 1936. Ing.Agr., Antonio Narro Coll. of Agric., Univ. of Coahuila, Saltillo, 1958. Agronomy (s). Appointed from Natl. Inst. of Agric. Research, Mexico City. Place of study: U.S.A., 1962-. (AS)

BRAMBILA, SERGIO b. 1930. M.S., Cornell Univ. 1960. Animal Science—Poultry Husbandry (F). Appointed from Natl. Inst. of Agric. Research, Mexico City. Place of study: U.S.A., 1962-. (AS)

CORONEL TORRES, FERNANDO b. 1932. Ing.Agr., Antonio Narro Coll. of Agric., Univ. of Coahuila, Saltillo, 1958. Soil Science (s). Appointed from Natl. Inst. of Agric. Research, Mexico City. Place of study: U.S.A., 1962-. (AS)

COTA AGRAMONT, OSCAR b. 1935. Ing.Agr., Natl. School of Agric., Chapingo, 1961. Plant Science—Genetics and Breeding (s). Appointed from Natl. Inst. of Agric. Research, Ciudad Obregón. Place of study: U.S.A., 1962-. (AS)

DIAZ SANTANA, GILBERTO b. 1938. Library Science (s). Appointed from Natl. Inst. of Agric. Research, Mexico City. Place of study: Costa Rica, 1962-. (AS)

DIES ANGULO, FEDERICO b. 1936. M.D., Natl. Univ. of Mexico, Mexico City, 1959. Physiology (F). Appointed from Hosp. for Nutritional Diseases, Mexico City. Place of study: U.S.A., 1962-. (MNS)

ECHEGARAY ALEMAN, ALFREDO b. 1922. M.S., Natl. School of Agric., Chapingo, 1961. Soil Science (s). Appointed from Natl. School of Agric. Place of study: U.S.A., 1962-. (AS)

- FLORES REYES, ISALAS P. b. 1927. M.S., Univ. of California 1959. Plant Science—Horticulture (s); Plant Science (s). Appointed twice from Tech. Inst. and School of Advanced Studies of Monterrey. Place of study: U.S.A., 1958-1959; 1962-. (AS)
- KATO YAMAKAKE, TAKEO ANGEL b. 1932. Ing. Agr., Natl. School of Agric., Chapingo, 1961. Plant Science—Genetics and Breeding (s). Appointed from Natl. Inst. of Agric. Research, Mexico City. Place of study: U.S.A., 1962-. (AS)
- KNAUTH, JOSEFINA ZORAIDA VAZQUEZ DE b. 1932. Ph.D., Univ. of Madrid, Spain, 1958. American History (s). Appointed from Colegio de México, Mexico City. Place of study: U.S.A., 1962-. (HSS)
- LEON OCHOA, HORACIO b. 1936. Ing. Agr., Natl. School of Agric., Chapingo, 1960. Soil Science (s). Appointed from Natl. School of Agric. Place of study: U.S.A., 1962-. (AS)
- MANRIQUE CASTANEDA, JORGE ALBERTO b. 1936. M.A., Natl. Univ. of Mexico, Mexico City, 1962. History (s). Appointed from Colegio de México, Mexico City. Place of study: France, 1962-. (HSS)
- MARQUEZ SANCHEZ, FIDEL b. 1935. Ing. Agr., Natl. School of Agric., Chapingo, 1960. Plant Science—Genetics and Breeding (s). Appointed from Natl. Inst. of Agric. Research, Culiacan. Place of study: U.S.A., 1962-. (AS)
- MONCADA DE LA FUENTE, JESUS b. 1934. M.Sc., Natl. School of Agric., Chapingo, 1961. Soil Science (s). Appointed from Natl. Inst. of Agric. Research, Mexico City. Place of study: U.S.A., 1962-. (AS)
- MUNOZ FLORES, IGNACIO b. 1933. Ing. Agr., Natl. School of Agric., Chapingo, 1961. Plant Science (s). Appointed from Natl. Inst. of Agric. Research, Culiacan. Place of study: U.S.A., 1962-. (AS)
- NADURILLE TELLEZ, RAMON b. 1934. B.A., Natl. Univ. of Mexico, Mexico City, 1957. Library Science (s). Appointed from Natl. Inst. of Agric. Research, Mexico City. Place of study: U.S.A., 1962-. (AS)
- ORTEGA ANDAPIA, ALFONSO CARLOS b. 1934. Ing. Agr., Natl. School of Agric., Chapingo, 1959. Economics and Rural Life (Agricultural Journalism) (s). Appointed from Natl. Inst. of Agric. Research, Mexico City. Place of study: U.S.A., 1962-. (AS)
- PACHECO MORALES, MARIO GONZALEZ b. 1929. Q.B.P., Natl. School of Biol. Sciences, Mexico City, 1956. Microbiology (F). Appointed from Univ. of San Luis Potosí. Place of study: U.S.A., 1962-. (MNS)

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PUENTE FLORES, FIDENCIO b. 1929. M.S., Oklahoma State Univ. 1960. Soil Science (s). Appointed from (1) Office of Special Studies, Mexico City; (2) Natl. Inst. of Agric. Research, Mexico City. Place of study: U.S.A., 1958-1960; 1962-. (AS)

RAZON OSTOS, IGNACIO b. 1936. B.S.Econ., Tech. Inst. and School of Advanced Studies of Monterrey 1960. Economics (s). Appointed from Tech. Inst. and School of Advanced Studies of Monterrey. Place of study: U.S.A., 1962-. (HSS)

SERRANO PALENCIA, JOSE LUIS b. 1933. Ing.Agr., Tech. Inst. and School of Advanced Studies of Monterrey 1958. Plant Science—Horticulture (s). Appointed from Natl. Inst. of Agric. Research, Veracruz. Place of study: U.S.A., 1962-. (AS)

SOLANA-MARTAGON, PEDRO b. 1934. D.V.M., Natl. Univ. of Mexico, Mexico City, 1961. Animal Science—Veterinary Science (s). Appointed from Natl. Inst. of Agric. Research, Mexico City. Place of study: U.S.A., 1962-. (AS)

TORRES M., LUIS ALEJANDRINO b. 1934. Cert., Natl. Polytechnic Inst., Mexico City, 1961. Visual Arts (s). Appointed from Natl. Inst. of Anthropology and History, Mexico City. Place of study: U.S.A., 1962-. (HSS)

VELASCO MOLINA, HUGO ALEJO b. 1931. M.S., Texas Agric. and Mechanical Coll. 1956. Soil Science (s). Appointed from Univ. of Coahuila, Saltillo. Place of study: U.S.A., 1962-. (AS)

VILLANUEVA BARRADAS, JUAN RIGOBERTO b. 1934. Ing.Agr., Natl. School of Agric., Chapingo, 1961. Entomology (s). Appointed from Natl. Inst. of Agric. Research, Veracruz. Place of study: U.S.A., 1962-. (AS)

PERU

ARROYO VERGARA, JULIO ROGER b. 1931. Ing.Agr., Natl. School of Agric., La Molina, Lima, 1958. Experimental Statistics (s). Appointed from Agric. Exper. Station, Tingo Maria. Place of study: U.S.A., 1962-. (AS)

ESCOBAR SAMBRANO, MANUEL ALBERTO b. 1929. Ph.D., Univ. of Munich, Germany, 1958. Linguistics (F). Appointed from Univ. of San Marcos, Lima. Place of study: U.S.A., 1962-. (HSS)

INDACOCHEA PEJOVES, LUISA b. 1932. Cert. of Library Science, School of Library Science, Lima, 1959. Library Science (s). Appointed from Agrarian Univ., La Molina, Lima. Place of study: U.S.A., 1962-. (AS)

MORENO, ULISES b. 1931. Ing.Agr., Agrarian Univ., La Molina, Lima, 1960. Plant Science—Botany (s). Appointed from Agrarian Univ. Place of study: U.S.A., 1962-. (AS)

NUNEZ, QUITERIO b. 1926. D.V.M., Natl. Univ. of La Plata, Argentina, 1949. Veterinary Science (s). Appointed from Univ. of San Marcos, Lima. Place of study: U.S.A., 1962-. (AS)

SOIKES, RAUL S. b. 1928. M.S., Inter-American Inst. of Agric. Sciences, Turrialba, Costa Rica, 1958. Animal Science (s). Appointed from Agrarian Univ., La Molina, Lima. Place of study: U.S.A., 1962-. (AS)

SYLVESTER PAUTRAR, FRANCISCO b. 1917. Ing.Agr., Natl. School of Agric., La Molina, Lima, 1951. Animal Science—Dairy Husbandry (s). Appointed from Agrarian Univ., La Molina, Lima. Place of study: U.S.A., 1962-. (AS)

URUGUAY

RODRIGUEZ MONEGAL, EMIR b. 1921. B.A., Alfredo Vasquez Acevedo Inst., Montevideo, 1942. Literature (F). Appointed from Enseñanza Secundaria and Inst. of Professors, Montevideo. Place of study: U.S.A., 1962-. (HSS)

WEST INDIES

Jamaica

ALLEYNE, MERVIN COLERIDGE b. 1933. Ph.D., Univ. of Lyon, France, 1959. Intercultural Understanding—Linguistics (F). Appointed from Univ. of the West Indies, Mona. Place of study: U.S.A., 1962-. (HSS)

AUGIER, FITZROY RICHARD b. 1924. Ph.D., Univ. of St. Andrews, Scotland, 1954. History (F). Appointed from Univ. of the West Indies, Mona. Place of study: England, 1962-. (HSS)

BROOKS, STANLEY EDWARD HAMILTON b. 1927. M.B., B.S., Univ. Coll. of the West Indies, Mona, 1957. Pathology (F). Appointed from Univ. of the West Indies, Mona. Place of study: U.S.A., 1962-. (MNS)

ÇÖRE, DON OTTO b. 1921. M.D., Columbia Univ. 1951. Experimental and Cardiovascular Surgery (F). Appointed from Univ. of the West Indies, Mona. Place of study: England, 1962-. (MNS)

HILL, ERROL GASTON b. 1921. Grad.Dipl., Royal Acad. of Dramatic Art, London, England, 1951. Drama (F). Appointed from Univ. of the West Indies, Mona. Place of study: U.S.A., 1962-. (HSS)

Trinidad

JONES, RALPH LEONARD ERROL b. 1923. Queens Royal Coll. 1942. Drama (F).
Appointed from Little Carib Theatre, Port-of-Spain. Place of study: U.S.A.,
1962-. (HSS)

WILLIAMS, GEORGE RANDOLPH b. 1930. Drama (s). Appointed from Little Carib
Theatre, Port-of-Spain. Place of study: U.S.A., 1962-. (HSS)

GRANTS MADE IN AFRICA

*MNS: Medical and Natural Sciences; AS: Agricultural Sciences;
HSS: Humanities and Social Sciences; G: General; F: Fellow; S: Scholar*

CONFERENCE ON THE ORGANIZATION of scientific research in Africa, to be held at the Villa Serbelloni, Bellagio, Italy; \$17,000; (AS-MNS)

CAMEROON

PURCHASE OF A COLLECTION of basic books in international relations for the Ministry of Foreign Affairs, Yaoundé; \$3,500; (HSS)

CONGO

LOVANIUM UNIVERSITY, Leopoldville:

Equipment and library materials for the Faculty of Medicine, and expenses of foreign medical graduates studying at the university; \$100,000 through June, 1963; (MNS)

General development; \$100,000 through June, 1963; (G)

Development of an exchange program of academic staff and students with the University of Dakar, Senegal; \$8,000; (G)

Equipment for the Institute of Economic and Social Research; \$4,235; (HSS)

PURCHASE OF A COLLECTION of basic books in international relations for the Ministry of Foreign Affairs, Leopoldville; \$3,500 through 1963; (HSS)

ETHIOPIA

HAILE SELASSIE I UNIVERSITY, Addis Ababa: expenses of six consultants to advise on medical education in Ethiopia; \$10,000; (MNS)

IMPERIAL ETHIOPIAN COLLEGE OF AGRICULTURE AND MECHANICAL ARTS, Dire Dawa: development of a program of special lectures and seminars in the arts and sciences; \$8,000; (AS)

GHANA

ARTS COUNCIL OF GHANA, Accra: development of the Ghana Drama Studio, under the direction of Mrs. Efua Sutherland; £3,520 (about \$10,000); (HSS)

UNIVERSITY OF GHANA, Legon, Accra:

Expenses of the director of a writers' workshop at the Institute of African Studies; £3,340 (about \$9,520) for a two-year period; (HSS)

To assist studies in African music, under the direction of J. H. Nketia, and to help meet the expenses of the research program of the Institute of African Studies; £3,250 (about \$9,260); (HSS)

Expenses of visiting professors in the Department of Physics; \$6,000; (MNS)

IVORY COAST

BERNARD DADIE, Director of Fine Arts and Research, Ministry of Education, Abidjan: to visit cultural institutions in West African countries, chiefly Ghana and Nigeria; \$1,125; (HSS)

KENYA

EAST AFRICAN COMMON SERVICES ORGANIZATION, Nairobi: mobile animal research laboratory for the East African Agriculture and Forestry Research Organization, Kikuyu; \$20,000; (AS)

