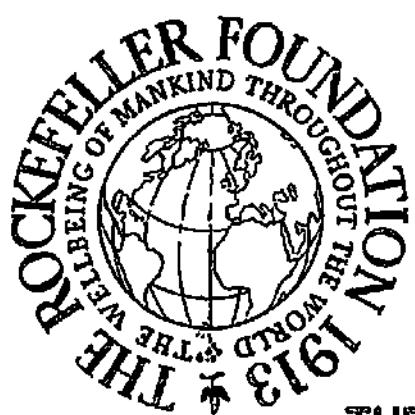


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Rockefeller Foundation
Annual Report, 1960



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Gentlemen:

I have the honor to transmit herewith a general review of the work of The Rockefeller Foundation for the year 1960, together with detailed reports of the Treasurer of the Foundation and of the Directors for Medical and Natural Sciences, Humanities, Social Sciences, and Agricultural Sciences for the period January 1, 1960 to December 31, 1960.

Respectfully yours,

J. George Harrar

President

The
President's Review
1960

John D. Rockefeller, Jr.

1874-1960

Everyone associated with the Foundation was deeply saddened by the death, in May, 1960, of Mr. John D. Rockefeller, Jr., its first President and Chairman of its Board of Trustees for 23 years. To express their lasting regard and appreciation for Mr. Rockefeller's singular qualities of mind and spirit, the Trustees and officers have called upon Mr. Raymond B. Fosdick, President of the Foundation from 1936 to 1948 and author of the biography, JOHN D. ROCKEFELLER, JR., A PORTRAIT.

John D. Rockefeller, Jr., son of the founder of The Rockefeller Foundation, and a Trustee for more than twenty-seven years, died at Tucson, Arizona, on May 11, 1960, in his eighty-sixth year. He was born in Cleveland, Ohio, on January 29, 1874, and graduated from Brown University in the class of 1897. Entering his father's office at 26 Broadway, New York—"to help him in any way I could"—he soon found himself immersed in the details of the senior Mr. Rockefeller's varied philanthropies, and he played a prominent role in the founding of the Rockefeller Institute for Medical Research in 1901, the General Education Board in

1902, and The Rockefeller Foundation in 1913. While Frederick T. Gates, the imaginative associate of Mr. Rockefeller, Sr., was responsible for many of the ideas during this creative period, the younger Rockefeller's contribution was fundamental.

"Gates was the brilliant dreamer and creator," he said years later. "I was the salesman, the go-between with Father at the opportune moment. Gates and I were Father's lieutenants, each of us with a different task, but acting in perfect harmony." The records show in detail the extent of the younger Rockefeller's activity and influence in the creation of The Rockefeller Foundation. "I will continue to study these suggestions," Mr. Rockefeller, Sr., wrote his son, "but I think it safe for you to move, with the thought that something will be wrought out along these lines."

When the Foundation was incorporated in 1913, Mr. Rockefeller, Jr., became its first President, serving until 1917, when he was elected Chairman of the Board, a position he held until 1940, having then reached the mandatory retirement age of sixty-five.

During all these years the Foundation was one of his chief concerns. By reason of his filial ties, his intimate part in the launching of the enterprise, and his seniority of service, he alone represented the valuable traditions of the formative period and the fruitful experience of all the years that followed. It was a relationship unique among his colleagues, and he invariably conducted himself so as to safeguard the responsibility of the Trustees and to realize at all times the value of their united counsels.

His services as Chairman of the Board will never be forgotten by those who had the privilege of being associated with him during this period. Far from desiring to dominate the Foundation's policies and programs, he always leaned

over backward to avoid even the appearance of it. His innate modesty, his friendliness, his courtesy, his disinterested fairness, his concern that all points of view should be fully heard and considered, his skill in marshaling the various lines of argument and suggesting ways by which they might be reconciled—all these characteristics left an indelible impression on Trustees and officers alike.

And his leadership was not confined merely to meetings of the Board. In a real sense he brooded over the activities of the Foundation and of the other boards as well. Through conference and questioning memoranda he kept in touch with everything that was going on in the field. No Trustee ever read with greater care and thoroughness the dockets which the officers presented for the Foundation meetings. He was constantly concerned that their work should represent top-flight effort, that there should be no let-down in excellence, no falling off in the imaginative approach to human problems. In his own words, he was "afraid of ruts," of the complacent acceptance of programs that had once been good. He preached the doctrine of alertness, of adaptability to new conditions, of a fresh approach to evolving opportunities.

Even after he retired as a Trustee his interest in the Foundation never flagged. His long experience had given him a mature and mellowed kind of wisdom, and his counsel, although never volunteered, was available to his colleagues.

The memory he left behind him is one of integrity, selflessness, and devotion. Perhaps his most endearing qualities were his simplicity, his humility, his dislike of ostentation, his avoidance of praise. He was one of the most unassuming, unpretentious, self-effacing men imaginable. He had a flair for unobtrusiveness, and modesty ran through his life like a gleaming thread.

That he was held in respect and admiration by his associates goes without saying. When he retired from the Foundation in 1940 the Trustees presented a minute to record, as best they could, their gratitude and affection. "We trust," it said, "that Nature will be kind to him as he has compelled it to be kinder to millions through scientific discoveries and their practical application throughout the world."

We are grateful that he was spared to us for so many years and that his life was fruitful and productive to the very end. As few men in his generation have done he held up before our eyes a vision of dedication and high purpose, and he left behind him the heritage of an inspiring life and of a noble work for the welfare of mankind.

Financial Summary for 1960

The Rockefeller Foundation appropriated a total of \$32,833,971 during 1960. This amount was distributed among the several programs as follows:

Agricultural Sciences.....	\$ 6,713,314
Humanities.....	4,471,298
Medical and Natural Sciences.....	10,250,060
Social Sciences.....	3,968,080
General Grants.....	4,131,799
Administration and Supporting Services.....	3,299,420

The reader is invited to consult the Annual Report for detailed information on each program. The total appropriations included funds for the award of Rockefeller Foundation Fellowships. During 1960 234 Fellows from 39 countries and three international organizations began advanced study, usually in another country; 345 additional Fellows who had received awards in preceding years continued their work during 1960. Rockefeller Foundation Fellows studied at 159 institutions in 22 countries during 1960.

The income of the Foundation for the year was \$23,764,531. On December 31, 1960, the market value of its uncommitted principal fund was \$469,576,720.

Program Dynamics

Private philanthropic foundations have relatively modest resources to invest, and these they seek to direct toward efforts of fundamental significance to human welfare. Because of the flexibility with which they can deploy their resources, private foundations are often able to initiate new ventures and develop them to a point where other agencies with greater resources may continue and expand them. Exploration among opportunities is one of the most important roles that foundations can play in the total spectrum of efforts designed to assist human progress.

The Rockefeller Foundation, in its programs, seeks a continuous but changing balance in response to social evolution and the emergence of new challenges.

Officers of The Rockefeller Foundation try to be alert to situations which offer long-range possibilities for the advancement of knowledge and its effective application to social problems, and which are feasible in terms of limited resources. During much of the Foundation's early history, these opportunities were chiefly encountered in the United States. However, the Foundation's charter, by deliberate intent, had defined its sphere as world-wide and from the first the International Health Division undertook fundamental studies and action programs in public health in many parts of the world. The Foundation has ever since retained its deep interest in the welfare of the people in countries where development has progressed less rapidly than in the industrialized nations. The action program in agriculture, which began in 1943 in Mexico, has now grown to include cooperative projects in Colombia, Chile, India, and the Philippines, and researches on arthropod-borne virus diseases have at various times involved cooperative field stations in six different countries.

Supplementing the action programs, and partially in support of them, is the increased emphasis on the training of individuals from many countries for leadership in national and international development. Training is now a major sector of the Foundation's total program and is strongly oriented toward the less developed countries. Fellowships are awarded to strengthen institutional faculties by enriching the experience of investigators and teachers; fellowships and scholarships are given for the training of younger individuals who plan careers in teaching and research. Through awards for travel many responsible leaders in all aspects of national planning and programming are enabled to observe principles and practices in use elsewhere, and a substantial number of American scholars and scientists have worked for extensive periods with their colleagues in overseas institutions.

Paralleling the operating and training programs, an increasing proportion of the grant-making activities of The Rockefeller Foundation have been directed toward the reinforcement of educational and research institutions overseas. In many instances, individuals who were previously associated with Foundation operating programs or who have received training awards have been given assistance upon their return to their parent institutions to make them professionally more effective and to strengthen their departments and institutions.

Grants are by no means limited, however, to support of operating and training programs. Each year, the major number of grants are made to institutions, departments, and projects here and abroad which give promise of increasing excellence. The fields in which grants are made are highly diversified and include linguistics, economics, population studies, molecular biology, and genetics—to name only a few. The objective of each grant is to increase knowledge, and excellence in its application for the benefit of mankind.

In many countries the most urgent needs are for a steady rise in standards of living and for the broadening of scholastic, intellectual, and creative opportunities. In some, early priority must be given to improvements in sanitation, public health, and medical care, and to increased production of food supplies as the basis for an adequate diet. Until these requirements are satisfied, real progress cannot be made in such areas as housing, transportation, communications, and the other technologies. Obviously, scholarly activities and the creative arts are unlikely to flourish among ill or underfed populations.

The most important single element in the forward progress of the less developed or emerging states is leadership. The need for a larger number of qualified individuals to take major responsibilities in government, education, science, the technologies, and economic and social development, is everywhere manifest. Innate ability is not lacking, but it is quite evident that opportunities for its development and training to maximum potential are often grossly inadequate. Efforts to resolve this situation must clearly focus on rapid progress in the enlargement and reinforcement of local educational systems. Both the quality of training and the number trained are important, and at best there will be a lag between the initiation of efforts to intensify and expand the educational patterns and the time that these become productive.

The education of the citizens of a nation is in the first instance a national responsibility; philanthropic and other foreign agencies can at most be helpful only in providing support at critical points, especially at the more advanced educational levels. To send nationals overseas for training is a valuable technique when applied on a selective basis, and is one which offers appealing opportunities for assistance. Important though fellowships and other training awards for foreign study may be, they can be fully effective only when used in conjunction with sound progress in developing edu-

tion at home. The great majority of future leaders, investigators, and teachers in any country must necessarily receive their basic training at national institutions.

The urgent and growing demands being made upon scientists, scholars, and practitioners of the professions and technologies make it each day more important that manpower and resources, always in short supply, be used with skill and perception. Private foundations operating overseas have a unique opportunity to help create patterns by which the limited numbers of highly trained individuals in less developed countries can most effectively contribute to research and to the training of younger people. Properly situated, properly supported, and properly encouraged, these leaders can create islands of excellence which, as their numbers increase, may grow and coalesce into a firm base for genuine progress toward national and international goals.

In the United States vast new funds are becoming available for the support of all aspects of education and research. While the Foundation in no sense expects to neglect domestic opportunities for the investment of its funds within the limits of established program, it must be recognized that this development does have the side effect of easing some of the pressures on private philanthropic funds. The Foundation will seek to continue its aid to pioneering projects which in the long run may be expected to yield national benefits, and to support important and creative programs which, in themselves, may contribute knowledge of value beyond the confines of the institution and country.

With the many opportunities for investment in excellence in the United States, The Rockefeller Foundation is more and more selecting those which may ultimately pay substantial dividends both at home and abroad. **A significant proportion of the grants the Foundation now channels to United States educational institutions are in recognition of their role in the development of personnel from the less ad-**

vanced countries, and to aid the extension of various phases of United States institutional programs into critical areas abroad. Such grants tend to bring about improvement in both directions and at the same time encourage reciprocal understanding and increase the possibilities for effective action among the nationals of many countries.