EGERTON COLLEGE, Njoro:

Laboratory equipment; \$10,000; (AS)

M. A. Barrett, principal; to confer with specialists in agricultural education and extension in Italy, the United States, Puerto Rico, Ghana, and Nigeria; \$3,725; (AS)

GRAHAM HYSLOP, Office of the Chief Inspector of Schools, Education Department, Nairobi: to study developments in research in African music in South and Central Africa, and in West Africa where he will be accompanied by Henry Owuor, teacher in a boys' secondary school in Kenya; \$4,900; (HSS)

RICHARD H. BENNISON, agricultural research officer, Department of Agriculture, Machakos: to visit research stations in the United States dealing with agricultural problems of semiarid regions; \$3,590; (AS)

ROYAL COLLEGE, UNIVERSITY OF EAST AFRICA, Nairobi:

Equipment for basic science and preclinical teaching and research, and development of its veterinary clinical facilities at Kabete; \$500,000 through June, 1965; (AS)

Development of research in the basic sciences; \$150,000 through June, 1965; (MNS)

Appointment of an additional staff member to the Department of History; 81,000 East African shillings (about \$11,700) for a two-year period; (HSS)

Development of teaching and research in economics; \$5,500 through 1964; (HSS)

Advanced training of a potential faculty member in economics; 19,565 East African shillings (about \$2,830); (HSS)

VETERINARY RESEARCH LABORATORY, Department of Veterinary Services, Ministry of Agriculture, Animal Husbandry, and Water Resources, Kabete: publications for its central and field station libraries; \$9,000; (AS)

MALI

DR. BROOKS RYDER, chief public health physician, United States Agency for International Development, United States Embassy, Bamako: to discuss the establishment of a training program for assistant medical officers of health with officials of the Ministry of Health and Labour, Dar es Salaam, Tanganyika; \$1,625; (MNS)

NIGERIA

MRS. OLABOWALE ADETOUN BAILEY, registrar, Nursing Council for Nigeria, Federal Ministry of Health, Lagos: to observe basic and postbasic training programs at centers of nursing education in the United States; \$2,400; (MNS)

D. L. CURTIS, senior specialist in charge of botany, Regional Research Station, Ministry of Agriculture of the Northern Region, Samaru: to confer with specialists in the field of sorghum breeding in the United States; \$3,020; (AS)

MRS. NORA MAJEKODUNMI, Nigerian Council for Art and Culture, Lagos: to visit arts councils and community centers in the United States, the United Kingdom, and Canada; \$3,625; (HSS)

NIGERIA SECONDARY SCHOOL, Nnewi, Eastern Region: laboratory equipment for science courses; \$5,000; (AS)

NIGERIAN BROADCASTING CORPORATION, Lagos: development of reference libraries, including works on African history, culture, and the arts; £1,755 (about \$5,000) for a two-year period; (HSS)

UNIVERSITY OF IBADAN:

Development of the drama program; \$200,000 for a 54-month period; (HSS)

Research and teaching in rural pediatrics and nutrition, and extension of studies of agricultural production, under the direction of Dr. W. R. F. Collis, Institute of Child Health; 64,300 Nigerian pounds (about \$182,000) through June, 1965; (MNS-AS)

Development of an interuniversity graduate study program in chemistry with Brown University, Providence, Rhode Island; \$10,000; (MNS)

To assist the Faculty of Agriculture in securing the services of a lecturer in agricultural economics; \$10,000 for a two-year period; (AS)

Equipment for the Department of Chemistry; \$9,000; (MNS)

Research and teaching equipment for the experimental embryology unit in the Department of Anatomy; \$6,000; (MNS)

Development of an itinerant theatre, under the direction of Ogunmola; £2,075 (about \$5,900); (HSS)

Expenses in connection with the appointment of Dr. E. Latunde Odeku to the Department of Surgery for a four-month period; \$5,380; (MNS)

Dr. A. N. A. Modebe, lecturer in animal husbandry, Faculty of Agriculture; to visit centers of research on poultry and swine production in the United States, Ireland, and Denmark; \$4,315; (AS)

Dr. R. J. McIlroy, professor of agriculture; to visit agricultural research and education centers in the United States; \$3,800; (AS)

Dr. Theophilus Oladipo Ogunlesi, associate professor, Department of Medicine; to observe programs of research in endemic diseases and rural medicine at medical centers in Colombia, Panama, Jamaica, and the United States; \$3,625; (MNS)

Geoffrey Axworthy, senior lecturer in English; to consult with theatre specialists and visit drama centers, mainly in the United States, in connection with the development of the university's program in drama; \$3,350; (HSS)

Dr. Herbert Michael Gilles, professor of preventive and social medicine; to observe current training and research programs at centers of preventive medicine in South America and the United States; \$2,865; (MNS)

Professor William Wilkin Davey, head, Department of Surgery; to observe methods of training and research in surgery at medical schools in the United States and Canada; \$2,700; (MNS)

Martin Banham, lecturer in English; to visit centers of theatrical activity in the United States in connection with the university's proposed School of Drama; \$2,150; (HSS)

To invite Dr. Lois B. Murphy, research psychologist, the Menninger Foundation, Topeka, Kansas, to serve as a consultant on a program of community mental health; \$1,530; (MNS)

Library books for the Department of Economics and Social Studies; \$1,200; (HSS)

Dr. George Millar Edington, dean, Faculty of Medicine; to observe teaching and research in pathology at medical centers in the United States and Canada; \$1,000; (MNS)

UNIVERSITY OF IBADAN HOSPITAL:

Miss Isabella Watson Cunningham Fimister, principal, School of Nursing; to observe basic and postbasic teaching programs at nursing schools in the United States, Canada, and Europe; \$2,900; (MNS)

Development of the library of the School of Nursing; \$2,000; (MNS)

SENEGAL

UNIVERSITY OF DAKAR:

Development of an exchange program of academic staff and students with Lovanium University, Leopoldville, the Congo; \$8,000; (G)

Dr. Jean-Marie Pierre Pène, professor of medical pathology, Faculty of Medicine and Pharmacy; to gather data on the incidence of liver disease, and to observe community health programs at medical centers in Latin America and the West Indies; \$3,000; (MNS)

SIERRA LEONE

UNIVERSITY COLLEGE OF SIERRA LEONE, FREETOWN: economic appraisal of the Sierra Leone diamond industry, by H. L. van der Laan, lecturer in economics; £800 (about \$2,280); (HSS)

SOUTHERN RHODESIA

UNIVERSITY COLLEGE OF RHODESIA AND NYASALAND, SALISBURY:

Dr. Lindsay Alexander Gordon Davidson, professor and head, Department of Medicine, Medical School; to observe recent developments in medical education at medical centers in the Far East, North and South America, Europe, the Middle East, and Africa; \$6,150; (MNS)

Dr. Alexander Patrick Davidson Thomson, professor and head, Department of Pre-Clinical Studies, Medical School; to observe recent developments in medical education at medical centers in the Far East, North and South America, Europe, the Middle East, and Africa; \$6,150; (MNS)

Continued studies of the biology of ticks, in the Department of Zoology; \$5,210; (MNS)

Dr. Arthur Desmond Harrison, senior research fellow, Department of Zoology; to observe current research in snail ecology and hydrobiology at scientific centers in the United States and Europe; \$3,185; (MNS)

SUDAN

UNIVERSITY OF KHARTOUM:

Expansion and development of teaching and research facilities and personnel in the Faculties of Arts, Science, Agriculture, Veterinary Science, and Medicine, and in the library; \$500,000 for a 66-month period; (G)

Research on governmental and political institutions and processes in the Sudan; 2,950 Sudanese pounds (about \$8,555) for a three-year period; (HSS)

Research by Dr. R. Kanagasuntheram, reader in anatomy, at the Laboratory of Neurophysiology, University of Wisconsin, Madison, under the direction of Dr. Clinton N. Woolsey, Department of Physiology; \$700; (MNS)

TANGANYIKA

MEDICAL TRAINING CENTER, MINISTRY OF HEALTH AND LABOUR, Dar es Salaam: development of a training program for rural physicians; 1,000,000 East African shillings (about \$152,000) through 1967; (MNS)

PURCHASE OF REFERENCE BOOKS for the Regional and District Agricultural Headquarters, Ministry of Agriculture, Dar es Salaam; \$7,500; (AS)

TANGANYIKA COMMUNITY DEVELOPMENT TRUST FUND, Dar es Salaam: support of projects in the community development aspects of health and agriculture in Tanganyika; \$5,000; (G)

UNIVERSITY COLLEGE, UNIVERSITY OF EAST AFRICA, Dar es Salaam:

Recruitment of staff for the Faculty of Arts; \$60,000 through June, 1964; (HSS)

Expenses of R. C. Lawson, head binder at the library of the University of Khartoum, the Sudan, in connection with his attendance at a meeting of librarians to advise the college on the training of binders; 8,128 East African shillings (about \$1,225); (HSS)

TOGO

PURCHASE OF A COLLECTION of basic books in international relations for the Ministry of Foreign Affairs, Lomé; \$4,500 through 1963; (HSS)

UGANDA

EAST AFRICAN VIRUS RESEARCH INSTITUTE, Entebbe: to enable Dr. John P. Woodall, scientific officer, to visit virus research centers in the United States, South America, and the Caribbean; \$5,700; (MNS)

MAKERERE UNIVERSITY COLLEGE, UNIVERSITY OF EAST AFRICA, Kampala:

Development of a field research and training center in the Department of Preventive Medicine; \$180,000 through 1966; (MNS)

Support of teaching and research in the Faculty of Agriculture; \$60,000 through June, 1965; (AS)

Training of local graduates for appointment to senior administrative posts in the University of East Africa; \$55,000 through June, 1966; (HSS)

Expenses of a visiting professor of development economics for two academic years; 199,500 East African shillings (about \$29,925); (HSS)

Support of a pilot scheme to train local candidates for supernumerary posts; \$10,000; (MNS)

Research on bilharziasis, by P. J. Fripp; \$10,000; (MNS)

Professor Fergus Wilson, dean, Faculty of Agriculture; to observe research and extension programs at agricultural colleges in the United States; \$4,980; (AS)

To invite Professor Sven Henningsen, University of Copenhagen, Denmark, to serve as a visiting professor in international relations; \$3,275; (HSS)

Dr. Derrick Brian Jelliffe, professor of pediatrics and child health, Medical School; to serve as a visiting professor at the School of Public Health, University of California, Berkeley, and to study recent trends in preventive pediatrics and public health aspects of material and child health; \$3,100; (MNS)

Dr. R. W. Beachey, head, Department of History; to visit universities in the Middle East and the United Kingdom for the purpose of recruiting an instructor for his department; \$1,500; (HSS)

PURCHASE OF A COLLECTION of basic books in international relations for the Ministry of External Relations, Entebbe; \$4,500. (HSS)

STUDY AWARDS

ETHIOPIA

GULILAT, TAYE b. 1935. M.A., Univ. of Wisconsin 1958. Economics (s). Appointed from Haile Selassie I Univ., Addis Ababa. Place of study: U.S.A., 1962-. (HSS)

KEBRET, MAKONNEN b. 1935. M.S., Univ. of Illinois 1961. Education and Vocation (s). Appointed from Imperial Coll. of Agric. and Mechanical Arts, Dire Dawa. Place of study: U.S.A., 1962-. (AS)

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MENGESHA, HAILU b. 1934. B.S., Imperial Coll. of Agric. and Mechanical Arts, Dire Dawa, 1960. Plant Science—Genetics and Breeding (s). Appointed from Min. of Agric., Addis Ababa. Place of study: U.S.A., 1962-. (AS)

SAMU-NEGUS HAILE MARIAM b. 1935. M.S., Univ. of California 1960. Plant Science—Horticulture (s). Appointed from Imperial Coll. of Agric. and Mechanical Arts, Dire Dawa. Place of study: U.S.A., 1962-. (AS)

GHANA

ABRAHAM, WILLIAM EMMANUEL b. 1934. B.Phil., Univ. of Oxford, England, 1959. Philosophy (F). Appointed from Univ. of Oxford. Place of study: Ghana, 1962-. (HSS)

AKIWUMI, AYODELE b. 1935. Midwifery Cert., Central Midwives' Board, Princess Mary's Maternity Hosp., Newcastle-upon-Tyne, England, and Halifax District Nurses' Assoc. 1960. Nursing Education (s). Appointed from Min. of Health, Accra. Place of study: Canada, 1962-. (MNS)

MENSAH, ATTA ANNAN b. 1925. Grad.Dipl., Trinity Coll. of Music, London, England, 1956. Music (F). Appointed from Univ. of Ghana, Accra. Place of study: U.S.A., 1962-. (HSS)

NIGERIA

ABIFARIN, DAVID AYOTUNKU b. 1935. B.Sc., Univ. of Ibadan 1962. Plant Science—Genetics and Breeding (s). Appointed from Min. of Agric. of Northern Region, Samaru. Place of study: U.S.A., 1962-. (AS)

ADADEVOH, BABATUNDE KWAKU b. 1933. M.R.C.P., Univ. of Birmingham, England, 1961. Biochemistry (F). Appointed from Univ. of Ibadan. Place of study: U.S.A., 1962-. (MNS)

ADEBONOJO, FESTUS OLU b. 1931. M.D., Yale Univ. 1960. Pediatrics (F). Appointed from Univ. of Ibadan. Place of study: U.S.A., 1962-. (MNS)

ADELUGBA, DAPO b. 1939. B.A., Univ. of Ibadan 1962. Drama (s). Appointed from Univ. of Ibadan. Place of study: U.S.A., 1962-. (HSS)

AKE, CLAUDE b. 1938. B.Sc., Univ. of Ibadan 1962. Public Law and Government (s). Appointed while a student at Univ. of Ibadan. Place of study: U.S.A., 1962-. (HSS)

EDOZIEN, EMMANUEL CHUKWUMA b. 1937. B.Sc., Univ. of Ibadan 1962. Economics (s). Appointed from Univ. of Ibadan. Place of study: U.S.A., 1962-. (HSS)

EUBA, OLATUNJI AKINTUNDE b. 1935. Fellow, Univ. of London, England, 1957. Music (F). Appointed from Nigerian Broadcasting Corp., Lagos. Place of study: U.S.A., 1962-. (HSS)

ILORI, SOLOMON GBADEGESIN b. 1934. Dipl., Royal Coll. of Music, London, England, 1954. Music (S). Appointed while studying in the United States. Place of study: U.S.A., 1962-. (HSS)

NGU, VICTOR ANOMAH b. 1926. F.R.C.S., Royal Coll. of Surgeons, London, England, 1959. Cancer Research and Chemotherapy (F). Appointed from Univ. of Ibadan. Place of study: U.S.A., 1962-. (MNS)

UCHENDU, VICTOR CHIKEZIE b. 1934. B.Sc., Univ. of Ibadan 1962. Sociology (S). Appointed while a student at Univ. of Ibadan. Place of study: U.S.A., 1962-. (HSS)

UDEOZO, IJENNA OSITA KANAYO b. 1926. D.C.P., Post Grad. Med. School, Univ. of London, England, 1960. Protein Chemistry (F). Appointed from Univ. of Ibadan. Place of study: U.S.A., 1962-. (MNS)

SOUTHERN RHODESIA

CHAVUNDUKA, GORDON LLOYD b. 1931. Sociology (S). Appointed from Univ. Coll. of Rhodesia and Nyasaland, Salisbury. Place of study: U.S.A., 1962-. (HSS)

FUSIRE, PAUL GRAY b. 1934. Sociology (S). Appointed from Univ. Coll. of Rhodesia and Nyasaland, Salisbury. Place of study: U.S.A., 1962-. (HSS)

UGANDA

GIATTAS, CHRISTOPHER STEPHEN b. 1934. D.V.M., Makerere Univ. Coll., Kampala, 1960. Animal Science—Veterinary Science (S). Appointed from Royal Coll., Kabete, Kenya. Place of study: U.S.A., 1962-. (AS)

NDEGWA, PHILIP b. 1936. B.S., Makerere Univ. Coll., Kampala, 1962. Economics (S). Appointed while a student at Makerere Univ. Coll. Place of study: U.S.A., 1962-. (HSS)

GRANTS MADE IN THE MIDDLE EAST

*MNS: Medical and Natural Sciences; AS: Agricultural Sciences;
HSS: Humanities and Social Sciences; F: Fellow; S: Scholar*

EXPENSES OF LEADING ARABIC-LANGUAGE playwrights, critics, and producers in connection with their attendance at a conference on the Arab theatre, to be held at the Villa Serbelloni, Bellagio, Italy; \$10,000; (HSS)

IRAN

UNIVERSITY OF SHIRAZ:

Dr. Mohsen Ziai, chairman, Department of Pediatrics, Nemazee Hospital; to observe recent developments in medical education, particularly in pediatrics, at medical centers in the United States; \$6,225; (MNS)

Shipment of a collection of library materials to the Faculty of Medicine; \$900; (MNS)

MRS. FATEME SALSALI ZABIH, chief nurse, Department of Public Health, Ministry of Health, Tehran: to observe postgraduate nursing programs and methods of evaluating and accrediting nursing schools at nursing centers in the United States; \$3,325; (MNS)

IRAQ

AL-HIKMA UNIVERSITY, Baghdad: preparation of a detailed descriptive catalogue of the 4,000-volume Serkis Collection, under the direction of Hikmat Tomaschi, assistant to the custodian, Iraqi Museum Library, Directorate of Antiquities; \$9,000 for a three-year period; (HSS)

ISRAEL

HEBREW UNIVERSITY OF JERUSALEM: research on arthropod-borne viruses, under the direction of Dr. Natan Goldblum, Hadassah Medical School; \$24,000 for a three-year period; (MNS)

ARYE SIVE, director, Cold Storage Research Laboratory, Israel Fruit Growers Association, Kfar Blum: to confer with agricultural scientists in the United States, the United Kingdom, and on the Continent; \$4,150; (AS)

JORDAN

PURCHASE OF A COLLECTION of basic books in international relations for the Ministry of Foreign Affairs, Amman; \$4,500 through 1963; (HSS)

LEBANON

MISS IHSAN MAHMASSANI, director, Khalid Ibn-al-Walid School of the Maqassed Association, Beirut: to visit educational institutions in the United States; \$5,250; (HSS)

PAKISTAN

UNIVERSITY OF DACCA: research in biochemistry, under the direction of Dr. Kamal Ahmad; \$16,000 for a two-year period; (MNS)

SYRIA

MOHAMED AKRAM MIDANI, specialist in drama, Damascus: to visit leading playwrights in the Arabic-speaking countries of Europe and the Middle East; \$2,375; (HSS)

TURKEY

ISTANBUL MUNICIPAL THEATER:

Tunç Yalman, director-actor; to visit theatrical centers in Europe, the United States, and Canada; \$4,950; (HSS)

Duygu Sagioglu, set designer; to visit theatre centers and museums in Western Europe and the United States; \$3,375; (HSS)

ISTANBUL UNIVERSITY: research on the economic and social history of the Ottoman Empire, by Professor Omer Lütfi Barkan, Institute of Economic History; \$6,500; (HSS)

UNIVERSITY OF ANKARA:

Development of the educational program of the School of Nursing and Health Sciences; \$110,000 for a three-year period; (MNS)

Photographic equipment and supplies and library acquisitions for the Institute of Turkish and Islamic Art; \$15,000 for a two-year period; (HSS)

Development of personnel in the Institute of Turkish and Islamic Art; \$3,500 for an 18-month period; (HSS)

Dr. Mehmet Burhanettin Say, assistant professor of pediatrics and chief of pediatric hematology, Research Institute of Child Health, Faculty of Medi-

cine; to observe research and teaching in pediatrics, especially pediatric hematology, at medical centers in the United States and Europe; \$3,080. (MNS)

Dr. Ali Ertugrul, assistant professor of pediatrics and chief of pediatric cardiology, Hacettepe Children's Hospital, Faculty of Medicine; to observe research and teaching in pediatrics, especially pediatric cardiology, at medical centers in Europe, the United States, and Mexico; \$2,745. (MNS)

STUDY AWARDS

ALGERIA

BENOUAMEUR, RACHID b. 1934. M.A., Univ. of North Carolina 1962. Literature (s). Appointed from Univ. of Algiers. Places of study: Italy and U.S.A., 1962-. (HSS)

IRAN

KAMSHAD, HASSAN b. 1925. Ph.D., Univ. of Cambridge, England, 1959. Literature (F). Appointed from Iranian Oil Operating Companies, Tehran. Place of study: England, 1962-. (HSS)

PARVARESH, PARICHEHR b. 1936. Dipl. in Public Health Nursing, American Univ. of Beirut, Lebanon, 1960. Nursing Education (s). Appointed from Nemazee School of Nursing, Shiraz Med. Center. Place of study: U.S.A., 1962-. (MNS)

SAADTNEJADI, MOHAMMED b. 1922. M.D., Univ. of Shiraz 1958. Maternal and Child Health (F). Appointed while a resident at Univ. of Mississippi Med. Center. Place of study: U.S.A., 1962-. (MNS)

IRAQ

AL-ABBAS, YASIEN ABDULKAREEM b. 1915. Ph.D., Univ. of Minnesota 1956. History (F). Appointed from Univ. of Baghdad. Place of study: England, 1962-. (HSS)

ALJUBOURI, ALA'UDDIN HAMMOUDI b. 1928. M.A., Univ. of California 1953. Literature (s). Appointed from Univ. of Baghdad. Places of study: England and U.S.A., 1962-. (HSS)

MOROCCO

MELEHI, MOHAMED BEN AHMEN b. 1936. Natl. School of Fine Arts, Paris, France. Visual Arts (F). Appointed from Asilah, Morocco. Place of study: U.S.A., 1962-. (HSS)

PAKISTAN

ALAM, SYED NURUL b. 1931. M.S., Inst. of Social Studies, the Hague, Netherlands, 1954. Economics (s). Appointed from Univ. of Dacca. Place of study: U.S.A., 1962-. (HSS)

MURSHID, KHAN SARWAR b. 1924. Ph.D., Univ. of Nottingham, England, 1956. Literature (F). Appointed from Univ. of Dacca. Place of study: U.S.A., 1962-. (HSS)

QURESHI, SABIRA b. 1926. R.N., J. J. Hosp., Bombay, India, 1952. Nursing Administration (s). Appointed from Lady Reading Hosp., Peshawar. Place of study: U.S.A., 1962-. (MNS)

ROBERTSON, CAROLINE b. 1922. F.A. Cert., Univ. of Punjab, Lahore, 1960. Public Health Nursing Administration (s). Appointed from Public Health Nursing School, Lahore. Place of study: U.S.A., 1962-. (MNS)

TAHIR, MUHAMMAD NAEEM b. 1937. M.A., Univ. of Punjab, Lahore, 1957. Drama (s). Appointed from Pakistan Art Council, Lahore. Place of study: U.S.A., 1962-. (HSS)

TURKEY

BAYKAL, YILMAZ b. 1929. M.D., Istanbul Univ. 1954. Epidemiology (F). Appointed from School of Public Health, Min. of Health and Social Assistance, Ankara. Place of study: U.S.A., 1962-. (MNS)

GUNALP, ALTAN b. 1933. M.D., Univ. of Ankara 1957. Virology (F). Appointed from Research Inst. of Child Health, Univ. of Ankara. Place of study: U.S.A., 1962-. (MNS)

KILI, SUNA SAHIKA b. 1929. Ph.D., Bryn Mawr Coll. 1953. Political Theory (F). Appointed from Robert Coll., Istanbul. Places of study: England and U.S.A., 1962-. (HSS)

MERAY, SEHA L. b. 1921. Dipl., Univ. of Ankara 1945. Law of Outer Space (F). Appointed from Univ. of Ankara. Place of study: Canada, 1962-. (HSS)

TIMÜR, TANER b. 1935. Ph.D., Univ. of Ankara 1962. Political Science (s). Appointed from Univ. of Ankara. Place of study: France, 1962-. (HSS)

UNITED ARAB REPUBLIC

HANNA, NADIA EBEID b. 1937. B.N., Univ. of Alexandria 1960. Nursing Education (s). Appointed from Univ. of Alexandria. Place of study: U.S.A., 1962-. (MNS)

HAWASHY, ZINAT IBRAHIM M. S. EL b. 1940. B.N., Univ. of Alexandria 1960.
Nursing Education (s). Appointed from Univ. of Alexandria. Place of study:
U.S.A., 1962-. (MNS)

IBRAHIM, AFAF FAHMY BAKI b. 1942. B.N., Univ. of Alexandria 1961. Public
Health Nursing and Nursing Education (s). Appointed from Univ. of Alex-
andria. Place of study: U.S.A., 1962-. (MNS)

GRANTS MADE IN INDIA

*MNS: Medical and Natural Sciences; AS: Agricultural Sciences;
HSS: Humanities and Social Sciences; G: General; F: Fellow; S: Scholar*

ALL INDIA INSTITUTE OF MEDICAL SCIENCES, New Delhi:

Dr. G. C. Tandan, professor of anesthesiology; to observe current teaching and research in anesthesiology, with particular reference to cardiac surgery, at medical centers in North America and Europe; \$5,450; (MNS)

Dr. Sujoy B. Roy, professor of cardiology; to observe current teaching and research in cardiology at medical centers in North America and Europe; \$5,250; (MNS)

Dr. Eric J. Lazaro, professor of thoracic surgery; to observe recent developments in cardiovascular research at medical centers in North America and Japan; \$4,600; (MNS)

BANARAS HINDU UNIVERSITY, Varanasi: equipment and supplies for research in the Department of Zoology, under the direction of Dr. S. P. Ray Chaudhuri, professor of zoology; \$10,000; (MNS)

DR. S. R. BAROAH, director of agriculture and director of fisheries, Government of Assam, Shillong; to study recent agricultural developments at land-grant colleges and experiment stations in the United States, Japan, the Philippines, Hong Kong, Israel, and Europe; \$9,990; (AS)