The dimensions of the needs for increased progress and understanding everywhere are staggering. In the face of always limited resources it becomes daily more imperative that the product of all types of national and international programs directed toward social progress be a total greater than the sum of the individual efforts. Private foundations have had a profound effect on past developments for the benefit of mankind but their greatest challenges lie ahead.

The Local Relevance of Learning

The events of the last few years must have made it clear to almost everyone that rising expectations in many parts of the world cannot be more than temporarily met unless those affected are trained to understand and to solve their own problems. No one knows this more certainly than do the people in the underdeveloped countries themselves. Nowhere else do parents make more impressive sacrifices to ensure the education of their children and nowhere else do students respond with greater devotion to learning. This intensity of private purpose is mirrored in the determination of the governments of most advancing countries to dedicate to education a proportion of the national budget five to ten times that which the citizens of the United States would find excessive. At the same time there have developed in these countries increased pressures to find scholarships for large numbers of students anxious to study abroad.

A Foundation which consistently devotes well over ten per cent of its resources to fellowships for advanced training abroad would be the last to deny the importance of an intellectual experience away from home. But foreign training is looked upon as a supplement to and not as an appropriate substitute for a satisfactory university education in the home country. In the first place, experience has demonstrated conclusively that few students of university age can remain away from home for more than a year or two without losing effective emotional contact with their own culture. Those who can withstand the material and novel blandishments of an affluent society survive in most cases only to succumb to more austere temptations. It is hard for the well-trained scholar to leave well-equipped laboratories or fully stocked libraries to pursue his specialty under frontier conditions.

Even if internal scruples or external legal devices assured the return to their native countries of all foreign students, it cannot be argued that university training away from home is a suitable substitute for local education. Although knowledge is in an important sense universal, and the laws of motion or of biological evolution are the same in Africa as they are in the United States, the relevance of knowledge differs markedly from place to place.

To take the field of preventive medicine as one example, it is not, at this stage, particularly useful to an African student to visit a large automated slaughterhouse when all the meat in his country is prepared by the village butcher; nor does study of the New York City water supply help much in the design of the protected springs or bored-hole wells that will for a long time supply the great proportion of domestic water in underdeveloped countries.

Not only are universities needed to train students in the aspects of knowledge more applicable to their experience and later careers, they are equally needed to establish solid research on local problems. There is certainly a place for the

detached scholarship that has long characterized Western institutes of oriental culture or other area studies groups established in countries remote from the region concerned. But institutions which will conduct such studies "on location" have at least a like value. Both detachment and involvement are crucial for complete understanding.

Finally, although the initial outlays necessary to establish advanced educational research institutions in new areas loom large, in the long run this type of effort is less expensive than reliance on importation of knowledge and export of students. The amount needed for a student in an African or Asian university is but a small fraction of the cost of transporting him to another country and maintaining him there in a status roughly comparable to that enjoyed by the natives. Instructional costs are bound to be high during the initial period when reliance must be placed on expatriate teaching staffs, but they will gradually decline as local personnel, with less reason to demand special treatment, periodic home leaves, and the like, become available. In any case, since a growing proportion of advanced countries are committed to programs of technical assistance, it seems not unreasonable to suppose that a large proportion of the initial cost of supplying expatriate teachers will be borne by the sending countries.

The history of the Foundation's interest in the medical and natural sciences overseas reveals increasing attention to the development of appropriate indigenous institutions. In the very early days attention was directed to the control or elimination of certain specific diseases which appeared to account for a large proportion of the disability in given areas. Primary among these were malaria, hookworm, and yellow fever. As these epidemics were increasingly controlled, it became more and more evident that the disease-by-disease approach was unsatisfactory. By and large, persons who escaped the ravages of the primary plagues merely survived

to succumb to something else. Clearly the health problem had to be attacked as a whole, and for this large numbers of well-rounded personnel were obviously necessary.

This realization led to a program of support that began in the 'twenties for schools of public health and, slightly later, for schools of medical science. Progress was slow at first largely because of the lack of any but a handful of well-trained, capable people around whom institutional programs could be developed. Much attention, therefore, had to be given to the award of fellowships and training grants for study abroad. Upon their return, the most promising fellows were provided with equipment and other forms of assistance. As they gradually rose to positions of faculty leadership, they began to institute broad programs of reform.

Some of the most promising opportunities have arisen in institutions established since the second World War. Unconfined by long-established and cumbersome traditional ways of doing things which often hamper some older institutions, and free to build from the ground up in response to the challenges of modern problems and concepts, these newly formed schools were able to make rapid progress with relatively modest amounts of financial support from the Foundation and other outside sources. The appropriations made this year to both young and long-established institutions—the All-India Institute of Medical Sciences, the University College of the West Indies, the University of Guadalajara in Mexico, the University of Brazil, the University of Chile, and the University of Valle in Cali, Colombia—are only the latest in a series of grants given over the past decade to these institutions and others like them to help them eliminate weak points and develop positions of strength.

In almost all cases the Foundation's funds have been used to enable particularly enterprising individuals to do a better job of teaching or research or both. The institutions in question have been selected from a much larger list of

available possibilities. The considerations conditioning these choices are numerous: the geographical location; the probability that a good example set in one place will have a broad influence on other institutions in the same or neighboring areas; and the probability that local financial resources will be sufficient to maintain the new developments once they are satisfactorily in operation. The overriding consideration in all cases, however, is the presence on the ground of at least one individual, or more usually a group, with the vision to see what can be done and the will and capacity to do it.

Such individuals or groups must be the "point of strength" from which growth begins. Unfortunately, this is not always recognized in the concept that funds are of primary importance. The wise application of private philanthropy dictates the necessity of focusing attention not on money but on people of competence and vision. Large amounts of money are increasingly becoming available for technical assistance abroad. These can be a valuable supplement but not a substitute for the services of trained and capable local people. Important though the timely availability of funds may be in strategic places, real accomplishment depends upon individual performances and to these key people the credit is due.

Although the Foundation's interest in programs for the control of specific diseases has almost entirely given place to the program of institutional development described above, one specific condition still commands its attention. This is the virtually world-wide problem of malnutrition. Food provides the building blocks and energy sources of the human body. Without supplies of the appropriate constituents, the shape and function of the body become deformed in countless different ways. Many conditions that emerge in the clinic as specific diseases are, in fact, merely symptoms of a single underlying condition—a disordered food supply.

For the past 20 years the Foundation has been attacking this problem at what might be regarded as its source—inadequately developed agricultural practices. Additional attention has been given to the science of adapting the available food supply to biological needs. This science of nutrition involves in the first instance careful analysis of the materials that exist in the standard food substances and the particular roles these materials play in the internal economy of the body. A given food such as corn or wheat, for example, is not a single homogeneous entity. It is now known that different varieties differ widely in the content of proteins, minerals, and vitamins necessary for optimum nutrition. It is, therefore, most important that in efforts to increase the total food supply, appropriate attention be given to the quality of the materials produced. Continuous monitoring of newly developed species or varieties is essential. On the other side of the equation, attention must be given to meeting a recognized human need for a conventional dietary element like milk by substituting other materials which may be cheaper or more abundant in a given area.

Experience has proven over and over again that basic knowledge of food requirements and the ready availability of adequate food do not inevitably ensure good nutrition. The deeply rutted road of custom frequently prevents a large portion of the population from learning new food habits that would be in the best interests of their health. Much thought and attention must, therefore, be given to helping people develop new ways of cooking and eating. A well-developed department of nutrition, consequently, presents the best features of a scientific research institute, an epidemiological survey team, a clinical ward, a cooking school, a Parent-Teachers' Association, and a women's magazine. Few institutions can yet be said to have realized an entirely happy combination of these essential elements, but some are trying very hard. Three grants given during the current year—one

to Harvard University for a cooperative project with the Medical School in Cali, Colombia, one to the National Institute of Nutrition in Mexico, and one to the Institute of Nutrition of Central America and Panama in Guatemala—represent current contributions to the Foundation's continuing program for the improvement of theory and practice in nutrition.

It is now widely recognized that progress in nutrition and in the medical sciences generally is bound to lead to an ultimately intolerable increase in the population of the world unless automatic or consciously directed compensatory measures are developed. The classical automatic checks represented by the Four Horsemen are unacceptable to the modern conscience. But the only other visible alternative, consciously restricting reproduction, is either not understood or is actively opposed. As is usually true, lack of understanding is likely in the long run to be the more formidable obstacle.

For nearly 30 years the Foundation has actively sought opportunities to advance knowledge of all aspects of the reproductive process. At first its efforts were largely confined to supporting investigation of the basic physiology of the reproductive system. More recently the psychological implications of the reproductive process and sociological study of the pattern of population growth have received attention. The latter activity has been greatly facilitated by the existence of the Population Council, which has done a great deal to augment world knowledge of the population problem. In an encouraging number of countries the council's efforts have led to a striking increase in public and official awareness of the dangers of unrestricted reproduction. This awareness has led, in turn, to requests for practical help in directing the growth of human populations toward more suitable levels.

At this point it is unhappily apparent how little is actually known about the control of population increase on a broad scale. Although the rate of population growth in ad-

vanced countries has declined sharply during the last two centuries, this has resulted in only one instance from conscious, over-all planning or official sanction. In all others it must be regarded as the outcome of innumerable individual decisions involving personal preference for families of manageable size. Thoughtful ministries in underdeveloped countries, increasingly aware of the small margin that separates growth of Gross National Product from increase in population, realize that they can no longer wait for the gradual Jeffersonian solution to their equation. When they ask for help in speeding up the process, the only conscientious answer is that the means of changing public attitude and practice must still be worked out. Lacking immediately transferable techniques, all that can be offered is a willingness to help study the situation and devise the necessary procedures.

In order to expand the supply of personnel prepared to undertake this sort of investigation on a large scale, the Population Council last year hit upon a scheme for enlarging its own capacities and, at the same time, interesting other organizations in the world-wide population problem. As a first step it entered into a cooperative arrangement with the Johns Hopkins School of Public Health whereby the latter would add to its staff a number of experts in various phases of the population question. It is proposed that these people spend some of their time in Baltimore studying matters of basic theory and practical application. For an appropriate portion of their time, however, they will be available to the Population Council for field work in cooperation with government health services responsible for planning for more orderly changes in population size. The Foundation is happy to have been able to participate in getting this new arrangement under way.

The Agricultural Development of Africa

The areas of Africa under the influence of England, France, and Belgium have depended almost exclusively during the past ten years upon these countries for assistance in building and staffing their institutions of higher learning and their teaching, research, and extension facilities in agriculture. Men, materials, and operating funds from Europe made possible the agricultural programs from which the newly independent and emergent nations currently benefit and which, in the future, it will be chiefly their responsibility to maintain and to improve.

The Foundation's growing interest in the agricultural institutions of Africa comes at a particularly opportune time. Drastic reorientation is now taking place among the African states with respect to the kind of European technical assistance they have received in the past and may be able to seek in the future. The needs and the opportunities are infinite for helping the African people to develop their own institutions successfully on a wide base of assistance from abroad and of solid local support at home.

Viewed collectively, Africa's existing agricultural institutions—from Khartoum to Salisbury and from Nairobi to Dakar—display a complete spectrum of research from the basic to the applied and of teaching from the elementary to the highly advanced. Examined individually, however, each institution has active, growing programs in only certain areas of research and teaching. The further development of such nuclei of excellence into well-rounded organic programs of agricultural education and research is an objective that the Foundation can help these institutions achieve.