CALCUTTA SCHOOL OF TROPICAL MEDICINE:

Equipment and supplies for virus research; \$15,000 for a two-year period; (MNS)

Dr. Smriti Narayan Chatterjee, biophysicist; to observe current research on electron microscopy at laboratories while in the United States; \$2,050; (MNS)

CHRISTIAN MEDICAL COLLEGE, Vellore:

Training program for the medical record department staff; \$30,000 for a five-year period; (MNS)

Dr. Irwin Samuel, lecturer in pathology; to observe teaching methods and current research in pathology at medical centers while in the United States, England, and on the Continent; \$1,625; (MNS)

DR. C. O. DAS, head, Chemistry Department, Allahabad Agricultural Institute: to study dairy chemistry, statistical analysis, and the latest techniques in dairy science in Europe, the United States, Japan, and the Philippines; \$5,590; (AS)

DR. NIRMAL KUMAR DUTTA, assistant director, Department of Pharmacology, Haffkine Institute, Bombay: to study current methods of pharmacological research and drug control at laboratories in the United States and Thailand; \$2,260; (MNS)

GOVERNMENT GENERAL HOSPITAL, Madras: equipment and supplies for neuropathological studies in the Neurosurgery Unit, under the direction of Dr. B. Ramamurthi; \$3,000; (MNS)

GOVARDHAN BALBHADRA KUMAR HOOJA, vice-chancellor, Rajasthan Agricultural University, Udaipur: to study administrative organization, teaching, and research at colleges in the United States, Europe, Japan, Hong Kong, and Thailand; \$9,150; (AS)

INDIA INTERNATIONAL CENTRE, New Delhi:

Development of seminars in philosophy and history; \$10,000 for an 18-month period; (HSS)

Dr. B. Kuppuswamy, joint director; to study organizations and programs of international exchange, mainly in the United States; \$4,000; (C)

INDIAN AGRICULTURAL RESEARCH INSTITUTE, New Delhi:

Dr. K. C. Gulati, professor of agricultural chemistry, Post Graduate School; to study the organization of postgraduate teaching and to observe modern research techniques on the chemistry of pesticides at agricultural institutions in the continental United States and Hawaii; \$6,750; (AS)

Dr. B. R. Subba Rao, assistant professor of teaching and research, Division of Entomology; to study the techniques of the biological control of insects at research institutes and universities in Europe, Canada, the United States, and Japan; \$6,175; (AS)

INDIAN ASSOCIATION FOR THE ADVANCEMENT OF MEDICAL EDUCATION: general support; \$10,000; (MNS)

INDIAN COUNCIL OF AGRICULTURAL RESEARCH, New Delhi: research equipment; \$6,500; (AS)

INDIAN SCHOOL OF INTERNATIONAL STUDIES, New Delhi:

Development of its library collections of research materials on the major areas of Asia; \$150,000 for a five-year period; (HSS)

- Dr. V. P. Dutt, reader and head, Department of East Asian History and Institutions, and Mrs. Gargi Dutt, research assistant; to visit major centers of Asian studies while in the United States; \$2,125; (HSS)
- DR. S. KRISHNAMURTHI, dean and additional director of agriculture, Agricultural College and Research Institute, Coimbatore: to study research and education programs at agricultural colleges and research institutions in the Middle East, Europe, the United States, and the Far East; \$5,700; (AS)
- GIRJA KUMAR, librarian, Indian Council of World Affairs, New Delhi: to visit major social science research libraries, and to consult with classification specialists in Europe and the United States as part of research on library classification in the social sciences, with particular reference to international relations; \$3,850; (HSS)
- DR. K. L. NARASIMHAM, head, Directorate of Agriculture and Animal Husbandry, Government of Sikkim, Gangtok: to study temperate and citrus fruit production, canning industries, and floriculture at agricultural research stations in Japan, Italy, Hawaii, and the continental United States; \$4,650; (AS)
- NATIONAL MUSEUM, New Delhi: development of an advanced training program, including foreign study visits for staff members, under the direction of Dr. Grace Morley, director; \$10,000; (HSS)
- PANJAB UNIVERSITY, Chandigarh: development of a program of studies on Central and East Asia, under the direction of Dr. P. L. Mehra, reader, Department of History; \$7,000; (HSS)
- DR. SHARDA DEVI PAUL, staff member, Virus Research Centre, Poona: to observe the latest techniques of virus identification at the New York Virus Laboratories of The Rockefeller Foundation; \$2,050; (MNS)
- DR. PRAFULLA KUMAR SEN, professor and director of surgery, Seth Gordhandas Sunderdas Medical College, Bombay: to observe recent developments in cardiovascular surgery and research at medical centers in Japan, the United States, Mexico, and Europe; \$5,800; (MNS)
- PROFESSOR B. R. SESHACHAR, head, Department of Zoology, University of Delhi: to observe current research in biology at laboratories in the United States and Japan; \$4,400; (MNS)
- PREM NATH THAPAR, vice-chancellor, Punjab Agricultural University, Ludhiana: to observe administrative organization, teaching, and research at colleges in the United States, Europe, Japan, Hong Kong, and Thailand; \$5,175; (AS)
- DR. M. J. THIRUMALACHAR, chief of research, Hindustan Antibiotics Research Center, Poona: to plan advanced work with antibiotics in plant and human

diseases at mycological and medical microbiological centers in the United States; \$1,700; (AS)

UNIVERSITY OF CALCUTTA: equipment and supplies for research in the Department of Zoology, under the direction of Dr. Asok Ghosh, lecturer in zoology; \$8,500; (MNS)

UNIVERSITY OF LUCKNOW: research and training in the King George's Medical College and the Faculty of Science; \$76,000 and 180,000 rupees (a total of about \$114,700) for a three-year period; (MNS)

UNIVERSITY OF RAJASTHAN, Jaipur: equipment and supplies for research in zoology, under the direction of Professor L. S. Ramaswami, Department of Zoology; \$10,000. (MNS)

AGRICULTURAL OPERATING PROGRAM

INDIAN AGRICULTURAL PROGRAM; \$260,000.

VIRUS RESEARCH PROGRAM

FOR VIRUS RESEARCH IN INDIA; \$93,900.

STUDY AWARDS

ALI, SYED MAHBOOB b. 1927. B.Sc., Osmania Univ., Hyderabad, 1951. Plant Science—Genetics and Breeding (S). Appointed from Maize Breeding Station, Hyderabad. Place of study: U.S.A., 1962-. (AS)

DESHPANDE, RAUSHNI b. 1926. B.A., Univ. of Delhi 1960. Home Economics (S). Appointed from Lady Irwin Coll., New Delhi. Place of study: U.S.A., 1962-. (AS)

GHOSH, AMBICA PROSAD b. 1921. Ph.D., Univ. of Calcutta 1953. Economics (F). Appointed from Jadavpur Univ., Calcutta. Places of study: Norway and U.S.A., 1962-. (HSS)

GOVINDASWAMI, SIVARAM b. 1919. Ph.D., Univ. of Poona 1953. Plant Science—Agronomy and Genetics (F). Appointed from Central Rice Research Inst., Cuttack. Place of study: U.S.A., 1962-. (AS)

IYENGAR, N. SREENIVASA b. 1933. M.Stat., Indian Statistical Inst., Calcutta, 1962. Econometrics (S). Appointed from Indian Statistical Inst. Place of study: U.S.A., 1962-. (HSS)

- KOHLI, RAM PRAKASH b. 1926. M.D., Univ. of Lucknow 1954. Pharmacology (F). Appointed from Univ. of Lucknow. Place of study: U.S.A., 1962-. (MNS)
- KOTHARI, VINODCHANDRA NAGINDAS b. 1934. Ph.D., Univ. of Bombay 1962. Economics (F). Appointed from Univ. of Baroda. Place of study: U.S.A., 1962-. (MNS)
- KULKARNI, TRYAMBAK PANDURANG b. 1929. M.S., Univ. of Bombay 1956. Surgery (F). Appointed from Univ. of Bombay. Place of study: U.S.A., 1962-. (MNS)
- KUMAR, SUDHIR b. 1930. M.Sc., Univ. of Allahabad 1950. Plant Science—Horticulture (s). Appointed from S.K.N. Government Coll. of Agric., Jobner. Place of study: U.S.A., 1962-. (AS)
- MAJUMDAR, TAPAS b. 1929. Ph.D., London School of Econ. and Polit. Science, England, 1957. Economics (F). Appointed from Univ. of Calcutta. Place of study: England, 1962-. (HSS)
- NAG, KEDAR NARAIN b. 1927. M.S., Ohio State Univ. 1958. Agricultural Engineering (s). Appointed from Rajasthan Coll. of Agric., Udaipur. Place of study: U.S.A., 1962-. (AS)
- NIRMALA, P. S. b. 1936. B.Sc., Annamalai Univ., Annamalainger, 1957. Home Science (s). Appointed from Sri Avinashilingam Home Science Coll., Coimbatore. Place of study: U.S.A., 1962-. (AS)
- RASHID, MOHAMMAD ABDUL b. 1928. M.S., Oklahoma State Univ. 1958. Soil Science (s). Appointed from Min. of Food and Agric., New Delhi. Place of study: U.S.A., 1962-. (AS)
- SINGH, RAM MURAT b. 1924. Ph.D., Univ. of Agra 1956. Soil Science (F). Appointed from Rajasthan Coll. of Agric., Udaipur. Place of study: U.S.A., 1962-. (AS)
- SUNDAR RAO, PAMIDIPANI SAMUEL SIMON b. 1934. M.A., Univ. of Madras 1956. Public Health and Clinical Biostatistics (F). Appointed from Christian Med. Coll. and Hosp., Vellore. Place of study: U.S.A., 1962-. (MNS)

GRANTS MADE IN THE FAR EAST

*MNS: Medical and Natural Sciences; AS: Agricultural Sciences;
HSS: Humanities and Social Sciences; G: General; F: Fellow; S: Scholar*

AUSTRALIA

C. D. BLAKE, plant pathologist, New South Wales Department of Agriculture, Rydalmere; to observe recent developments in nematology at research centers in the United States; \$725; (AS)

UNIVERSITY OF ADELAIDE:

Equipment for research in the Department of Plant Pathology, Waite Agricultural Research Institute; \$6,216; (AS)

Dr. N. T. Flentje, head, Department of Plant Pathology, Waite Agricultural Research Institute; to confer with plant pathologists and education specialists in the United States and Canada; \$3,740; (AS)

Dr. Bruce Johnson, senior lecturer in entomology, Waite Agricultural Research Institute; to visit entomology centers in the United States and Canada; \$1,825; (AS)

Dr. Lloyd Woodrow Cox, professor of obstetrics and gynecology, Faculty of Medicine; to observe current research in obstetrics and gynecology at medical centers in the United States; \$1,520; (MNS)

Dr. Robert Henry Symons, lecturer in virus chemistry, Department of Agricultural Chemistry, Waite Agricultural Research Institute; to observe current research on plant viruses at biochemical research centers in the United States and Canada while en route from England to Australia; \$1,000; (MNS)

UNIVERSITY OF MELBOURNE:

Development of a new research program in human genetics, under the direction of Dr. P. A. Parsons, reader in human genetics, Department of Zoology; \$10,000 for a three-year period; (MNS)

Dr. Leslie John Ray, professor of anatomy; to observe anatomical teaching and research at medical schools in the United States and Canada while en route from Australia to England; \$2,470; (MNS)

Dr. Frederick Darien Collins, principal research officer, School of Biochemistry; to observe current research on lipid metabolism in the United States and Canada while en route from Australia to Europe; \$1,200; (MNS)

UNIVERSITY OF QUEENSLAND, BRISBANE:

Dr. L. J. H. Teakle, professor of agriculture; to confer with agricultural specialists in Southeast Asia; \$3,600; (AS)

Dr. Victor Bruce Darlington Skerman, professor of microbiology, Faculty of Medicine; to visit centers of microbiological research, while in the United States and Canada, to encourage the development of an international coding system for the classification of microorganisms; \$2,100; (MNS)

UNIVERSITY OF SYDNEY: research on electron microscopy, under the direction of Dr. Frank R. Magarey, dean, Faculty of Medicine; £A10,000 (about \$22,600) for a two-year period; (MNS)

UNIVERSITY OF WESTERN AUSTRALIA, Nedlands: equipment and supplies for research in electron microscopy in the Department of Pathology, School of Medicine; \$10,000; (MNS)

CEYLON

DR. WICKREMARACHIGE AJITHA KARUNARATNE, director of health services, Department of Health, Colombo: to observe the organization of health services and recent developments in medical education at medical centers in the United States, the Caribbean, Mexico, and Europe; \$3,660; (MNS)

HONG KONG

DR. H. STENTON, professor of botany, Department of Botany, University of Hong Kong: to review work in soil microbiology at university departments of botany and agriculture and at government agricultural experiment stations in the United States and Canada; \$900; (AS)

INDONESIA

TJOKORDA MAS, curator and secretary, Ubud Art Museum, Bali: to visit art museums in the United States, Europe, and India en route to Indonesia; \$1,800; (HSS)