During 1960 the Foundation appropriated funds for the development of work in agriculture at four institutions of university level and one college of technology, each in an importantly distinct agricultural environment. In keeping

with its long-standing emphasis on food crop improvement, the Foundation also made awards to several experiment stations located in East Africa for the advancement of research on cereal crops. Studies of livestock physiology in East Africa also received a grant from the Foundation.

The northernmost of the institutions of higher learning, the University of Khartoum, reflects the Islamic traditions of the people and their proximity to the United Arab Republic. It is situated near the confluence of the Blue and White Niles in barren, arid surroundings that are deceptive with regard to the real agricultural importance of the Sudan. This desert-like area of central Sudan supports an incredibly large livestock population. The humid climate of southern Sudan permits the cultivation of coffee and other tropical crops, and the flood plains of the Nile provide well-irrigated land for intensive crop cultivation. University staff members are encouraging the diversification of the crops grown on the extensive irrigated lands watered by the Nile in an effort to strengthen the country's agricultural economy, now subject to the vagaries of the cotton crop and its market. They are aware of the need to teach their young students the highly specialized techniques of agriculture under conditions of irrigation.

The Foundation awarded \$41,300 to the university's Faculties of Agriculture and of Veterinary Science in 1960. Plant breeding, agricultural engineering, and plant pathology, for which the Foundation appropriated funds, figure among the strongest programs in the agricultural faculty. In veterinary science, the staff has paid special attention to bacteriology, animal husbandry, animal nutrition, and clinical studies on the diagnosis and control of diseases that attack livestock. The agricultural and veterinary faculties are joining in a cooperative effort to build a laboratory for study of animal and plant virus diseases in the Sudan.

The southernmost of the institutions to which the Foundation appropriated funds, the University College of

Rhodesia and Nyasaland, is located on a grassland plateau that enjoys a cooler climate than the Sudan and one that is less rigorous for agricultural and livestock production. The college rises above the racial problems that beset the Federation and trains students on a multiracial basis to prepare them for the jobs that will become open to them in the basic sciences and in related agricultural disciplines.

The pivotal foci of excellence at this institution are the basic sciences of chemistry, zoology, and botany of the young Faculty of Science, and related disciplines in the Department of Agriculture. The Foundation grant of \$75,000 will enable the professor of botany to conduct intensive studies of two of the most pressing problems of the region. The first concerns soil microorganisms and their capabilities for fixing nitrogen under the climatic and edaphic conditions prevailing in the Rhodesias. The second concerns the range and adaptability of native species of grasses and their capacity to provide optimum grazing conditions for cattle. Damaging diseases of the major crops of the Federation will also receive intensive study in the expanding research program in the botanical sciences. The professor of agriculture will use funds provided by the Foundation to employ technical assistants for laboratory courses in the agricultural sciences, and to enable students to receive experience on the college farm in grassland, forage crop, and cattle improvement that will complement the basic instruction in the natural sciences offered them on the college campus.

Deep in the tropics of mid-Africa, Lovanium University in the Congo received an appropriation of \$26,300 to purchase X-ray equipment for the pedologist who is studying the mineral content of tropical soils and the influence of weathering on them. The immediate purpose of the Foundation's grant is to help the university's staff strengthen the soil research program and supplement the excellent work in the agricultural sciences done in the network of experiment

stations financed by INEAC (National Institute for Agro-nomic Study of the Congo) and the Congolese government. The ultimate, and perhaps most significant, objective is to provide the facilities and the research environment at the university for the training of Congolese agricultural scientists qualified to staff these experiment stations and other agricultural organizations in the Congo.

In West Africa the University College at Ibadan, Nigeria, marks still another important agricultural area, a transitional one with rain forest to the south and bush country and field crops to the north. Amid undertones of incompatibility among the major tribes of Nigeria—the Yorubas in the west, the Ibos in the east, and the Hausas and Fulanis in the north—the African professors who joined the staff of this federal university are working together to build a strong teaching and research program. Any one of these men may be called upon to serve as a senior staff member or as an administrator in one of the several new universities being established in response to the demands among 40,000,000 Nigerians for higher education.

During 1960 the Foundation made an appropriation of \$40,000 to the Faculty of Agriculture at the University College. This grant is enabling the African agricultural economist to accelerate his studies of production economics and of the marketing, preservation, and storage of produce—pressing problems in a country which lacks adequate lines of transportation and communication. The animal husbandman is using funds from the grant to meet certain needs for equipment and some of the capital costs of his research program on swine and poultry improvement. The dean of the Faculty of Agriculture is drawing upon the same grant to develop a series of rotational grazing plots to ascertain the most efficient and the least expensive grass management system for maintaining and fattening the local Ndama cattle for beef production under tropical conditions. He is also employing research

assistants in agricultural economics, biochemistry, and animal husbandry. In the near future they will qualify for full-time staff posts, and will assist in teaching the increasing number of students who matriculate year after year.

West of Nigeria, Dahomey, and Togo, in the land of the Ashantis, a Foundation grant of \$42,750 supplied teaching and research equipment for a small group of Ghanaian agricultural scientists at the Kumasi College of Technology, located in the northern part of the rich cacao area of Ghana. The funds will enable staff members of the School of Agriculture to carry on a comparative study of tree crop and field crop agriculture in a rain-forest climate. At the same time, these agricultural scientists will formulate a curriculum in agriculture that will prepare Ghanaian graduates to advise farmers on the best management practices for them to follow on land subject to high rainfall and to intensive cultivation resulting from ever-increasing population pressure.

Millions of tribal people living on the southern fringes of the Sahara and others who inhabit the arid region of East and Central Africa subsist on the wide-ranging native sorghums and millets. Production of these cereals under present conditions of cultivation and with the unimproved varieties currently used is not keeping pace with the demands for food of the growing population of these areas. Recognizing the especially urgent need for improved sorghum, the staff of the East African Agriculture and Forestry Research Organization (EAAFRO) recently instituted research on the breeding of sorghum for high yield, for resistance to diseases, and for tolerance to insect injuries and bird damage. The plant breeders at EAAFRO are consulting with other workers at agricultural experiment stations in Africa, with the foremost sorghum specialists in the United States, and with members of the Foundation's staff in Mexico and India who are also developing improved varieties. The \$60,000 Foundation grant defrays research expenses and provides equipment for the

sorghum breeders of EAAFRO, who conduct their main experiments at Serere in an important sorghum-growing area of Uganda.

Wheat is in great demand as a staple food crop in Africa. It grows in isolated spots under special conditions in the hot dry tropics immediately south of the Sahara but it flourishes in the cool temperate climate of parts of East Africa. Here, however, its ubiquitous pathogen, black stem rust, limits yields which farmers may expect to obtain from their crops. The wheat breeders and pathologists of the Kenya Department of Agriculture have exchanged information and materials for a number of years with the Foundation's staff in Latin America. Genetic stock from wheat grown in Kenya forms part of the basis of wheat's resistance to its most serious disease, black stem rust, in Mexico, the United States, and other parts of the world.

This year one of the most dependable local varieties of wheat in Kenya suffered an exceedingly heavy infection of a virulent strain of black stem rust. A Foundation grant of \$100,000 to the wheat breeding station of the Department of Agriculture is helping wheat specialists there to test varieties from many parts of the world alongside the varieties grown in Kenya as sources of resistance to this deadly strain and to other races of rust that prevail in Kenya and that threaten production in the important wheat-growing regions of Africa.

The East African Veterinary Research Organization plays a leading role in Africa in basic research on diseases that affect one of Africa's most abundant natural resources, livestock, and on environmental conditions which limit the production of beef and milk, inadequately tapped reservoirs of protein that could supplement on a large scale carbohydrates from the staple grains in the diet of the people. The veterinarians at this institution are currently initiating studies in which they will compare the ability of local cattle

in East Africa and of cattle imported from Europe to withstand the heat of the tropics. The Foundation awarded \$20,000 for equipment needed in the animal physiology laboratory where the studies are being carried on.

These eight institutions received a total of \$405,350 in Foundation appropriations during 1960. They are representative of a much larger group whose programs in agriculture have similar goals—notably, improvement of teaching and research in the basic sciences, coordination of fundamental and applied research in agriculture, development of veterinary science, and advances in cereal crop and livestock production. From among them key institutions will emerge whose efforts, supported by the Foundation, will lead to removal of some of the critical obstacles now impeding agricultural development in Africa. The faculties of these institutions will increasingly provide qualified young scientists who, after advanced and specialized training abroad, can return home to exercise leadership in improving the agricultural economy of their people.

Training in International Affairs

When the Trustees and officers of the Foundation decided to embark on an expanded program of aid to the developing countries of the world, support of the social sciences, including international relations, diplomacy, and related subjects, formed a part of the program. In his President's Review for 1956, Mr. Rusk pointed out: "Of the present 81 Members of the United Nations no less than 19, with a total population of more than 650,000,000, have emerged as fully independent nations since World War II. . . . Many of these nations are now attempting to build, some from the ground up, an administrative structure to take the place of one which has been swept away. . . . Relatively few have a com-

plex of established institutions to carry much of the daily load through habit or automatic action, leaving for the highest levels of leadership the burden of decisions on relatively minor matters." The question was how a private foundation, with experience in developing training programs in medicine, public health, and agriculture, could lend assistance to the newer members of the family of nations in the general area of the social sciences.

The responsibilities which the newer states must carry as the inescapable price of independence, of self-determination, are many and varied. Not the least of them is the obligation to shape their own foreign policies, to execute them through traditional diplomatic channels and through their membership in the United Nations, and to do so effectively and responsibly. At this point, as is so often true, the most pressing problem is the dearth of trained men. Everywhere in the world there is a conspicuous shortage of men with the high degree of knowledge, perception, and judgment required in dealing with the uncertainties of foreign relations. In few if any of the new nations are there sufficient numbers of well-trained diplomats to carry out foreign policy in ministries at home and effectively represent their nations' interests abroad.

Since 1955 the Foundation, through its officers, has been exploring possible ways of contributing toward the solution of this problem. In every area in which it has worked, the Foundation's primary concern has been with the importance of well-qualified leaders, and its experience in assisting the training of people in other fields has furnished a valuable background. But aid to a government, particularly in the sensitive field of foreign relations, is far more complex than support of a university or a research institute. Issues of independence, prestige, and pride are directly engaged.

As it surveyed possible appropriate forms of assistance, the Foundation was helped by a suggestion offered by the

representative of a South Asian country. He proposed that the Foundation help to strengthen the library of his Ministry of Foreign Affairs which, he said, was woefully inadequate to present-day needs. In travel abroad Foundation officers found that this country's needs were in no way unique. Existing library facilities in most of the ministries of foreign affairs visited needed reinforcement. One thoughtful observer noting these needs said, "While the tools of foreign relations will not make first-class diplomats, their lack plainly sets severe limits to the attainment of responsible and consistent policies." Even the most basic books and materials were found wanting in the foreign ministries of many new countries.

Once the relevance of this form of assistance was established, the officers began to draw up a modest list of basic books against which ministries could measure their existing collections and determine their needs. The list included publications in the fields of economics, comparative government, international law, diplomacy, constitutionalism and jurisprudence, international politics and organization, public administration, economic geography, and studies of major world areas. A cash gift of \$2,000 was added to the small working library along with a set of the *Encyclopedia Britannica*.

Inquiries were received from approximately 25 countries, all of which requested library assistance. An officer of the Foundation called on the Ambassador or other senior official of each country to discuss in detail the arrangements for providing the books. The countries which up to now have received gifts include:

Burma	Indonesia	Laos
Ceylon	Iran	Lebanon
Ethiopia	Iraq	Libya
Ghana	Israel	Malaya

Morocco	Philippines	Thailand
Nigeria	Rhodesia and Nyasaland	Tunisia
Pakistan	Sudan	Viet Nam

After the books were made available, the Prime Minister of one country, reflecting an attitude shared by others, declared:

The 400 volumes which have already been received and those which are due to arrive quite soon will, I am sure, help to broaden and develop the outlook of the officials of this Ministry in their approach to the numerous problems of present-day international politics and foreign relations.

Ministers in every country were particularly appreciative of the high quality and enduring value of the basic library and of the fact that the gift was entirely without conditions. They enthusiastically endorsed the Foundation's cardinal hope in supplying the collection, which was that the library might assist in the training of younger diplomats. Senior officials who had assumed leadership in national independence movements again and again expressed the hope that their younger colleagues might enjoy the benefits denied them of training and study in foreign relations as preparation for professional service.

Representatives of more than 20 countries took the initiative in asking further aid and counsel in the training of their young diplomats. Many of them pointed out that most of their training programs for foreign-office personnel were in a formative stage either because they had only recently started to build diplomatic services or because traditional arrangements with Western countries had been terminated or greatly curtailed. Furthermore, they felt a need for greater diversity in the educational experience of their diplomats, including training in such countries as Canada, Switzerland, and the United States.

On the assumption that a better informed cadre of people in the newer foreign ministries could contribute as much to the welfare of mankind as better trained doctors, engineers, and professors can, Foundation officers consulted with various officials and scholars at leading American centers and universities. At this point the leaders of the Carnegie Endowment for International Peace put forward an impressive plan directed at this end. They set themselves the goal of creating a program under which a corps of diplomats could become thoroughly conversant with the practices and procedures of modern international relations. As a first step, the Endowment surveyed needs and interests by sending an outstanding scholar to visit most of the ministries. They added an experienced staff member who had been British liaison officer with the Nigerian government during the period of its preparation for independence, and appointed an advisory committee of distinguished international figures. Subsequently the committee was reconstituted as a selection committee composed of Hamilton Fish Armstrong, editor, *Foreign Affairs*; Robert R. Bowie, director, Harvard University Center for International Affairs; Yves Collart, secretary-general, and Jacques Freymond, director, Geneva Graduate Institute of International Studies, Switzerland; John W. Holmes, director, Canadian Institute of International Affairs; W. Arthur Lewis, principal, University College of the West Indies, Jamaica; C. V. Narasimhan, Under Secretary, United Nations, and associate managing director of the United Nations Special Fund; Paul H. Nitze, president, Foreign Policy Educational Foundation; Joseph E. Johnson, president, Carnegie Endowment for International Peace; and Schuyler Wallace, director, Columbia University School of International Affairs. This outstanding group helped Endowment officials map broad lines of policy, determine criteria, and select fellows from among the applicants.

The Endowment's program is now in its second year.

Thus far three approaches have been used in its development:

- 1) A fellowship program for up to 25 young diplomats from newly independent countries for study at established centers in the United States and Europe, such as the School of International Affairs at Columbia University and the Geneva Graduate Institute of International Studies;
- 2) A part-time, inservice seminar for younger diplomatic officers in embassies in Washington conducted by faculty members of the Johns Hopkins University School of Advanced International Studies;
- 3) An inservice training program in New York for young representatives of missions to the United Nations.

The Washington seminar was concerned with study of foreign policy formation and economic development, while the seminar which it is hoped can be held in New York will be devoted to multilateral diplomacy. Apparently, leading officials in the embassies and missions of emergent nations have considered the programs valuable enough to commend participation by younger diplomats.

Fellowship applications have been invited from 27 countries, including Burma, Cambodia, Cameroun, Ceylon, Congo, Cyprus, Ghana, Guinea, India, Indonesia, Jordan, Laos, Libya, Malagasy, Malaya, Mali, Morocco, Nigeria, Pakistan, Philippines, Sierra Leone, Somalia, Sudan, Togo, Tunisia, Viet Nam, and the West Indies. In the first year of the program 34 candidates were nominated by 15 governments, and 16 Fellows chosen by the international selection committee have begun their studies.

The Fellows were assigned to Columbia University, where they are pursuing courses in international law and organization, international economics, and diplomatic history. They also participate in a core seminar on the history and development of contemporary ideologies which provides a shared intellectual experience for all members of the group, and may audit additional courses related to special interests.

or future objectives. They live together on the top floor of International House with a common room of their own and are in continuous contact with an academic counsellor who guides them in their program. In the closing months of their fellowships they can expect to participate in additional special seminars and experience at the United Nations and other centers in the Western Hemisphere.

The program arranged by the Graduate Institute in Geneva is closely parallel. It utilizes the headquarters in Geneva of international agencies and the foreign offices in Berne and other European capitals for special programs for its fellows during the school year and the summer. Professor Jacques Freymond, the dynamic head of the institute, has taken personal responsibility for a curriculum tailored to the needs and interests of the students.

The Foundation has contributed a total of \$525,000 since April, 1959, to help defray the costs of these training programs. While it is too early to assess either the academic performance of the Fellows or the long-term value of the seminars, university officials are impressed by the quality of the group and by the continuing interest of many of the newer nations.

A second training and study program at a somewhat more advanced level has been carried on at Harvard University. Under the auspices of the Center for International Affairs, public officials from foreign ministries and other agencies come together for a year of intensive study. They work and live together with scholars from the Harvard faculty and visiting scholars at the center. The program rests on the assumption that the joint efforts of productive scholars and mature officials form the best avenue for the deepening of mutual understanding. The permanent faculty of the center conduct seminars which the visiting officials may attend. The core staff includes Robert R. Bowie, director of the center and formerly Assistant Secretary of State for

Policy Planning; Dr. Edward S. Mason, George F. Baker Professor of Economics; Professor Thomas C. Schelling; and Professor Henry A. Kissinger. These men offer courses on economic development, military and political aspects of foreign policy, and technology and foreign policy.

The "student body" represents a unique pooling of the resources of high talent of many nationalities, and includes men of broad and diverse experience with stature in both the scholars' and practitioners' worlds. Public officials from other countries share in the program with qualified people from government, academic, and private life in the United States. Invited officials from the United States include experienced officers from the Department of State, military services, and other agencies engaged in foreign activities. Other visitors come from Europe, the Middle and Far East, and Latin America, and plans are under way to bring officials from African states as well. They live and work as a "community of scholars," approaching common problems from their separate national viewpoints but seeking to gain a deeper awareness of the many dimensions of the issues that loom large on foreign policy agenda around the globe.

In contrast to the Carnegie Endowment program, which draws its fellows from a group 25 to 35 years of age, the Harvard program is designed for men who have reached Assistant Secretary or comparable rank and who are in the 35 to 40 age group. Normally they come for a year of study, although some remain for longer or shorter periods. Freed from the pressures of day-to-day concern with immediate decisions, they profit from an environment that fosters sustained and systematic analysis of the fundamental issues with which they have been concerned but to which they have seldom been able to give uninterrupted study. The joint participation of a mature and experienced group of 20 scholars and practitioners from many countries has stimulated new approaches to common problems. Following a period at

the center, practitioners return to public duties with new insights and deeper perspectives. Scholars likewise benefit from subjecting their research to criticism by men who have grappled with the actual problems of foreign relations.

The Foundation has contributed \$668,200 toward the Harvard and Carnegie Endowment programs. Taken together they represent a carefully designed attempt to solve a difficult problem. They are intended primarily to help meet the urgent needs of countries that overnight must develop an over-all structure of government that includes competent and qualified foreign service personnel. They may also prove a means of widening the horizons of research and study, and of stimulating more valuable writing. In the end the purpose, as with most Foundation programs, is to help other organizations train more competent and imaginative leaders who must carry awesome responsibility for life and death decisions in the months and years ahead.

Language: Barrier or Bridge?

Officials of developing nations everywhere are trying to meet the growing economic and political demands of large and often underprivileged sectors of the population through evolutionary means before the government and the society that supports it are overthrown by violent social revolution. Many of these nations, usually working with inadequate budgets, are faced even in the best of circumstances with a major problem countries like the United States seldom appreciate—the necessity of developing educational facilities for a population consisting of sizable groups that speak different languages and that are, therefore, unable to communicate with one another. If the expensive and politically undesirable solution of separate school systems for the various language groups is to be avoided, then one language must be selected as the medium for public instruction, and techniques devised

for teaching this language to those who speak another one at home. This problem is most prevalent in Asian countries, but also exists in the Western Hemisphere where it is most acute in the Andean countries of Peru and Bolivia.

Quechua has been the language of the high Andes for centuries, although a second major language, Aymara, is used by nearly 1,000,000 Indians living in the Lake Titicaca basin. Today Quechua is spoken by about 60 per cent of all Peruvians, most of whom are monolingual. These Quechua-speaking Indians of the Andean highlands represent not only a distinct culture but also a distinct class, and are now moving down in large numbers to coastal centers and industrialized towns where their inability to speak Spanish adequately is a serious economic and cultural handicap. Far from constituting the remnants of a dying civilization, they are increasing at a much faster rate than the population of the country as a whole, and their number is conservatively estimated at 5,000,000.

The application of linguistic techniques to the problems of education and communication in Peru and Bolivia is attended by many difficulties. There have not yet been any teaching or research programs concerned with Quechua that make use of modern structural linguistics. The variations in Quechua dialects are so great that several of them are unintelligible to Indians who speak others. Marked differences exist from community to community in the extent to which even the most basic Spanish is understood. No agreement has ever been reached on alphabets for the various Quechua dialects. And, finally, although language is considered in the scholastic tradition to be that which is written, it is extremely difficult for an illiterate to learn to read and write a language he cannot speak.

As a first step toward developing methods of coping with the language problems of the Andean region, Cornell University has established a training center concerned with

the Quechua language for linguists from that area and the United States. The program will encompass three types of activity—training, investigation, and experiment. Five scholars from Peru and one from Bolivia will take approximately two years of course work at Cornell, and participate in special seminars on linguistic methodology, applied linguistics, and the relation between language and other aspects of culture. During field work in the Andes, the boundaries of the major dialect areas will be delimited, alternate alphabets will be tested, and materials and methods will be developed in an attempt to evaluate and apply different approaches to the teaching of Spanish in rural highland communities. It is hoped that the experiments, which will be conducted largely by the Latin Americans, will be so effective that their techniques can be adopted and extended by the governments in the region and by international agencies that provide technical assistance in the Andes.

The Latin Americans who receive advanced training at Cornell are expected to teach theoretical and applied linguistics in universities on their return home, and to supervise their students in field research. Cornell plans to develop a sequence of courses in spoken Quechua for people in the United States who wish to acquire fluency in the language. To help Cornell carry out this ambitious and well-planned program of service, The Rockefeller Foundation appropriated \$155,000 during 1960.

Communication in the Americas

Today, when technical means of communication have been so vastly extended that scientists can bounce signal waves off objects in outer space, the nations on this planet are confronted by an apparent paradox of increasing intellectual isolation. In an age when new sovereign states are being created at a rate to which most individuals are unable

to accommodate themselves, when a common forum for the expression of group aspirations is available to all, and when international organizations capable of social, economic, and even political action are operating at multiple levels in many parts of the world, it is probable that cultural identity has assumed a new importance. But the conditions created by rapid communication and transportation and by the existence of a world forum have also created the means by which the values underlying national and regional aspirations can be made a force for social and political action. What once was only the subject of scholarly curiosity has suddenly become significant to our very survival. What is important to different societies, and why, must be understood, if not by everyone, then at least by specialists who can inform and advise those responsible for major decisions in government and private agencies.