UNIVERSITY OF INDONESIA, Djakarta: to enable Dr. Djaeni Sediaetama, Faculty of Medicine, to continue his studies at the Institute of Nutrition Sciences, Columbia University, New York; \$4,500; (MNS)

JAPAN

HOKKAIDO UNIVERSITY, Sapporo: research on forage crop production; \$28,700 for a three-year period; (AS)

INSTITUTE OF PUBLIC HEALTH, Tokyo: equipment and supplies for research in the Department of Nutrition and Biochemistry, under the direction of Dr. Gumpei Urata, technical official; \$10,000; (MNS)

INTERNATIONAL HOUSE OF JAPAN, INC., Tokyo:

Support of its general program and activities; \$90,000; (G)

Miss Naomi Fukuda, librarian; to survey Japanese collections in American universities, and to advise on the selection and acquisition of needed materials; \$3,800; (HSS)

DR. SUICHI ISHIZAWA, chief, Soil Microbiology Laboratory, National Institute of Agricultural Sciences, Tokyo: to visit centers of soil microbiological research in the United States and Canada, and to participate in an international symposium on plant pathogens at the University of California, Berkeley; \$2,775; (AS)

KEIO UNIVERSITY, Tokyo:

Equipment for immunochemical enzyme research in the School of Medicine, under the direction of Dr. Kenjiro Yasuda, assistant professor of anatomy; \$10,000; (MNS)

Dr. Tsuneo Tomita, professor of physiology, School of Medicine; to observe current research on the physiology of vision at medical institutions while in the United States and Europe; \$1,230; (MNS)

KOKUGAKUIN UNIVERSITY, Tokyo: to invite R. J. Zwi Werblowsky, professor of comparative religion, Hebrew University of Jerusalem, Israel, to study modern developments in religious life in Japan; \$5,000; (HSS)

KYOTO UNIVERSITY:

Studies of the genetics of wheat, by the Faculty of Agriculture; \$37,700 for a three-year period; (AS)

Equipment for research on protein synthesis, under the direction of Dr. Yoshihiro Hamashima, assistant professor, Pathological Institute, Faculty of Medicine; \$10,000; (MNS)

Equipment and supplies for biochemical research in the Department of Public Health, Faculty of Medicine, under the direction of Dr. Seiyo Sano, assistant professor; \$10,000; (MNS)

Dr. Shigeo Kariyone, assistant in medicine, Faculty of Medicine; to observe the medical application of radioisotopes at laboratories while in the United States; \$800; (MNS)

NATIONAL INSTITUTE OF GENETICS, Misima: studies of the origin of cultivated rice; \$60,000 for a three-year period; (AS)

J. T. OOHATA, Horticultural Research Station, Ministry of Agriculture and Forestry, Okitsu, Shimizu, Shizuoka: to observe experimental methods in citrus physiology at research centers and experiment stations in the United States; \$3,175; (AS)

OSAKA UNIVERSITY:

Research on hepatocerebral disease, under the direction of Dr. Isamu Sano, associate professor of neuropsychiatry, Medical School; \$9,000 for a three-year period; (MNS)

Dr. Yoshio Sasada, research assistant, Institute for Protein Research; to observe current research in X-ray crystallography at the Laboratory of Molecular Biology, Cambridge, England; \$1,200; (MNS)

DR. KENJI TAKEYA, associate professor, Department of Bacteriology, School of Medicine, Kyushu University, Fukuoka: to visit laboratories engaged in research in microbiology while in the United States, and to attend the Eighth International Congress for Microbiology in Montreal, Canada; \$825; (MNS)

TOKYO MEDICAL AND DENTAL UNIVERSITY: research on the genetics of isolated populations, under the direction of Dr. Toshiyuki Yanase, professor of clinical genetics; \$5,000; (MNS)

UNIVERSITY OF TOKYO:

Library development; \$120,000 through 1964; (HSS-AS)

Equipment for research on photosynthesis in the Faculty of Science, under the direction of Dr. Atusi Takamiya, professor of biophysics and biochemistry; \$8,000; (MNS)

Professor Masao Maruyama, Faculty of Law; to visit libraries and research centers in political science in Europe, especially in the Scandinavian countries; \$5,777; (HSS)

Professor Taizo Inokuma, Department of Forestry, Faculty of Agriculture; to visit libraries and institutions in the United States; \$3,300; (AS)

Daitsu Satake, secretary-general, Faculty of Agriculture; to visit libraries and institutions in the United States; \$3,300; (AS)

Dr. Seiji Kaya, president; to visit universities in the United States and their presidents; \$2,850; (G)

Dr. Minoru Matumoto, chief, Second Department of Virology, Institute for Infectious Diseases; to observe recent developments in virus research at medical centers in the United States, Canada, and Europe; \$1,110; (MNS)

Dr. Keiichi Takahashi, assistant in zoology, Zoological Institute, Faculty of Science; to observe current research in animal physiology at laboratories in the United States while en route from England to Japan; \$500; (MNS)

DR. TOSHIO WATANABE, head, Department of Soils and Fertilizers, National Kyushu Agricultural Experiment Station, Fukuoka: to study mechanized upland farming and land research at experiment stations in the United States; \$3,650; (AS)

KOREA

DR. KIM WON-YONG, professor of archaeology and anthropology, Seoul National University: to visit museums and centers of archaeological research in the United States, Europe, the Middle East, and South Asia; \$3,350; (HSS)

MALAYA

UNIVERSITY OF MALAYA, Kuala Lumpur: to invite Soekmono, director, National Archaeological Service, Djakarta, Indonesia, to conduct research at the university, and to visit centers of archaeological research in Southeast Asia; \$3,700; (HSS)

NEW ZEALAND

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH, Wellington: research on sweet potatoes in the Pacific islands, by D. E. Yen, scientific officer, Vegetable Station, Crop Research Division, Otahuhu; \$10,000; (AS)

DR. S. D. RICHARDSON, director of research, New Zealand Forest Service, Forest Research Institute, Rotorua: to observe plant physiology, forestry research, and the organization of research departments at universities and research centers in Europe, India, Japan, Hawaii, and the continental United States, and to present a paper on tree physiology at an international symposium at Harvard University, Cambridge, Massachusetts; \$2,850; (AS)

OKINAWA

UNIVERSITY OF THE RYUKYUS FOUNDATION, Naha: equipment for a program of creative work and study in ceramics at the University of the Ryukyus; \$10,000; (HSS)

PHILIPPINES

UNIVERSITY OF THE PHILIPPINES:

Los Baños:

Expenses of visits by teams of consultants in the agricultural sciences to the College of Agriculture; \$25,000 for a three-year period; (AS)

Dr. G. F. Saguiguit, director of instruction, College of Agriculture; to study undergraduate and graduate programs and systems of national examination at agricultural institutions in Europe, the United States, and the Far East, and to attend an international conference on agricultural education in Zurich, Switzerland; \$5,140; (AS)

Engracio Basio, chief librarian, College of Agriculture; to visit scientific libraries and institutions in South and Southeast Asia; \$4,040; (AS)

Dr. Amado C. Campos, associate professor of animal husbandry, College of Agriculture; to confer with poultry scientists in the Far East; \$2,750; (AS)

Mrs. Juanita C. Ranit, librarian, College of Forestry; to visit forestry libraries in the United States; \$2,540; (AS)

Emil Quinto Javier, Division of Plant Breeding, College of Agriculture; travel expenses in connection with a research assistantship awarded for graduate studies in plant genetics and plant breeding at the University of Illinois, Urbana; \$1,325; (AS)

Manila:

Research in virology in the Department of Medical Microbiology, Institute of Hygiene; \$10,000; (MNS)

Dr. Victor C. Valenzuela, acting dean, Institute of Hygiene; to observe recent developments in public health teaching and research and in medical education at medical centers in the Far East, the Middle East, Europe, the United States, and Canada; \$3,960; (MNS)

Dr. Antonio V. Jacalne, assistant professor of medical microbiology, Institute of Hygiene; to observe organization, management, and current research, particularly in relation to veterinary medicine, at medical research laboratories in India and Thailand; \$1,300; (MNS)

XAVIER UNIVERSITY, the Ateneo, Cagayan de Oro City: development of a soils testing laboratory in the College of Agriculture; \$8,410 for a two-year period; (AS)

SINGAPORE

UNIVERSITY OF SINGAPORE:

Research on virus diseases, under the direction of Dr. Lim Kok Ann, Department of Bacteriology; 78,716 Malayan dollars (about \$26,370) for a five-year period; (MNS)

Study of the general elections in Malaya, by Dr. K. J. Ratnam, lecturer in political science, and Professor R. S. Milne, head, Department of Political Science; \$3,850 for a 30-month period; (HSS)

Dr. Theodore Frederic Dixon, head, Department of Biochemistry, Faculty of Medicine; to observe current teaching and research in biochemistry at medical institutions while in the United States; \$2,335; (MNS)

Dr. P. N. Natarajan, lecturer in pharmaceutical chemistry, Department of Pharmaceutics, Faculty of Medicine; to observe current research on synthetic drugs, particularly in the field of malaria and amoebiasis, at pharmaceutical institutions in the United States; \$1,600; (MNS)

THAILAND

SERI EMASIRI, chief, Division of Animal Nutrition and Forage Crops, Department of Livestock Development, Bangkok: to visit various institutions, organizations, farms, and commercial feed mills in Europe, the United States, Latin America, New Zealand, Australia, the Philippines, and Malaya; \$4,775; (AS)

KASETSART UNIVERSITY, Bangkok: equipment and supplies for the Thai cooperative corn improvement project; \$16,000 for a two-year period; (AS)

THAI LIBRARY ASSOCIATION, Bangkok: development of library services in Thailand; \$10,000; (AS)

UNIVERSITY OF MEDICAL SCIENCES, Bangkok:

Research in tropical medicine in the School of Tropical Medicine, under the direction of Dr. Chamlong Harinasuta; \$10,000 for a two-year period; (MNS)

M. R. Buranapoke Kasemsri, assistant, Department of Chemistry, Faculty of Medical Science; to study the organic chemistry of natural products at the Tokyo University of Education, Japan, under the direction of Dr. Koji Nakaniishi; \$1,700. (MNS)

AGRICULTURAL OPERATING PROGRAM

INTERNATIONAL RICE RESEARCH INSTITUTE, Los Baños, the Philippines: general development; \$515,000. (AS)

STUDY AWARDS

CEYLON

GUNASINGHE, SIRI b. 1925. Ph.D., Univ. of Paris, France, 1954. Visual Arts and Drama (F). Appointed from Univ. of Ceylon, Peradeniya. Places of study: Japan, Southeast Asia, U.S.A., England, and on the Continent, 1962-. (HSS)

INDONESIA

- HUMARDANI, S. D. b. 1923. Gadjah Mada Univ., Jogjakarta, 1959. Dance (F). Appointed from Rehabilitation Center, Surakarta. Place of study: U.S.A., 1962-. (HSS)
- KARHI SUKARTAATMADJA b. 1926. Agr.Eng., Univ. of Indonesia, Djakarta, 1955. Plant Science—Botany (s). Appointed from Univ. of Indonesia. Place of study: U.S.A., 1962-. (AS)
- MUCHTAR, BUT b. 1930. M.A., Bandung Inst. of Tech. 1959. Visual Arts (s). Appointed from Bandung Inst. of Tech. Place of study: U.S.A., 1962-. (HSS)
- SARTONO KARTODIRDJO, ALOYSIUS b. 1921. Doctorandus, Univ. of Indonesia, Djakarta, 1956. History (F). Appointed from Gadjah Mada Univ., Jogjakarta. Place of study: U.S.A., 1962-. (HSS)

JAPAN

- ENDO, MAKOTO b. 1933. M.D., Univ. of Tokyo 1958. Pharmacology—Physiology (F). Appointed from Univ. of Tokyo. Place of study: England, 1962-. (MNS)
- ETO, JUN b. 1932. B.A., Keio Univ., Tokyo, 1957. Literature (F). Appointed from Seijo Univ., Tokyo. Place of study: U.S.A., 1962-. (HSS)
- ICHIKAWA, ATSUSHI b. 1923. Ph.D., Univ. of Tokyo 1960. Electron Microscopy (F). Appointed from Tohoku Univ., Sendai. Place of study: U.S.A., 1962-. (MNS)
- IIDA, WATARU b. 1921. D.Agr., Kyoto Univ. 1962. Plant Science (F). Appointed from Tohoku Natl. Agric. Exper. Station, Morioka. Place of study: U.S.A., 1962-. (AS)
- KAWASHIMA, RYOJI b. 1927. B.S., Kyoto Univ. 1952. Animal Science—Animal Husbandry (s). Appointed from Kyoto Univ. Place of study: U.S.A., 1962-. (AS)
- KOBAYASHI, FUMIE b. 1921. R.N., St. Luke's Coll. of Nursing, Tokyo, 1942. Nursing (F); Nursing Education (F). Appointed twice from Min. of Health and Welfare, Tokyo. Place of study: U.S.A., 1953-1954; 1962-. (MNS)
- KOHNO, SEIYA b. 1931. D.Sc., Univ. of Tokyo 1960. Virology and Rickettsiology (F). Appointed from Natl. Inst. of Health, Tokyo. Place of study: U.S.A., 1962-. (MNS)

- KYUMA, KAZUTAKE b. 1931. Ph.D., Kyoto Univ. 1960. Soil Science (F). Appointed from Kyoto Univ. Place of study: U.S.A., 1962-. (AS)
- MATSUMIYA, HIDEMI b. 1926. M.D., Hokkaido Univ., Sapporo, 1953. Virology (F). Appointed from Hokkaido Univ. Place of study: U.S.A., 1962-. (MNS)
- MATSUURA, TAKEO b. 1926. B.A., Keio Univ., Tokyo, 1951. Drama (F). Appointed from Bungaku Za Theatre, Tokyo. Place of study: U.S.A., 1962-. (HSS)
- OGATA, MASANA b. 1926. D.M.S., Okayama Univ. 1956. Biochemistry (F). Appointed from Okayama Univ. Place of study: U.S.A., 1962-. (MNS)
- OHIRA, KOJI b. 1925. B.S., Univ. of Tokyo 1947. Chemistry (S). Appointed from Tohoku Univ., Sendai. Place of study: U.S.A., 1962-. (AS)
- OHSAKA, AKIRA b. 1927. M.S., Univ. of Tokyo 1953. Biochemistry (F). Appointed from Natl. Inst. of Health, Tokyo. Place of study: U.S.A., 1962-. (MNS)
- OKAJIMA, HIDEO b. 1924. D.Agr., Hokkaido Univ., Sapporo, 1961. Plant Science —Agronomy (F). Appointed from Tohoku Univ., Sendai. Place of study: U.S.A., 1962-. (AS)
- SAITO, KAZUHISA b. 1922. D.M.S., Keio Univ., Tokyo, 1951. Bacteriology and Immunology (F). Appointed from Keio Univ. Place of study: U.S.A., 1962-. (MNS)
- SATO, KANOE b. 1920. Ph.D., Univ. of Tokyo 1961. Soil Science (S). Appointed from Tohoku Univ., Sendai. Place of study: U.S.A., 1962-. (AS)
- SAWAMOTO, TAKAHISA b. 1912. Ph.D., Hokkaido Univ., Sapporo, 1945. Library Science (S). Appointed from Keio Univ., Tokyo. Place of study: U.S.A., 1962-. (AS)
- SHIONOYA, YUICHI b. 1932. M.Ec., Hitotsubashi Univ., Tokyo, 1955. Economics (S). Appointed from Hitotsubashi Univ. Place of study: U.S.A., 1962-. (HSS)
- SUZUKI, FUKUMATSU b. 1924. Agr.Eng., Univ. of Tokyo 1948. Economics and Sociology (S). Appointed from Tohoku Natl. Agric. Exper. Station, Morioka. Place of study: U.S.A., 1962-. (AS)
- WATANUKI, JOJI b. 1931. Bungakushi, Univ. of Tokyo 1953. Sociology (F). Appointed from Univ. of Tokyo. Place of study: U.S.A., 1962-. (HSS)
- YAMAGUCHI, ZUIHO b. 1926. B.A., Univ. of Tokyo 1953. Cultural History (S). Appointed from Maison Franco-Japonais, Tokyo. Place of study: France, 1962-. (HSS)

YOKOTA, TOSHIKATSU b. 1931. M.D., Hokkaido Univ., Sapporo, 1954. Neuro-physiology (F). Appointed from Hokkaido Univ. Place of study: Australia, 1962-. (MNS)

KOREA

YOO IN HYUNG b. 1936. B.A., Ewha Woman's Univ., Seoul, 1959. Drama (s). Appointed from Korean Research Inst. for Dramatic Arts, Seoul. Place of study: U.S.A., 1962-. (HSS)

YOUN, MOO-BYONG b. 1924. B.A., Hosei Coll., Hsinking, Manchuria, 1945. Visual Arts—Art History and Conservation (F). Appointed from Natl. Museum of Korea, Seoul. Place of study: U.S.A., 1962-. (HSS)

PHILIPPINES

ALONZO, JOSE C. b. 1926. M.S., Central Luzon Agric. Coll., Nueva Ecija, 1960. Economics and Sociology (s). Appointed from Central Luzon Agric. Coll. Place of study: U.S.A., 1962-. (AS)

CRUZ, ILDEFONSO T. b. 1931. B.S., Far Eastern Univ., Manila, 1953. Statistics (F). Appointed from Univ. of the Philippines, Manila. Place of study: U.S.A., 1962-. (MNS)

DADUFALZA, CONCEPCION D. b. 1922. M.A., Radcliffe Coll. 1958. Literature (F). Appointed from Univ. of the Philippines, Quezon City. Place of study: U.S.A., 1962-. (HSS)

MADAMBA, JOSEPH CROW b. 1935. M.S., Cornell Univ. 1960. Animal Science—Animal Husbandry (s). Appointed from Univ. of the Philippines, Laguna. Place of study: U.S.A., 1962-. (AS)

MENDOZA, ANGELITA R. b. 1935. M.H.E., Univ. of the Philippines, Laguna, 1961. Home Economics (s). Appointed from Univ. of the Philippines. Place of study: U.S.A., 1962-. (AS)

RAGUAL, CONSTANCIO TAROMA b. 1932. M.S., Iowa State Univ. of Science and Tech. 1960. Agronomy (s). Appointed from Univ. of the Philippines, Laguna. Place of study: U.S.A., 1962-. (AS)

SUVA, FELIPE MARTIN b. 1932. M.A., Stanford Univ. 1958. Economic Theory (s). Appointed from Univ. of the Philippines, Laguna. Place of study: U.S.A., 1962-. (HSS)

VALMAYOR, RAMON V. b. 1931. M.S., Cornell Univ. 1958. Plant Science—Agronomy (F). Appointed from Univ. of the Philippines, Laguna. Place of study: U.S.A., 1962-. (AS)

THAILAND

ANUWAT WATTANAPONGSIRI b. 1931. M.S., Cornell Univ. 1959. Entomology (F).
Appointed from Dept. of Agric., Bangkok. Place of study: U.S.A., 1962-. (AS)

BANCHOB BANDUMEDHA b. 1920. Ph.D., Banaras Hindu Univ., Varanasi, India,
1951. Linguistics (F). Appointed from Chandrakasem Teacher Training Coll.,
Bangkok. Place of study: U.S.A., 1962-. (HSS)

BUANGSUWON, PAIROJ b. 1931. M.S., Oregon State Coll. 1956. Plant Science—
Pathology (s). Appointed from Kasetsart Univ., Bangkok. Place of study:
U.S.A., 1962-. (AS)

CHAMMEK, ARD b. 1931. M.S., Oregon State Coll. 1957. Animal Science—Biology
and Zoology (s). Appointed from Kasetsart Univ., Bangkok. Place of study:
U.S.A., 1962-. (AS)

MANI DHARMGRONGARTAMA b. 1919. M.A., Univ. of Michigan 1954. Intercultural
Understanding (s). Appointed from Chandrakasem Teacher Training Coll.,
Bangkok. Place of study: U.S.A., 1962-. (HSS)

PRICHANANDA, CHONGRAK b. 1932. M.S., Oregon State Univ. 1960. Forestry (s).
Appointed from Kasetsart Univ., Bangkok. Place of study: U.S.A., 1962-. (AS)

SENANARONG, AMPOL b. 1931. M.Agr., Mississippi State Univ. 1959. Plant Science
—Genetics and Breeding (s). Appointed from Dept. of Agric., Bangkok. Place
of study: U.S.A., 1962-. (AS)

VACHANANDA, SOOKAPRACHA b. 1933. M.S., Oregon State Coll. 1957. Chemistry—
Organic Chemistry (s). Appointed from Kasetsart Univ., Bangkok. Place of
study: U.S.A., 1962-. (AS)

VIET NAM

BUI VAN TRO b. 1938. B.Sc., Univ. of the Philippines, Laguna, 1958. Animal
Science—Animal Husbandry (s). Appointed from Min. of Agric., Saigon. Place
of study: U.S.A., 1962-. (AS)

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FINANCIAL STATEMENTS • 1962

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ACCOUNTANTS' OPINION

HASKINS & SELLS

CERTIFIED PUBLIC ACCOUNTANTS

TWO BROADWAY
NEW YORK 4

March 5, 1963

Board of Trustees of
The Rockefeller Foundation,
111 West 50th Street,
New York 20, New York

Dear Sirs:

We have examined the balance sheet of The Rockefeller Foundation as of December 31, 1962 and the related statement of income and appropriations, statement of principal fund, and summary of appropriations and payments 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.

In our opinion, the accompanying balance sheet and statement of income and appropriations, statement of principal fund, and summary of appropriations and payments present fairly the financial position of the Foundation at December 31, 1962 and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Yours truly,

Haskins & Sells

BALANCE SHEET · DECEMBER 31, 1962

A S S E T S

INVESTMENTS:

| | |
|---|--------------------------------|
| Marketable securities—principally at cost or market value at date of gift or receipt (quoted market value \$600,203,460.62) | \$204,757,583.65 |
| Interest-bearing cash deposits | 29,013,766.13 |
| | <u>233,771,349.78</u> |
| CASH ON HAND AND ON DEPOSIT | 2,327,290.86 |
| ADVANCES UNDER APPROPRIATIONS TO BE ACCOUNTED FOR, ACCOUNTS RECEIVABLE AND DEFERRED CHARGES | 518,361.56 |
| PROPERTY—principally office furniture and equipment at net depreciated cost | 219,258.21 |
| TOTAL | <u><u>\$236,836,260.41</u></u> |

F U N D S A N D O B L I G A T I O N S

| | |
|-----------------------|--------------------------------|
| PRINCIPAL FUND | \$173,523,727.56 |
| UNPAID APPROPRIATIONS | 62,818,339.77 |
| ACCOUNTS PAYABLE | 274,934.87 |
| PROPERTY FUND | 219,258.21 |
| TOTAL | <u><u>\$236,836,260.41</u></u> |

STATEMENT OF INCOME AND APPROPRIATIONS

FOR THE YEAR ENDED DECEMBER 31, 1962

INCOME:

| | | |
|---|--|-----------------|
| Income on investments: | | |
| Dividends | | \$21,341,597.32 |
| Interest on bonds (less amortization of premiums, \$8,889.32) | | 2,378,440.67 |
| Interest on cash deposits | | 513,952.71 |
| | | 24,233,990.70 |
| Refunds of appropriations paid in prior years | | 32,255.64 |
| | | 24,266,246.34 |

APPROPRIATIONS:

| | | |
|---|-----------------|---------------|
| During the year | \$30,047,036.46 | |
| Less unexpended balances of appropriations lapsed | 1,399,031.05 | 28,648,005.41 |

| | |
|--|-----------------|
| EXCESS OF APPROPRIATIONS OVER INCOME FOR THE YEAR CHARGED TO PRINCIPAL FUND | \$ 4,381,759.07 |
|--|-----------------|

STATEMENT OF PRINCIPAL FUND

FOR THE YEAR ENDED DECEMBER 31, 1962

| | |
|--------------------------|------------------|
| BALANCE, JANUARY 1, 1962 | \$120,664,622.68 |
|--------------------------|------------------|

ADD:

| | | |
|---|---------------|----------------|
| Excess of proceeds from sales of securities over ledger amount | | 46,415,271.52 |
| Excess of market value of 230,000 shares of Ford Motor Company common stock received over the ledger amount of 189,942 shares of Standard Oil Company (New Jersey) capital stock exchanged therefor | | 9,081,539.37 |
| Excess of market value over ledger amount of specific securities appropriated to: | | |
| Columbia University | \$ 359,644.53 | |
| Social Science Research Council | 1,369,408.53 | 1,729,053.06 |
| Contribution received | | 15,000.00 |
| | | 177,905,486.63 |

| | |
|--|--------------|
| DEDUCT—Excess of appropriations over income for the year | 4,381,759.07 |
|--|--------------|

| | |
|----------------------------|------------------|
| BALANCE, DECEMBER 31, 1962 | \$173,523,727.56 |
|----------------------------|------------------|

SUMMARY OF APPROPRIATIONS AND PAYMENTS

FOR THE YEAR ENDED DECEMBER 31, 1962

| | | |
|---|-----------------|-----------------|
| UNPAID APPROPRIATIONS, JANUARY 1, 1962 | | \$63,640,514.17 |
| APPROPRIATIONS DURING THE YEAR: | | |
| Medical and Natural Sciences | \$ 8,056,360.00 | |
| Agricultural Sciences | 6,129,175.00 | |
| Humanities and Social Sciences | 7,095,460.00 | |
| General | 5,283,901.46 | |
| Administration and Supporting Services | 3,482,140.00 | |
| | 30,047,036.46 | |
| Less unexpended balances of appropriations lapsed | 1,399,031.05 | 28,648,005.41 |
| | | 92,288,519.58 |
| PAYMENTS DURING THE YEAR | | 29,470,179.81 |
| UNPAID APPROPRIATIONS, DECEMBER 31, 1962 | | \$62,818,339.77 |