During 1960 The Rockefeller Foundation made two grants in an attempt to improve intellectual communication between Latin America and the United States and among the Latin American countries themselves. They support programs designed to make the essays, imaginative writing, and specialized professional literature of each Latin American country known and available in the others, and to make the more important Spanish- and Portuguese-language literature of Latin America available to the English-reading public of the United States.

A grant of \$48,000 to the New York Public Library will meet some of the expenses of preparing and distributing a quarterly Spanish-language journal that will contain a reliable and generally complete listing of Spanish-American books immediately after publication together with precise information on cost and how they may be obtained. The journal will also supply Spanish-American libraries with ready-made catalogue entries for all books listed. Timely bibliographic information of this sort is of great importance

to specialized research and graduate training centers in the social sciences, the humanities, and the natural sciences. It should greatly facilitate the circulation of books within Spanish America, and will, for the first time, give United States libraries full information on Latin American publications rapidly enough to enable them to secure books directly from the publisher.

Through a second grant, the Foundation hopes to help give the English-reading peoples of the world an opportunity to become better acquainted with the literary output of Latin America. Over a period of six years, and at a fairly even rate of publication, the members of the Association of American University Presses will present English translations of a variety of the most influential books written by Spanish American and Brazilian authors. A grant to the Yale University Press will meet the expenses of translating, revising or updating translations, editing of composite volumes, manuscript typing and preparation, and obtaining illustrations. At an estimated average cost of \$3,000 per volume for all costs except printing and binding, the grant would make possible the publication of 75 Latin American books of literary or scholarly importance.

Recent developments in Latin America demand a long overdue revaluation of the role the region will play in future cultural and intellectual exchange among nations. The publishing program should lead to a wider appreciation in academic and literary circles of the contribution Latin Americans have made to the mainstream of occidental culture, and should help secure for Latin American literature a permanent place in the United States' book industry.

An International Study Center for Modern Art

Organized in 1929 to bring new developments in modern and contemporary art to the attention of the American

public, the Museum of Modern Art has since become the leading institution of its kind in the world. Its permanent collections of painting, sculpture, prints, photographs, and films are the most representative of the artistic work of the last 75 years to be found anywhere. These riches, and the outstanding loan exhibitions it has brought to New York or sent to other museums, are well known.

Less appreciated is the fact that the Museum of Modern Art, in spite of inadequate physical facilities and lack of endowment funds for research purposes, has also become an important study center for artists, designers, critics, art historians, collectors, museum curators, and journalists. The value of the museum's collections to students and researchers is greatly enhanced by its unique files of photographs, exhibition catalogues and other ephemeral printed material, and correspondence, which have been built up over 20 years of intensive activity in collecting, exhibiting, and publishing.

To a remarkable degree, the Museum of Modern Art represents the dual interests of The Rockefeller Foundation in humanistic research and in the vitality of contemporary creative activity. In December, 1960, the Foundation appropriated \$1,500,000 to the museum to help it in its efforts to raise a total of \$25,000,000 for building and endowment. The Foundation's gift will be used to support and improve the museum's functions as an international study center. At least two-thirds of the grant will be used for endowment.

The Art of the American Indian

The Indian artist-craftsman, living as he usually does within a relatively closed society strongly dominated by traditional values, is far more isolated than his counterpart who lives and works in the mainstream of an open society with its wide variety of styles, techniques, and values. The reservation system, which tends to keep the Indian in a de-

pendent position as a ward of the state, has been more rigid and has affected a greater number of Indians in the Southwest than elsewhere in the United States. It is also in this region that art has been the most persistent expression of tribal values.

The changing economic status of Indians in the Southwest, together with the conflict between tradition and change, places the young Indian artist in a confused setting, where creative activity needs guidance rarely available within the tribal structure. He must seek new forms of creative expression that draw upon his cultural heritage yet go beyond a slavish reproduction of old Indian patterns. To be able to use his great traditions as the springboard rather than the mold for his own artistic creativity, the young Indian must understand and dominate new forms, new media, and new technological methods. The art he produces will be as truly Indian as he is himself.

To overcome his cultural and technical isolation the Indian needs a new type of educational opportunity. The University of Arizona at Tucson has increasingly regarded the economic and cultural development of the Indian population of the Southwest as both an opportunity and a responsibility. In the belief that the effort to solve the educational problems of the Indian artist could not be made wholly within Indian cultural circles, it held a conference on contemporary Indian art in 1959 and followed this with consultations with Indian artists, tribal leaders, and others aware of and concerned about the situation of the young Indian artist. As a result, the university has planned to hold an intensive summer workshop each year at which Indian and non-Indian instructors of painting, design, metalwork, and ceramics will offer training to approximately 25 talented Indian artists between the ages of 18 and 25. In addition to technical instruction, the workshops will include lectures on Indian art and society and on the artistic styles and contribu-

tions of other civilizations. Each student will attend as many of the six-week workshops as he needs to develop his style and techniques, and a few will be accepted into the regular academic program of the university's School of Fine Arts.

To help the University of Arizona launch this new and exploratory educational program at no cost to the Indian artists, The Rockefeller Foundation appropriated \$93,100 during 1960. It is expected that the program will not only familiarize the Indian participants with the culture of the nation as a whole, but will also enrich contemporary art with forms adapted from the old or newly discovered.

A Registry for American Craftsmen

Mention of the word "craft" in any discussion of the visual arts evokes a wide variety of images. For many it carries a strong connotation of folk art, while for others it applies only to objects that have a functional value rather than the purely aesthetic value of painting or sculpture. Whatever is understood by "craft," however, most people would agree that a good craftsman is skilled technically in the media he uses regardless of his creative gifts.

The postwar years have been marked by the emergence in the United States of artists and designers who give a craftsman's emphasis to study of the physical characteristics of the materials they use and who have developed exceptional skill in handling them. They have chosen usually to work with wood, ceramics, glass, cloth, metal, plastics, and enamel, or with a combination of these materials. The objects they create may be functional—a chair or a bowl, for example—or they may be freely imaginative—a ceramic bas-relief for a new building, say, or an enamel triptych with a religious or secular theme.

By the very nature of their work, today's artist-craftsmen are highly individualistic and operate on a small scale,

and their workshops and studios are scattered throughout the country. These facts, and the great diversity of their artistic styles, have made it difficult for them to reach a public, also widely dispersed, that is apparently increasingly interested in sampling a variety of aesthetic forms. A major obstacle confronting artist-craftsmen is inadequate communication among themselves and with other artists and the public.

Establishment of these badly needed channels of communication is the principal immediate goal of the American Craftsmen's Council, a national organization that offers education in the crafts and attempts to stimulate public interest in the work of American craftsmen. In publishing the magazine *Craft Horizons* and operating the Museum of Contemporary Crafts, the council has accumulated information on all phases of work in the crafts in the United States which it has recently brought together in an information file that contains, as well, illustrations of the products of nearly 500 craftsmen living in all parts of the country. The file has become the most accessible source of information about the work of craftsmen for schools, scholars, writers, collectors, decorators, architects, and the general public.

The Rockefeller Foundation has given the American Craftsmen's Council \$101,000 to help meet the basic organizational costs of the file so that it can be expanded to include, by 1964, information on 2,500 artist-craftsmen and both black-and-white and color photographs illustrating the style and quality of their work. The council will keep the file up to date, and thus give leading craftsmen a permanent forum from which their work can be made known to the professional and lay public. Communication among artists and with consumers will become a reality, even though the artist-craftsman may live in rural New Hampshire or California and his potential customer, individual or corporate, in metropolitan New York or Los Angeles.

The International Rice Research Institute

Although rice is the principal food of half the world's population, average yields are far from adequate in the areas—the tropics and subtropics—where it is most important in the diet of the people. As part of a concern with improving the quality and quantity of major food plants, the Foundation's officers in recent years have visited rice-producing countries to obtain first hand knowledge of the problems of rice cultivation, and have made grants to institutions in Asia and the United States for research on rice. In 1960 this concern culminated in the Foundation's participation, with the Ford Foundation and the Government of the Philippines, in the creation of the International Rice Research Institute in the "rice bowl" of Southeast Asia.

The new institute is dedicated to basic and applied research on all aspects of rice improvement, protection, production, and utilization, and to the training of young scientists who can bring their knowledge to bear on the solution of rice production problems in their own countries. Its staff will assemble a comprehensive collection of the world's literature on rice, and disseminate research results to interested workers in all countries where rice is grown. Facilities for international conferences are being provided.

The Board of Trustees of the institute is composed of representatives of the two participating foundations, the Government and the University of the Philippines, and government and agricultural institutions in four other rice-producing countries. The Rockefeller Foundation has accepted responsibility for the operation and maintenance of the institute, for the recruitment of personnel, and the conduct of research, and one of its agricultural officers is serving as director. For the expenses of the institute during 1961, the Foundation appropriated \$229,000. Grants totaling nearly \$7,000,000 from the Ford Foundation are meeting the

initial capital costs of construction, furnishings, and equipment. The Philippine government has furnished land, and granted the institute exemption from taxes and duties in recognition of its scientific and humanitarian purpose.

Construction of the institute is progressing on land adjacent to the University of the Philippines College of Agriculture in Los Baños. Facilities include administration, laboratory, and service buildings, a library with space for about 100,000 volumes, dormitories for approximately 60 trainees annually, offices for visiting scientists, seminar rooms, an auditorium, dining rooms, and lounge. Research is expected to be well under way early in 1962.

Among the areas of research on which the institute staff will place early emphasis is the development of higher-yielding rice varieties, particularly for the tropics, with greater resistance to disease and insect pests and with better cooking and eating qualities. Toward this end, species and varieties of rice from all over the world will be collected and thoroughly screened to identify those having possible economic value in areas where they are not now grown. Rice genetics and breeding, major diseases and insect pests and their control, utilization of fertilizers, the chemical basis of quality differences among varieties, the physiology of the rice plant, and cultivation practices are among the topics for investigation.

In cooperating in the establishment and operation of the International Rice Research Institute, the Trustees and officers of the two foundations have hoped to be instrumental in the development of a center that can serve as a major source of basic knowledge on rice and rice production, and as an important training ground for agriculturists specializing on rice. As in its other agricultural operating programs, The Rockefeller Foundation has as its principal consideration improvement and increase in the food supply of the world's growing population.

The Foundation's Operating Programs

AGRICULTURE

Introduction

The operating program in the agricultural sciences of The Rockefeller Foundation is devoted primarily to research to overcome or minimize the hazards that prevent the production of abundant and dependable supplies of food crops and livestock, and to training a corps of competent local scientists who can take over the direction of their countries' agricultural research services.

The individual programs in Mexico, Colombia, Chile, and India, and those associated with them, serve not only to meet the problems indigenous to the host country but also offer exceptional opportunities for the Foundation's staff members to conduct experiments under a wide variety of environments, and thereby develop resources for the improvement of agriculture in many other regions with similar climatic conditions. Substantial amounts of information and material of value for the less well-developed areas of the world are being accumulated by the agricultural operating units.

Responsibility for research in the operating programs is being transferred to local scientists as fast as professional agricultural personnel can be trained and given the requisite experience. The transfer of responsibility is most advanced in the two older programs—in Mexico and Colombia—and is a consistent objective in all of them.