STATEMENT OF TRANSACTIONS RELATING TO MARKETABLE SECURITIES

FOR THE YEAR ENDED DECEMBER 31, 1962

PURCHASED:

| | | |
|--------------|---|------------------|
| \$52,000,000 | United States of America Treasury Bills due May 31, 1962 @ 99.329 | \$ 51,651,080.00 |
| 10,000,000 | United States of America Treasury Bills due July 5, 1962 @ 99.760833 | 9,976,083.33 |
| 10,000,000 | United States of America Treasury Bills due October 4, 1962 @ 99.2669444 | 9,926,694.44 |
| 8,500,000 | United States of America Treasury Bills due January 3, 1963 @ 99.305 | 8,440,925.00 |
| 4,000,000 | United States of America 3½% Treasury Certificates of Indebtedness due August 15, 1963 @ 100.1220702 | 4,004,882.81 |
| 7,800,000 | United States of America 4% Treasury Notes due August 15, 1966 @ 100.5625 | 7,843,875.00 |
| 22,000 | shares American Smelting & Refining Co. Common (No Par) @ 62.825115 | 1,382,152.53 |
| 1,300 | " Christiana Securities Co. Common (Par \$1.25) @ 210.446 | 273,579.80 |
| 12,000 | " Corning Glass Works Common (Par \$5) @ 183.6877 | 2,204,252.40 |
| 12,500 | " Dow Chemical Co. Common (Par \$5) @ 69.969516 | 874,618.95 |
| 12,000 | " General Electric Co. Common (Par \$5) @ 73.228425 | 878,741.10 |

STATEMENT OF TRANSACTIONS RELATING TO
MARKETABLE SECURITIES *continued*

FOR THE YEAR ENDED DECEMBER 31, 1962

PURCHASED—*cont'd*

| | | |
|--------|--|-------------------------|
| 33,000 | shares General Motors Corp. Common (Par \$1 $\frac{3}{4}$) @ 55.82758757 | \$ 1,842,310.39 |
| 9,200 | " National Lead Co. Common (Par \$5) @ 93.5850195 | 860,982.18 |
| 50,000 | " National Steel Corp. Common (Par \$5) @ 39.6674276 | 1,983,371.38 |
| 32,000 | " National Union Fire Insurance Co. Common (Par \$5) @ 43.00105312 | 1,376,033.70 |
| 22,000 | " Philips Gloeilampenfabrieken Common (Par Nfl 25) @ 41.8806818 | 921,375.00 |
| 40,000 | " Pittsburgh Plate Glass Co. Common (Par \$10) @ 62.5884035 | 2,503,536.14 |
| 22,000 | " Security First National Bank Los Angeles Common (Par \$12.50) @ 75.26120454 | 1,655,746.50 |
| 28,000 | " Tennessee Corp. Common (Par \$1.25) @ 51.3880253 | 1,438,864.71 |
| 1,300 | " Union Carbide Corp. Common @ 118.084530 | 153,509.89 |
| 30,000 | " Upjohn Co. Common (Par \$1) @ 46.23827666 | 1,387,148.30 |
| 45,000 | " Western Bancorporation Capital (Par \$2) @ 31.65376911 | 1,424,419.61 |
| 7,000 | " Westinghouse Electric Corp. Common (Par \$6.25) @ 37.186561 | 260,305.93 |
| | | <u>\$113,264,489.09</u> |

OTHERWISE ACQUIRED:

| | | |
|-------------|--|-----------------|
| \$2,000,000 | United States of America 3 $\frac{1}{2}$ % Treasury Notes due November 15, 1965 received in exchange for a like amount of 3 $\frac{1}{4}$ % Treasury Notes due November 15, 1962 @ 100. | \$ 2,000,000.00 |
| 6',268 | shares American Electric Power Co. Common (Par \$6.50) received in a stock split on 64,268 shares of Common (Par \$6.50) owned of record 10/15/62 | — |
| 1,375 | shares Continental Insurance Co. Capital (Par \$5) received as a stock dividend on 27,500 shares of Capital (Par \$5) owned of record 3/28/62 | — |
| 2,250 | shares Crown Zellerbach Corp. Common (Par \$5) received as a stock dividend on 22,500 shares of Common (Par \$5) owned of record 12/11/61 | — |
| 230,000 | shares Ford Motor Co. Common (Par \$2.50) received in exchange for 189,942 shares Standard Oil Co. (New Jersey) Capital (Par \$7). Recorded at market price of shares received, 43.69565217 | 10,050,000.00 |

**STATEMENT OF TRANSACTIONS RELATING TO
MARKETABLE SECURITIES *continued***

FOR THE YEAR ENDED DECEMBER 31, 1962

OTHERWISE ACQUIRED—*cont'd*

| | | |
|-----------------------------------|---|-------------------------|
| 6,666 ² / ₃ | shares General Motors Corp. Common (Par \$1 ² / ₃) received as a stock distribution on 20,000 shares Christiana Securities Co. Common (Par \$1.25) owned of record 10/28/62. These shares were recorded on an allocated basis with respect to the relative market values of the two stocks on the ex-distribution date, and a corresponding reduction in the ledger amount of Christiana Securities Co. stock. | \$ 166,166.02 |
| 4,544 ² / ₃ | shares International Paper Co. Common (Par \$2.50) received as a stock dividend on 227,223 shares of Common (Par \$2.50) owned of record 11/23/62 | — |
| 670 | shares Monsanto Chemical Co. Common (Par \$2) received as a stock dividend on 33,500 shares of Common (Par \$2) owned of record 11/15/62 | — |
| 4,080 | shares Marathon Oil Co. Common (No Par) received as a stock dividend on 204,000 shares of Common (No Par) owned of record 5/18/62 | — |
| 10,000 | shares Standard Oil Co. of California Capital (Par \$6.25) received as a stock dividend on 200,000 shares of Capital (Par \$6.25) owned of record 12/11/61 | — |
| 8,695 | shares Standard Oil Co. (New Jersey) Capital (Par \$7) received as a stock dividend on 1,000,000 shares Standard Oil Co. (Indiana) Capital (Par \$25) owned of record 10/31/62. Proceeds of sale at 56.6687291 per share credited to income. | 492,718.46 |
| | | \$ 12,708,884.48 |

TRANSFER TAXES AND EXPENSES—Incurred for securities exchanged and appropriated

\$ 19,000.07
\$125,992,373.64

| SOLD: | PROCEEDS | LEDGER AMOUNT |
|--------------|--|----------------------------------|
| \$ 5,500,000 | United States of America Treasury Bills due February 8, 1962 @ 99.408 | \$ 5,467,440.00° \$ 5,467,440.00 |
| 40,000,000 | United States of America Treasury Bills due May 31, 1962 @ 99.329 | 39,731,600.00° 39,731,600.00 |
| 1,500,000 | United States of America Treasury Bills due October 4, 1962 @ 99.2669444 | 1,489,004.17° 1,489,004.17 |
| 2,000,000 | United States of America Treasury Bills due January 3, 1963 @ 99.305 | 1,986,100.00° 1,986,100.00 |

* Proceeds of U.S.A. Treasury Bills sold or redeemed were augmented by the sum of \$414,553.64 which was appropriately credited to income.

STATEMENT OF TRANSACTIONS RELATING TO
MARKETABLE SECURITIES *continued*

FOR THE YEAR ENDED DECEMBER 31, 1962

| SOLD— <i>cont'd</i> | | PROCEEDS | LEDGER AMOUNT |
|---------------------|--|------------------|------------------|
| \$ 9,000,000 | United States of America 2½% Treasury Bonds due June 15, 1967-72 @ 87.28125 | \$ 7,855,312.50 | \$ 8,904,650.50 |
| 570,000 | United States of America 3¼% Treasury Notes due November 15, 1962 @ 100.296875 | 571,692.19 | 570,000.00 |
| 4,000,000 | United States of America 1½% Treasury Notes due April 1, 1968 @ 99.25 | 3,970,000.00 | 3,690,000.00 |
| ¾ | share General Motors Corp. Common (Par \$1¾) | 37.30 | 33.76 |
| 1⅝ | share International Paper Co. Common (Par \$2.50) | 13.11 | 3.74 |
| **1,008,695 | shares Standard Oil Co. (New Jersey) Capital (Par \$7) @ 52.22769862 | 52,681,818.46 | 5,498,914.04 |
| | | \$113,753,017.73 | \$ 67,337,746.21 |

REDEEMED AT MATURITY:

| | | | |
|--------------|--|------------------|------------------|
| \$ 2,000,000 | United States of America Treasury Bills due February 8, 1962 @ 99.408 | \$ 1,988,160.00* | \$ 1,988,160.00 |
| 12,000,000 | United States of America Treasury Bills due May 31, 1962 @ 99.329 | 11,919,480.00° | 11,919,480.00 |
| 10,000,000 | United States of America Treasury Bills due July 5, 1962 @ 99.760833 | 9,976,083.33° | 9,976,083.33 |
| 8,500,000 | United States of America Treasury Bills due October 4, 1962 @ 99.2669444 | 8,437,690.27° | 8,437,690.27 |
| | | \$ 32,321,413.60 | \$ 32,321,413.60 |

OTHERWISE DISPOSED OF:

| | | | |
|--------------|--|------------------|-----------------|
| \$ 2,000,000 | United States of America 3¼% Treasury Notes due November 15, 1962 exchanged for a like amount of 3½% Treasury Notes due November 15, 1965 @ 100. | \$ 2,000,000.00 | \$ 2,000,000.00 |
| 189,942 | shares Standard Oil Co. (New Jersey) Capital (Par \$7) exchanged for 230,000 shares Ford Motor Co. Common (Par \$2.50) | 10,050,000.00 | 968,460.63 |
| | | \$ 12,050,000.00 | \$ 2,968,460.63 |

* Proceeds of U.S.A. Treasury Bills sold or redeemed were augmented by the sum of \$414,553.64 which was appropriately credited to income.

** Includes 1,000,000 shares sold to Standard Oil Co. (New Jersey).

**STATEMENT OF TRANSACTIONS RELATING TO
MARKETABLE SECURITIES *concluded*
FOR THE YEAR ENDED DECEMBER 31, 1962**

| LEDGER AMOUNT REDUCED: | PROCEEDS | LEDGER AMOUNT |
|--|-------------------------|-------------------------|
| 20,000 shares Christiana Securities Co. Common (Par \$1.25) by allocation of a portion of the cost thereof to 6,666 $\frac{2}{3}$ shares of General Motors Corp. Common (Par \$1 $\frac{1}{2}$) | \$ 166,166.02 | \$ 166,166.02 |
| 32,000 shares National Union Fire Insurance Co. Common (Par \$5) by cash received in lieu of 32,000 Rights National Union Life Insurance Co. @ .05 per right. | 1,600.00 | 1,600.00 |
| Amortization of bond premiums | 8,889.32 | 8,889.32 |
| | <u>\$ 176,655.34</u> | <u>\$ 176,655.34</u> |
| | | |
| APPROPRIATED: | MARKET VALUE | |
| 7,500 shares Standard Oil Co. (New Jersey) Capital (Par \$7) to Columbia University @ 53. | \$ 397,500.00 | \$ 37,855.47 |
| 25,862 shares Standard Oil Co. (New Jersey) Capital (Par \$7) to Social Science Research Council @ 58. | 1,499,996.00 | 130,587.47 |
| | <u>\$ 1,897,496.00</u> | <u>\$ 168,442.94</u> |
| | <u>\$180,198,582.67</u> | <u>\$102,972,718.72</u> |

RECONCILIATION

| | | |
|---|------------------|-------------------------|
| Ledger Amount of Securities December 31, 1961 | | \$181,737,928.73 |
| Purchased | \$113,264,489.09 | |
| Otherwise Acquired | 12,708,884.48 | |
| Transfer Taxes and Expenses | 19,000.07 | 125,992,373.64 |
| | | <u>307,730,302.37</u> |
| Sold | 67,337,746.21 | |
| Redeemed at Maturity | 32,321,413.60 | |
| Otherwise Disposed of | 2,968,460.63 | |
| Ledger Amount Reduced | 176,655.34 | |
| Appropriated | 168,442.94 | 102,972,718.72 |
| Ledger Amount of Securities December 31, 1962 | | <u>\$204,757,583.65</u> |