The Foundation is giving increased attention to co-operative planning of technical assistance programs with a number of other agencies that are also concerned with advancing agricultural technology in foreign areas. One of these is the Ford Foundation, which has a world-wide interest in agricultural education and extension; elsewhere in this report

is an account of the International Rice Research Institute, cooperatively financed and operated by the two foundations. With officials of the United States Department of Agriculture, Foundation staff members are developing projects for the effective utilization of the local currencies available under Public Law 480. Three Foundation staff members served as consultants during the year with the Food and Agriculture Organization of the United Nations: one on the FAO maize improvement work in Europe, another on the Middle East wheat and barley improvement program, and a third on a team reviewing the possibilities of agricultural improvement in northern Nigeria.

For the first time since the beginning of the work, the annual progress reports of the operating units are being published in a comprehensive volume. Scheduled for publication in early 1961, the report for 1959-1960, with illustrations, is a volume of approximately 300 pages containing not only the results of staff-conducted experimentation but also lists of the scholarships and fellowships active during the period, the grants awarded to other institutions and agencies, and the technical papers and other publications produced by staff members.

The Foundation appropriated \$2,660,000 in 1960 for the expenses in 1961 of its operating program in the agricultural sciences. The new allocation brings to nearly \$18,000,000 the total devoted to this work since its inception in 1943.

Mexican Agricultural Program

Established in 1943, the operating program in Mexico has aided in the creation of an awareness throughout the country of the benefits to be derived from increased technology in agriculture and has helped to train a group of competent scientists who are assuming positions of responsi-

bility in governmental agencies and agricultural colleges.

The abundant production in recent years of the principal food crops—corn and wheat, the enthusiastic interest in the processes of distributing research information, the building up of organizations for handling improved seed stocks, and the concerted local effort to upgrade schools of agriculture, all stem in some measure from the demonstrations and experiments conducted by the cooperative program.

The research in Mexico has resulted not only in greater production of the basic food crops but also in an increased versatility in Mexican agriculture. The lateness of the rains in the summer of 1960 in the Bajío, one of the principal food-producing areas of Mexico, threatened to reduce total food supplies as farmers curtailed corn plantings. But because high-yielding, disease-resistant varieties of corn and wheat were available through research for growing in northwestern Mexico, the government, by means of credit and price incentives, was able to encourage increased plantings of these good crops in the irrigated valleys of the northwest and thus to avoid the threatened food deficit.

From 1943 through 1960 the Mexican Agricultural Program operated through the Office of Special Studies in the Ministry of Agriculture, a research and training unit jointly supported and staffed by the Ministry and the Foundation. As the year closed, 12 Foundation staff members were assigned to the office, a reduction from the onetime maximum of 18. The Mexican government furnished 9,145,500 pesos (about \$750,000) for its share of the support of the office in 1960.

It has been recognized for some time that research activities in the Ministry of Agriculture, previously scattered through a number of departments, could profitably be brought together into a single branch. This consolidation was effected in December, 1960, through a presidential executive order creating the National Institute of Agricul-

tural Research, into which is merged the Office of Special Studies and other agencies. During 1961 the order is being implemented. The National Institute will be located at Chapingo, where it can coordinate its work with the National School of Agriculture and the Graduate School of Agriculture, both also located in Chapingo, and with El Horno Experiment Station, contiguous to the campus of the National School. The National Institute will have direction of the more than 40 federal experiment stations scattered throughout the country; it is expected that these will be reduced in number and strengthened to create a system of a few main stations with satellite substations to cover the principal agricultural regions and crops. The Rockefeller Foundation is giving substantial financial aid to the National Institute and the Graduate School, and will continue to contribute the work of its staff scientists.

The Office of Special Studies has been organized into 11 research sections and several supporting services. At the close of the office's fiscal year, in July, 1960, some 141 professionals were associated with the office as research project leaders, staff members, and trainees, in addition to Rockefeller Foundation staff members, and to administrative, clerical, and other personnel.

Each section consists of a directive group headquartering in Mexico City, and directors and staffs in charge of section investigations at the central station at Chapingo and the four main stations in other parts of the country. The activities of each section are thus coordinated into an overall program for the improvement of particular food crops and animals which is at the same time decentralized to allow for the production of varieties and breeds adapted to the regions where they are of economic importance.

The central station, El Horno, at Chapingo, at an altitude of 2,200 meters, has 420 acres and excellent buildings for laboratories, workrooms, and storerooms, as well as

greenhouses, poultry houses, and machine shops. Crop and animal improvements produced here are immediately applicable to the large high-plateau region where the majority of Mexico's inhabitants live, and in addition most of the basic breeding work is done here for later adaptation and use at the regional stations.

The main station for the Bajío, Mexico's most important natural-rainfall agricultural region, is located at La Pieded, Michoacán. The location is unfortunately subject to occasional floods of great severity and during 1960 negotiations were in progress for the purchase of land at another place in the Bajío, and for the transfer of the station.

In the northwest of Mexico the completion of large irrigation projects has transformed hundreds of thousands of acres of desert into highly productive farmland. To create or adapt improved varieties for planting under irrigation, the CIANO station at Ciudad Obregón, Sonora, was installed several years ago and is now in successful operation. Wheat is the principal crop dealt with at CIANO, but irrigated corn, vegetables, and oil seed crops are receiving increased attention.

The problems of agriculture in the potentially highly productive Gulf Coast tropical regions are studied at Co-taxtla, near Veracruz, and at the substation El Cayal, in Campeche. A number of hybrid corn varieties for the tropics have been created here, and successful introductions of a number of forage grasses have won strong local support for the work of the stations. Work on beef and dairy cattle and on poultry commands a substantial share of the attention of the station staff.

In the north central plains, where rainfall is too sparse to support field crops, range cattle represent the principal agricultural industry. At the suggestion of the local cattlemen and with their active support, an experimental range station, La Campana, has been created and is now in full

operation. Located north of the city of Chihuahua, the station has a range of 2,775 acres provided by the Chihuahua Cattlemen's Association, and is operated jointly by the former Office of Special Studies and the School of Animal Husbandry of the University of Chihuahua. At present the work of the station staff is devoted primarily to forage and feeding problems.

In addition to directing the foregoing Ministry of Agriculture experiment stations, the staff of the office also cooperates on investigations at two state stations: Santa Elena, near Toluca, the central station of the Department of Agriculture of the State of Mexico; and El Mexe, near the town of the same name in the State of Hidalgo. Santa Elena, with an elevation of 2,700 meters, serves for work on high altitude crops, and has been especially important for the production of adapted varieties of corn and of blight-resistant potatoes. The work at El Mexe has centered on wheat and corn breeding.

Finally, the office staff contributes to the basic seed production work of the National Corn Commission at three of this organization's stations located respectively at Cortazar, Guanajuato; San Rafael, Veracruz; and Tepaltzingo, Morelos. At the last named, the Inter-American Maize Improvement Project also conducts breeding experiments and uses the station for training.

Of the 11 research sections, nine are concerned with food plants and two with animals. Of the plant science sections, the two largest are those for corn, with which the sorghum work is combined, and wheat, with which the work on barley is included. Work on the two basic food grains began when the program was established in 1943, and has progressed to the point where improved varieties created through Office of Special Studies research now dominate commercial planting and are in strong demand among small farmers and cooperative farm groups. As early as 1957 and

1958 Mexico reached self-sufficiency in both corn and wheat production, and has steadily maintained enough surplus over demand for human consumption to create the possibility of expanding animal feed production.

In the research section on wheat, the production of a "composite" variety has reached the stage of seed multiplication, and the development of a "dwarf" composite is well under way. A composite variety contains a number of lines resistant to different races of stem rust and offers a wider range of protection than a single-line variety.

The sections for beans and soybeans, and for vegetables, have for some time been releasing improved varieties of beans, tomatoes, peppers, squash, peas, melons, and garlic. In the work with potatoes, the chief problem is to produce varieties with acceptable tuber quality which are also resistant to the late-blight fungus. No fewer than nine varieties have been released which meet these requirements, and it is now possible for farmers to grow successful crops under natural rainfall in the summer without the use of fungicidal sprays. The potato is slowly realizing its potential in the diet of the Mexican people.

The work with forage crops is closely associated with the two stations where beef and dairy cattle are studied: Cotaxtla in the tropics and La Campana in the semi-arid northern cattle country. Work with alfalfa in the Mexico City milkshed area has been extremely successful and is being tapered off.

Investigators in soil fertility and management give major attention to the soil factors which most commonly limit crop yields in Mexico—deficiencies in nitrogen, phosphorus, and moisture—and are continuing the more recently begun research on the residual effects of cropping practices on soil productivity. The two sections dealing with plant protection—entomology and plant pathology—continue to concentrate on the control of damaging insects and fungi.

that cause losses in stored grains, a problem of increased gravity now that Mexico has surpluses instead of deficits of food grains.

Investigations in the animal sciences began with poultry, and now include direct studies of nutrition and management at three experiment stations, and associated studies in poultry diseases conducted at and in cooperation with the School of Veterinary Medicine of the National University of Mexico.

The growing commercialization of Mexican agriculture has produced new problems for those engaged in farming for the urban markets, and has sharpened the need for economical practices and greater efficiency among those who grow for the small local markets. The section on agricultural economics has completed a number of investigations of these problems and has others in progress.

Supporting services backstopping the research sections include the library, the agricultural information office, and the seed laboratory. The library, begun in the early days of the Office of Special Studies, has grown until it now contains one of the best collections in Latin America on the biological sciences, with special emphasis on applied aspects. The information section produces technical and extension bulletins and circulars, provides material for the mass media, especially newspapers and radio, and maintains a film unit which has produced 13 informational and instructional films, most of them in color and with sound. The seed laboratory was practically swamped with work from the day it opened, so great is the demand for this service by both governmental and private agricultural agencies.

Though the Mexican Agricultural Program does not itself engage in formal extension activities, some extension is inevitably associated with its research and demonstration work. Each of the experiment stations holds one or more field days annually. In 1959-1960 nearly 5,000 farmers,

technicians, and officials attended these "open-house" affairs. The field days reflect the impact on Mexican agriculture of the research programs. The enthusiastic interest shown at field days in information about the latest technical advances in crop production helps establish closer relationships between farmers and ranchers on the one side and research and extension workers on the other, and leads to a better understanding of the principal agricultural problems to be resolved. The lag between the achievement of new knowledge, and its application for increased production, is steadily narrowing in Mexico.

Colombian Agricultural Program

The cooperative improvement program started in Colombia ten years ago is now a part of the research section of the Ministry of Agriculture, the Department of Agricultural Investigations (DIA). The program has had a steady evolution; it began with the improvement of corn and wheat, soon added studies on beans, potatoes, and barley, and expanded to include plant protection against pests and diseases, and soil management. Five years ago the program was again expanded to cover the animal sciences, and a forage specialist, animal scientists, a dairy scientist, and a veterinarian joined the staff. Since then intensive work has been started on rice in response to the threat of "hoja blanca," a virus disease of very serious proportions. Fifteen Rockefeller Foundation resident staff members were in the Colombian Agricultural Program in 1960.

The headquarters of DIA are in Bogotá. The central research center is at Tibaitatá, with an experimental farm of about 1,400 acres, well-designed and fully equipped laboratories, a library, and service buildings. Four other main stations and eight substations form the DIA research

center network covering all the important agricultural regions of Colombia.

The training aspects of the cooperative program are heavily emphasized. In 1960, nine DIA staff members were on leave studying for the M.S. degree and one for the Ph.D. degree. Seven returned with M.S. degrees during the year. Some 126 graduates of Colombian agricultural colleges, and two from other countries, were receiving training with the program.

DIA is unusual among governmental agencies in Colombia in that its administrative and fiscal affairs are handled by the Agricultural Credit Bank, "Caja Agraria." The Caja Agraria also takes responsibility for multiplying into commercial quantities the seed of improved varieties created by DIA and distributing the seed to farmers. The numerous branches of the bank throughout the agricultural regions provide an excellent base for seed sale and distribution.

Approximately 40 per cent of the wheat, 90 per cent of the barley, and about 7 per cent of the corn now planted in Colombia are improved varieties sold through the Caja Agraria. The actual acreages sown with improved seed are larger because of farmer-to-farmer sale. It is significant that in the Cauca Valley, the most important and advanced single agricultural area, 80 per cent of the corn acreage is planted with DIA hybrids sold through the Caja Agraria.

Corn production in the Cauca Valley has been stimulated by contests among commercial growers sponsored by the Caja Agraria. First prize in the second year of the contests went to a farmer who averaged 110 bushels per acre on the required 25-acre plot, using a DIA hybrid. All five of the highest yields the second year exceeded the highest yield the first year.

Nariño, a new variety of wheat resistant to yellow as well as to black rust and to "enanismo," a dwarfing disease,

has been released and 200 tons of foundation seed turned over to the Caja Agraria for further increase. The first multi-lineal or composite wheat variety is also being increased for future release.

In the work on potatoes, breeding and selection for field resistance to late blight continues to be the central focus of the program. Excellent results have been attained and varieties can now be furnished to commercial growers which need fewer fungicide sprayings, an economic advantage of great importance.

To improve Colombian pastures, seed of many forage grasses and legumes obtained from the United States and Canada have been tested. Many of the varieties, when grown in the short day-lengths characteristic of Colombia, have shown rather unusual reactions. However, satisfactory sources for the importation of adapted seed could be recommended to the Caja Agraria. Much work must be done on the mechanical planting and harvesting phases of forage seed production before Colombia can hope to become self-sufficient in seed of forage crops.

Certain reports published in Colombia indicate that approximately 15 per cent of the grain produced annually in Colombia is lost through damage by fungi and pests while in storage. Much can be done to save thousands of tons of grain annually by better drying and more careful storage methods.

In the animal sciences, the work began on dairy cattle and now includes beef cattle, sheep, and poultry. The programs evolved slowly because of the necessity of constructing the necessary barns and facilities, developing pastures, and building up herds. The number of animals in the dairy herds is limited at present, but 32 cows at Tibaitatá averaged almost 13,000 pounds of milk in the year ending in July, 1960. As facilities, pastures, and management are improved,

it is hoped that the herd averages at the other experiment stations can be raised at least to this level.

The poultry program was started recently. Work is under way to determine the quantity and quality of locally available feeds, and laying trials are being run. Selection of high-producing birds for future breeding stocks is being done within the first flocks. Significant in terms of commercial poultry development in Colombia is the fact that the first group of chicks sold, which had been used in experiments to test the effectiveness of local rations, showed a profit of one peso per bird.

Work on the identification and control of parasites infecting sheep in Colombia has been started. Much better management of the experimental flock was achieved in 1960, with lambing at 95 per cent and mortality down to less than 5 per cent, in contrast to much less favorable percentages last year.

An active biometry section aids all the major programs of DIA in the planning, analysis, and interpretation of experiments. During 1959-1960 the emphasis shifted from the routine computation of experimental results to the study of factors affecting the precision of experiments. The development of a well-trained staff continues to be stressed. During the year, 722 experiments were processed.

Chilean Agricultural Program

When the Chilean Agricultural Program was established, in 1955, the consumption of agricultural products in Chile was increasing at the rate of 2.3 per cent annually, while agricultural production was going up at the rate of about 1.6 per cent. Though the disparity is less marked now, Chile must still import substantial amounts of wheat, meat, and milk. In the objectives of the cooperative program, priority is given to cereals, especially wheat, and to forage crops.

It would be difficult to exaggerate the potential long-range importance of forage improvement to Chile's agricultural economy. Over 52 per cent of the arable land in the country is in pasture and range; this is about 14 times the amount of land planted to cultivated crops. The potentialities of raising the productivity of this vast area are exceptional.

The Chilean program operates through the Office of Special Studies of the Ministry of Agriculture, with headquarters in Santiago. Thirty-seven Chilean agronomists are attached to the office, and five Foundation staff members. The office has responsibility for Ministry of Agriculture experiment stations: the central station near Santiago, with two substations; and the southern station at Temuco, with one substation. Both the Santiago and the Temuco stations are being extensively improved, with new greenhouses and machinery sheds completed, construction started on laboratory and office buildings, and a coordinated network of roads and irrigation-drainage canals designed.

The office cooperates with the University of Concepción station at Chillán, the University of Chile station near Santiago, the Catholic University station near Santiago, and the University of the South station at Valdivia. Much interest in the experimental work is shown by both students and professors of the schools of agronomy of the four universities. During the year 22 students received some research experience with office staff at the stations, and a total of 24 thesis studies were guided wholly or in part by office personnel.

The improved wheat variety Orofén, released previously, was sown on an area of over 50,000 acres during 1960. The new early-maturing variety Rulofén was grown for certification on about 1,000 acres. The milling and baking laboratory is in full operation, and it is now possible to identify wheat lines having superior bread-making properties. Several of these lines, which also yield well, are in preliminary increase.

As a result of the varietal testing of forages during the past two years, productive new strains of alfalfa, subterranean clover, red clover, white clover, crimson clover, trefoil, ryegrass, *Phalaris*, and sorghum have been selected and are being multiplied or imported directly from the country of origin. A study of the problem of alfalfa establishment in the southern part of Chile showed that near-normal stands were obtained when proper inoculants and heavy applications of phosphate fertilizer were used. Successful production of alfalfa in the south would be of inestimable value to the region.

Indian Agricultural Program

Established in 1956, the Indian Agricultural Program has dual responsibilities. In the field of agricultural education, it is cooperating in the development of a postgraduate training center at the Indian Agricultural Research Institute, New Delhi. In the field of crop improvement it cooperates with federal and state authorities in research on cereals, particularly on hybrid corn, sorghum, and millet. The two phases of the program—research and postgraduate training—are conducted in close interrelationship.

The Foundation has assigned seven staff members to the program, and each year it also sends well-known scientists from the United States as temporary staff members who serve as visiting professors at the Post Graduate School and as consultants in the crop improvement work. The Government of India provides the necessary land and facilities and the budget for local staff and for recurring costs of the program. The Foundation, besides contributing the services of its staff members, has also appropriated funds for certain items of equipment and library materials.

The Post Graduate School at the Indian Agricultural Research Institute admitted its first class in 1958, and now

has 16 professors and 46 assistant professors. Some 114 of the first entering class presented their theses in the summer of 1960. The members of each entering class have met high standards of admission and must maintain high-level performance. Of the approximately 300 students enrolled, 186 are registered for the M.Sc. and 113 for the Ph.D. program. A Post Graduate Council, the final authority on academic matters, was formally constituted during the year. Arrangements were also completed whereby a limited number of junior staff members may enroll for postgraduate degree programs on a part-time basis.

In the maize improvement project, a number of inbred lines, many of them developed in the project, have been evaluated alone and in topcrosses. They have been identified as having the ability to transmit superior yielding capacity and good grain quality. They can be produced reliably under Indian conditions. By the end of the 1960 growing season it was possible to predict and to plan the release of maize double crosses for most, if not all, of the maize-growing regions of India. These hybrids combine good adaptation, high yielding ability, a flint or semi-flint grain type, and good acceptability to the cultivators, and are made up of lines which can be produced dependably in India.

The progress in the creation of hybrids provides a firm base for launching an intensive campaign for hybrid maize seed production in commercial quantities and for its distribution to growers. Since it is recognized that this effort will require reliable sources and supplies of high-quality seed, plans have been initiated for organizing and establishing corporations for certified seed production, and for providing the necessary financing, inspection, and control to assure the maintenance of proper standards of quality.

Efforts to secure similar improvements in sorghum increased markedly during the year. An intensive project for systematic collection of indigenous sources of germ plasm of

the sorghums and millets was begun in 1960. The new collections have been added to the varieties already under study in the experiment stations, along with the large number of introductions from the United States, Mexico, Africa, and other parts of the world. The genetic material so assembled is being studied, evaluated, and when feasible used in intensive breeding projects. Seed for uniform yield trials of both sorghums and millets was supplied to 37 experiment stations throughout India.

The inservice training program for personnel in the maize project has been successfully continued. Seven officers from five stations spent approximately six months at the main center in New Delhi taking a carefully organized course on the fundamentals of seed production. Nine of the staff from the cooperative project have been awarded Rockefeller Foundation fellowships for study in the United States.

Inter-American Food Crop Improvement Program

The inter-American improvement projects for maize and wheat are new ventures of The Rockefeller Foundation designed to promote the betterment of the basic food plants in the Western Hemisphere. The project for maize began in 1959, the one for wheat in 1960, and work with other crops will be added later. It is hoped that through these efforts the accomplishments in crop improvement in the Mexican, Colombian, and Chilean agricultural programs of the Foundation can be made more broadly effective through the wider dissemination of improved varieties, methods of procedure, and experience and knowledge gained in the past 17 years.

The Inter-American Maize Improvement Project represents an extension of the very successful pattern of cooperation established among the six Central American republics, which in seven years has greatly increased maize production

in these countries and built up a corps of well-trained maize specialists.

Although the major effort in the development of the broader program will continue to be in Latin America, an attempt will be made to initiate certain long-range cooperative research projects between North American and Latin American scientists which may lead to further improvement through a fuller exploitation of the germ plasm reserves in the species for both North and South America.

The maize improvement project is being organized into regional units. The first of these is the Central American program, a continuation of the cooperative effort already mentioned.

At a meeting in Bogotá, Colombia, in the spring of 1960, plans were laid for the establishment of an Andean zone program in which Venezuela, Colombia, Ecuador, Peru, and Bolivia will participate. The general problems of maize improvement throughout this area are similar and a great deal can be gained through a cooperative project.

A third regional unit will be centered at the Institute of Genetics at Piracicaba, Brazil, and will unite the maize breeders and geneticists of southern Brazil in a coordinated effort to evaluate the different types of maize in the corn bank at Piracicaba.

A fourth regional program for the countries of southern South America: Argentina, Chile, Uruguay, and Paraguay, is now in the process of formation.

To promote cooperative investigations and provide for the training of qualified research workers in maize improvement, an international research center is needed at a strategic place in Latin America. In this center research and academic training should be combined. Mexico, with the recently established Graduate School at Chapingo, and with many natural "phytotrons" where the experimental material could be studied in its natural habitat, has a great deal to offer as

the possible site of such an international maize research center for Middle America. Eventually each of the regional programs should have its own research and training center. During the year a number of studies have been initiated in collaboration with the Graduate School at Chapingo, looking to the possibility of centering much of the inter-American maize project work at this location.

The Inter-American Wheat Improvement Project grew out of several previous activities, one of which was the Spring Wheat Rust Nursery established in 1950 under the leadership of the United States Department of Agriculture which has proved extremely helpful in throwing light on rust races and resistance to them in a number of different countries. The Fourth Latin-American Conference of Agricultural Scientists, held in Santiago, Chile, in 1958, voted to establish a cooperative inter-American yield test. Rockefeller Foundation scientists and their associates in the Mexican, Colombian, and Chilean agricultural programs cooperated in both these projects.