SCHEDULE OF MARKETABLE SECURITIES

FOR THE YEAR ENDED DECEMBER 31, 1962

| BONDS | PAR | LEDGER AMOUNT | | MARKET VALUE | |
|--|--------------|---------------|-----------------|--------------|----------------|
| | | PRICE | TOTAL | PRICE | TOTAL |
| American Telephone & Telegraph Co. 3½% 34 yr. Deb. July 1, 1990 | \$ 2,000,000 | 102.268 | \$ 2,045,357.10 | 95.00 | \$1,900,000.00 |
| Dallas Power & Light Co. 4¼% 1st Mtge. December 1, 1986 | 500,000 | 100.679 | 503,394.84 | 100.00 | 500,000.00 |
| General Motors Acceptance Corp. 5% 20 yr. Deb. August 15, 1977 | 1,000,000 | 97.50 | 975,000.00 | 105.50 | 1,055,000.00 |
| Illinois Bell Telephone Co. 4¼% 1st Mtge. Series "F" March 1, 1988 | 1,000,000 | 101.152 | 1,011,517.18 | 100.00 | 1,000,000.00 |
| International Bank for Reconstruction and Development 3½% October 15, 1971 | 1,000,000 | 98.00 | 980,000.00 | 96.00 | 960,000.00 |
| Michigan Bell Telephone Co. 4½% 35 yr. Deb. December 1, 1991 | 1,000,000 | 101.879 | 1,018,790.60 | 101.25 | 1,012,500.00 |
| The Mountain States Telephone & Telegraph Co. 4½% 31 yr. Deb. February 1, 1988 | 1,000,000 | 101.051 | 1,010,508.21 | 101.25 | 1,012,500.00 |
| Pacific Gas & Electric Co. 4½% 1st & Ref. Mtge. "AA" December 1, 1986 | 1,000,000 | 101.201 | 1,012,009.46 | 102.75 | 1,027,500.00 |
| Public Service Electric & Gas Company 4½% 1st & Ref. Mtge. November 1, 1986 | 1,000,000 | 101.007 | 1,010,074.88 | 101.25 | 1,012,500.00 |
| United States of America Treasury Bills, January 3, 1963 | 6,500,000 | 99.305 | 6,454,825.00 | 99.305 | 6,454,825.00 |
| United States of America Treasury Bonds: | | | | | |
| 2½%-Aug. 15, 1963 | 6,000,000 | 99.460 | 5,967,575.42 | 99.6875 | 5,981,250.00 |
| 3%-Nov. 15, 1966 | 5,000,000 | 99.460 | 4,972,979.52 | 99.8125 | 4,990,625.00 |
| 2½%-June 15, 1962-67 | 11,200,000 | 98.739 | 11,058,762.94 | 96.25 | 10,780,000.00 |
| 3½%-May 15, 1968 | 1,000,000 | 99.50 | 995,000.00 | 101.50 | 1,015,000.00 |
| 2½%-Dec. 15, 1964-69 | 12,000,000 | 96.305 | 11,556,562.50 | 92.875 | 11,145,000.00 |

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SCHEDULE OF MARKETABLE SECURITIES *continued*

FOR THE YEAR ENDED DECEMBER 31, 1962

| BONDS—<i>cont'd</i> | PAR | LEDGER AMOUNT | | MARKET VALUE | |
|---|-------------|----------------------|------------------------|---------------------|------------------------|
| | | PRICE | TOTAL | PRICE | TOTAL |
| United States of America | | | | | |
| Treasury Certificates of Indebtedness: | | | | | |
| 3½%-Aug. 15, 1963 | \$4,000,000 | 100.122 | \$ 4,004,882.81 | 100.3125 | \$ 4,012,500.00 |
| United States of America | | | | | |
| Treasury Notes: | | | | | |
| 3¼%-May 15, 1963 | 480,000 | 100.00 | 480,000.00 | 100.1406 | 480,625.00 |
| 4½%-Nov. 15, 1963 | 1,000,000 | 99.95 | 999,500.00 | 101.546 | 1,015,468.75 |
| 4½%-Nov. 15, 1964 | 5,000,000 | 99.75 | 4,987,500.00 | 102.875 | 5,143,750.00 |
| 3½%-Nov. 15, 1965 | 2,000,000 | 100.00 | 2,000,000.00 | 100.3125 | 2,006,250.00 |
| 4%-Aug. 15, 1966 | 7,800,000 | 100.502 | 7,839,178.90 | 101.8125 | 7,941,375.00 |
| | | | <u>\$70,883,419.36</u> | | <u>\$70,446,668.75</u> |

| STOCKS | SHARES | LEDGER AMOUNT | | MARKET VALUE | |
|---|---------------|----------------------|-----------------|---------------------|-----------------|
| | | PRICE | TOTAL | PRICE | TOTAL |
| American Electric Power Co., Inc. (Par \$6.50) | 128,536 | \$ 8.360 | \$ 1,074,602.01 | \$ 35.625 | \$ 4,579,095.00 |
| American Smelting & Refining Co. (No Par) | 33,000 | 57.418 | 1,894,807.73 | 57.00 | 1,881,000.00 |
| American Telephone & Telegraph Co. Cap. Par (\$33½) | 74,250 | 42.810 | 3,178,621.42 | 116.75 | 8,668,687.50 |
| Christiana Securities Co. (Par \$1.25) | 20,000 | 90.022 | 1,800,444.58 | 210.00 | 4,200,000.00 |
| Consolidated Natural Gas Co. Cap. (Par \$10) | 300,000 | 16.001 | 4,800,180.01 | 56.875 | 17,062,500.00 |
| Continental Insurance Co. Cap. (Par \$5) | 28,875 | 31.678 | 914,713.17 | 59.375 | 1,714,453.13 |
| Continental Oil Co. Cap. (Par \$5) | 300,000 | 6.718 | 2,015,418.15 | 54.625 | 16,387,500.00 |
| Corning Glass Works (Par \$5) | 30,000 | 123.468 | 3,704,041.88 | 161.00 | 4,830,000.00 |
| Crown Zellerbach Corporation (Par \$5) | 24,750 | 23.886 | 591,167.64 | 45.50 | 1,126,125.00 |
| Dow Chemical Co. (Par \$5) | 50,440 | 50.114 | 2,527,773.46 | 55.625 | 2,805,725.00 |
| First National Bank of Chicago (Par \$20) | 50,250 | 23.282 | 1,169,895.85 | 83.00 | 4,170,750.00 |
| Ford Motor Co. (Par \$2.50) | 230,000 | 43.696 | 10,050,000.00 | 45.125 | 10,378,750.00 |
| Freeport Sulphur Co. (Par \$10) | 90,000 | 24.799 | 2,231,877.90 | 22.75 | 2,047,500.00 |
| General Electric Co. (Par \$5) | 72,000 | 28.600 | 2,059,165.24 | 76.75 | 5,526,000.00 |
| General Motors Corp. (Par \$1½) | 39,666 | 50.634 | 2,008,442.65 | 58.125 | 2,305,586.25 |

SCHEDULE OF MARKETABLE SECURITIES *continued*

FOR THE YEAR ENDED DECEMBER 31, 1962

| STOCKS— <i>cont'd</i> | LEDGER AMOUNT | | | MARKET VALUE | |
|---|--|----------|----------------|--------------|----------------|
| | SHARES | PRICE | TOTAL | PRICE | TOTAL |
| Goodrich, B. F. Co. (Par \$10) | 50,000 | \$36.798 | \$1,839,893.41 | \$42.875 | \$2,143,750.00 |
| Hartford Fire Insurance Co. Cap. (Par \$5) | 100,000 | 21.785 | 2,178,527.78 | 67.50 | 6,750,000.00 |
| Inland Steel Co. (No Par) | 30,000 | 24.984 | 749,507.83 | 37.75 | 1,132,500.00 |
| Insurance Company of North America Cap. (Par \$5) | 50,000 | 48.238 | 2,411,908.38 | 94.50 | 4,725,000.00 |
| International Business Machines Corp. (Par \$5) | 13,050 | 51.459 | 671,546.06 | 390.00 | 5,089,500.00 |
| International Nickel Co. of Canada, Ltd. (No Par) | 110,000 | 20.818 | 2,289,969.82 | 62.50 | 6,875,000.00 |
| International Paper Co. (Par \$2.50) | 231,767 ²³ / ₁₀₀ | 10.184 | 2,360,354.44 | 26.875 | 6,228,750.49 |
| Kennecott Copper Corporation (No Par) | 30,000 | 58.539 | 1,756,180.37 | 65.25 | 1,957,500.00 |
| Marathon Oil Co. (No Par) | 208,080 | 16.621 | 3,458,394.00 | 44.50 | 9,259,560.00 |
| Monsanto Chemical Co. (Par \$2) | 34,170 | 22.383 | 764,814.93 | 49.25 | 1,682,872.50 |
| National Lead Co. (Par \$5) | 30,000 | 70.704 | 2,121,118.03 | 68.25 | 2,047,500.00 |
| National Steel Corp. (Par \$5) | 50,000 | 39.667 | 1,983,371.38 | 36.00 | 1,800,000.00 |
| National Union Fire Insur- ance Co. (Par \$5) | 32,000 | 42.951 | 1,374,433.70 | 44.25 | 1,416,000.00 |
| Peoples Gas Light & Coke Co. (No Par) | 67,200 | 15.735 | 1,057,373.46 | 47.625 | 3,200,400.00 |
| Phelps Dodge Corporation Cap. (Par \$12.50) | 45,000 | 26.358 | 1,186,127.84 | 54.625 | 2,458,125.00 |
| Philips Gloeilampenfabrieken (Par Nfl 25) | 22,000 | 41.881 | 921,375.00 | 38.375 | 844,250.00 |
| Pittsburgh Plate Glass Co. (Par \$10) | 40,000 | 62.588 | 2,503,536.14 | 51.75 | 2,070,000.00 |
| Scott Paper Co. (No Par) | 39,000 | 26.387 | 1,029,080.01 | 32.625 | 1,272,375.00 |
| Security First National Bank Los Angeles (Par \$12.50) | 22,000 | 75.261 | 1,655,746.50 | 71.00 | 1,562,000.00 |
| Socony Mobil Oil Co., Inc. Cap. (Par \$15) | 300,000 | 25.927 | 7,778,152.30 | 58.75 | 17,625,000.00 |
| The Southern Co. (Par \$5) | 26,000 | 39.099 | 1,016,586.05 | 51.625 | 1,342,250.00 |
| Standard Oil Co. of Califor- nia Cap. (Par \$6.25) | 210,000 | 9.017 | 1,893,562.39 | 63.00 | 13,230,000.00 |
| Standard Oil Co. (Indiana) Cap. (Par \$25) | 1,000,000 | 14.185 | 14,184,717.71 | 47.75 | 47,750,000.00 |

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SCHEDULE OF MARKETABLE SECURITIES *concluded*

FOR THE YEAR ENDED DECEMBER 31, 1962

| STOCKS— <i>concl'd</i> | SHARES | LEDGER AMOUNT | | MARKET VALUE | |
|--|-----------|---------------|-------------------------|--------------|-------------------------|
| | | PRICE | TOTAL | PRICE | TOTAL |
| Standard Oil Co. (New Jersey) Cap. (Par \$7) | 4,708,696 | \$ 5.006 | \$23,572,653.09 | \$ 59.50 | \$280,167,412.00 |
| Tennessee Corporation (Par \$1.25) | 28,000 | 51.388 | 1,438,864.71 | 47.375 | 1,326,500.00 |
| Travelers Insurance Co. Cap. (Par \$5) | 25,000 | 34.255 | 856,385.00 | 161.00 | 4,025,000.00 |
| Union Carbide Corporation (No Par) | 30,000 | 99.126 | 2,973,773.37 | 100.875 | 3,026,250.00 |
| Union Tank Car Co. Cap. (No Par) | 100,000 | 5.932 | 593,186.57 | 27.25 | 2,725,000.00 |
| United States Steel Corporation (Par \$16½) | 20,000 | 41.115 | 822,293.22 | 43.625 | 872,500.00 |
| Upjohn Company (Par \$1) | 30,000 | 46.238 | 1,387,148.30 | 32.875 | 986,250.00 |
| Western Bancorporation Cap. (Par \$2) | 45,000 | 31.654 | 1,424,419.61 | 33.375 | 1,501,875.00 |
| Westinghouse Electric Corporation (Par \$6.25) | 60,000 | 33.224 | 1,993,422.89 | 32.00 | 1,920,000.00 |
| Weyerhaeuser Co. Cap. (Par \$7.50) | 120,000 | 13.372 | 1,604,588.31 | 25.50 | 3,060,000.00 |
| | | | <u>\$133,874,164.29</u> | | <u>\$529,756,791.87</u> |

SUMMARY

| | LEDGER AMOUNT | MARKET VALUE |
|--------|-------------------------|-------------------------|
| Bonds | \$ 70,883,419.36 | \$ 70,446,668.75 |
| Stocks | 133,874,164.29 | 529,756,791.87 |
| | <u>\$204,757,583.65</u> | <u>\$600,203,460.62</u> |

PROPERTY FUND

| | BALANCE DEC. 31, 1961 | ADDITIONS | DEPRECIATION AND DISPOSALS* | BALANCE DEC. 31, 1962 |
|---|--------------------------|--------------------|--------------------------------|--------------------------|
| New York Office: | | | | |
| Library | \$ 7,312.00 | \$ 3,227.83 | \$ 3,323.83 | \$ 7,216.00 |
| Equipment | 249,163.30 | 20,393.10 | 54,848.33 | 212,040.21 |
| | | | 2,667.86* | |
| Girardot, Colombia: | | | | |
| Land and Buildings, at nominal value | 1.00 | — | — | 1.00 |
| Bellagio, Italy: | | | | |
| Land and Buildings, at nominal value | 1.00 | — | — | 1.00 |
| | <u>\$256,477.30</u> | <u>\$23,620.93</u> | <u>\$60,840.02</u> | <u>\$219,258.21</u> |

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