Of most significance in shaping the new inter-American project, however, was the proved success of the wheat improvement work in Mexico. The direct benefits of this work have greatly increased the national yield and total production, and its training activities have developed a corps of experienced and capable young scientists entirely competent to take over full responsibility for the nation's wheat improvement program. The transfer of responsibility to them took place in February, 1960. When the transfer was in prospect, The Rockefeller Foundation began exploring the possibilities of providing technical assistance, training, and guidance for wheat improvement on an international scale.

The inter-American uniform yield test got under way in the spring of 1960, with seed of 25 wheat varieties grown and packeted at the CIANO experiment station, in Sonora, Mexico. This test was shipped for planting in 15 countries,

11 of them in the Western Hemisphere, and 4 in other parts of the world. In 1961 a similar test, but with additional varieties, will probably be prepared for planting also in a number of countries in the Middle East. A number of research studies in wheat genetics were launched, and plans made for using Mexican facilities for an accelerated international training program.

ARTHROPOD-BORNE VIRUSES

Since 1950 The Rockefeller Foundation has been actively engaged in study of the arthropod-borne (arbor) virus diseases of man and his domestic animals. The work of the central laboratories, situated in New York, is coordinated with that of field stations in North and South America and in India.

Two field stations are maintained in South America: one, at Port-of-Spain, Trinidad, functions in collaboration with the Health Department of the Government of Trinidad and Tobago and the Colonial Research and Development Scheme; the other, at Belém, Brazil, is operated in conjunction with the Special Service of Public Health of the Ministry of Health. In India the Foundation assists the Indian Medical Research Council in maintaining the Virus Research Centre, Poona. In Berkeley, California, a unit is working in cooperation with the State Department of Health.

Until the middle of the year, the Foundation also collaborated with the South African Institute for Medical Research, the Council for Scientific and Industrial Research, and the Poliomyelitis Research Foundation of South Africa in maintaining a unit at Johannesburg. In July, at the conclusion of the normal tour of duty of its staff members assigned to the unit, the Foundation withdrew from active participation and direction of the program was assumed by local scientists. The Foundation is continuing, however, to

make a financial contribution.

The emphasis of the work in the New York laboratories is primarily on the basic physical, chemical, and biological properties of arbor viruses, whereas the field stations are more immediately concerned with the public health aspects of the problem, such as the clinical manifestations following infection, and with the epidemiology, prevalence, and distribution of the various agents.

The ever-increasing variety of distinct agents isolated throughout the world has posed a major problem of classification. Of necessity, most of the classifying is done by the New York laboratories which can, in fact, be considered a world center. These laboratories receive from the field stations all isolates that appear to be new to a given region, and in this way have built up a unique collection of approximately 130 distinct agents. It is impossible, however, to assemble a complete collection of known arbor viruses in New York because the government prohibits the importation of many animal-pathogenic agents which might cause serious economic losses if they became accidentally established. It is consequently of prime importance that there should be co-operation among the various laboratories around the world engaged in the study of arbor viruses.

In recent years the development of tissue culture methods for the propagation and study of viruses has led to great advances. The application of these methods to the study of poliomyelitis virus affords a particularly dramatic example. Research in poliomyelitis was hampered for many years by the fact that the only suitable experimental animal available was the monkey; with the introduction of tissue culture techniques, rapid progress was made, culminating in the development of several vaccines.

At present, the experimental animal of choice for work with arbor viruses is the mouse, an animal that can be ob-

tained in large quantities. There are many disadvantages to use of the mouse, however, and several laboratories have undertaken to find a tissue culture substitute. Most of the methods developed so far involve cell cultures prepared from chick embryos or from hamster, duck, or monkey kidneys and thus are dependent on a continuously available supply of chick embryos or the various animal species. In the New York laboratories investigations have been directed for several years toward finding, if possible, a single cell line that could be used for the propagation and study of the majority or all of the arbor viruses. It now appears that this objective has been achieved. The HeLa cell line, originally isolated from a human carcinoma, has proved highly susceptible to infection with all arbor viruses so far tested when cultivated under special conditions. These conditions consist essentially of maintenance of the growing cells in a very rich nutritional medium and accurate adjustment of the pH. The great majority of the viruses propagated in this medium produce clearly visible degeneration in the cultured cells, which is the only means of ascertaining the occurrence of active virus multiplication. In each case, the degeneration is specifically inhibited by immune serum to the virus. An important advantage to the use of the HeLa cell line is that it can be kept under continuous cultivation, and thus as many tubes or flasks of culture as desired can be prepared at any time. Experiments are now in progress to develop by this means neutralization test techniques, which could be valuable in many studies but particularly so as a substitute for the mouse protection test in serum-antibody surveys. Tissue culture techniques may also be of value in the isolation of virus in the field, for which the present method is the inoculation of newborn mice.

The HeLa cell line has already proved extremely useful in a study of the chemical and physical properties of Semliki Forest virus, a prototype group A agent. The large quantities

of virus required for this kind of study were readily prepared from infected HeLa cell cultures. In the course of the investigation the size of the virus particle has been determined and a good deal of information acquired concerning its chemical constitution. It has been found that the properties of infectivity and hemagglutinating ability are inseparable, an indication that the hemagglutinating power of the virus is due to the virus particle itself. It has likewise been found that one virus particle constitutes one infective unit and also one hemagglutinating unit. The virus particle appears to have a core of ribonucleic acid, RNA, covered by a coating of protein. It is generally accepted that the nucleic acid contains all the genetic material of the virus. In the case of the chromosomes of animals and plants, as well as of some viruses, the genetic material consists of deoxyribonucleic acid, DNA. The limited information available indicates that the nucleic acid of arbor viruses is of the ribose type.

As mentioned earlier, responsibility for the virus research unit in Johannesburg has now been turned over to South African scientists. In the years since its establishment this unit has been unusually productive. When the cooperative studies were initiated, in 1953, very little information existed concerning the presence in South Africa of arbor viruses infective for man. Several arbor virus diseases that cause heavy economic losses in domestic animals were recognized—African horse-sickness and blue tongue of sheep—and another virus disease, Rift Valley fever, was known to occur in epidemic form among sheep and cattle, with occasional severe infection in man. It was the sudden appearance of a great epidemic of Rift Valley fever in 1951, with accompanying infection of many human beings, which partly stimulated the Foundation's interest in establishing a South African unit. As a preliminary step, serum-antibody surveys were made with viruses previously discovered in other parts

of Africa. Results indicated that infections with some of these were quite widespread. Unusually high rates of immunity to a variety of agents were found among the inhabitants of Tongaland, in northeastern Natal province. In contrast to most of South Africa, Tongaland lies just above sea level and enjoys a much warmer and wetter climate than the greater portion of the subcontinent. On the basis of the surveys, field stations were set up in this region which proved to be highly productive. Many arbor viruses were isolated—most of them from mosquitoes but some also from man. Although certain of the isolates were identical with previously known viruses, the majority were new to science. Antibody surveys with the newly discovered agents indicated that infections of man, as well as of domestic animals, were very prevalent. Studies in neighboring Mozambique revealed that the same viruses occur there as in Tongaland. Since the latter region is really the southern extension of Mozambique and the two have much in common ecologically, one is led to assume the existence of a large corridor of arbor virus activity extending from central Africa along the coast far to the south.

Tongaland lies far enough below the equator to experience marked seasonal changes. These have their effect on the mosquito population, which is greatly diminished during the winter months. Since the great majority of virus isolations were made from mosquitoes, the question arose as to the mechanism of the over-wintering of the viruses. In spite of extensive studies, this problem remains unsolved. The conclusion was reached, however, that in all probability birds play a minor role, if any, in the maintenance of viruses in nature and that migrating birds are not responsible for the annual introduction of the viruses.

In addition to the survey made in Mozambique, serum-antibody studies were conducted with a wide spectrum of arbor viruses in Bechuanaland and Angola. The sera obtained from bushmen inhabiting the Kalahari Desert were

almost entirely negative, but antibodies to a great variety of agents were found in the sera of inhabitants of the more northerly sections of Bechuanaland, especially near swampy areas. This association of high immunity rates and swampy regions had previously been noted in Tongaland.

Many years ago the results of yellow fever surveys indicated that a small percentage of inhabitants in northern Bechuanaland had neutralizing antibodies to this virus. At that time the neutralization test for yellow fever was thought to be specific, and the conclusion was drawn that the disease occurred as far south as Bechuanaland. This was a most important finding for the delimitation of the yellow fever zone in Africa. Since the original surveys, however, yellow fever virus has been shown to belong to group B, which is well represented in Africa and among whose members there is a pronounced immunological overlap. In the recent survey in Bechuanaland, several sera were again found with antibodies capable of neutralizing yellow fever virus. Each of these sera, however, was also capable of neutralizing other group B agents, including Uganda S, a very close relative of yellow fever. These findings constitute strong evidence that the yellow-fever-positive sera in Bechuanaland are the result of infection, not with yellow fever virus, but with other related group B agents. The same may be true of scattered yellow-fever-positive sera found during previous studies in various regions of Africa far from the known endemic areas of tropical Central or West Africa. Such an interpretation would indicate that the yellow fever endemic zone in Africa is much smaller than generally believed.

The Rockefeller Foundation's virus program is basically a fact-finding undertaking to determine the incidence, epidemiology, and importance of the various arbor viruses. It is only after this information is available that appropriate public health measures can be envisaged. Some arbor virus

infections, though very prevalent in a region, are exceedingly mild or even asymptomatic, and thus are not of great importance. Others, however, cause a very severe disease with a significant mortality. In this second category belongs Kyasanur Forest disease (KFD), which was first discovered in Mysore State, southern India, in 1957. The basic epidemiological features were rapidly established, and the causative agent was shown to be closely related to the virus of Russian spring-summer encephalitis (RSSE), a severe and sometimes fatal encephalitis of man in Siberia. Initial studies indicated that KFD produced a mortality rate of approximately 20 to 30 per cent and that infection was more likely to occur in adult males whose occupations took them into the forest. Intensive studies soon incriminated a tick, *Haemaphysalis spinigera*, as the infecting vector. Since ticks are exceedingly difficult to control, consideration was given to the possibility of developing a vaccine against KFD. Russian workers had for some years been using an inactivated vaccine for RSSE virus, which is also tick borne, and reports of its prophylactic value had been very encouraging. In view of the close immunological relationship between KFD and RSSE viruses, it was decided to test the RSSE vaccine for its effectiveness against KFD. With the cooperation of the Walter Reed Army Institute of Research in Washington, quantities of inactivated RSSE vaccine were made available, which were administered to the inhabitants of villages both within and immediately outside the known infected zone. In the succeeding KFD season (February to June) intensive studies were conducted to determine the efficiency of the vaccine. These studies proved very disappointing: the vaccine appeared to have had no effect on the incidence of the disease or on the severity of infection in vaccinated individuals.

Unfortunately, such results are the general rule with vaccines prepared with inactivated arbor viruses. In addition, the methods of vaccination are cumbersome, repeated

inoculations being necessary. Consequently, scientists have turned their attention to the development of a live attenuated virus strain, analogous to that used in the 17D yellow fever vaccine which has proved so efficacious.

Arbor viruses are largely regional. Thus, most of the agents known to be present in South America do not occur in Africa or the Eurasian continent. Notable exceptions are yellow fever virus, which is present both in the Americas and in Africa, and the viruses of dengue, which have a world-wide tropical distribution. The explanation for these exceptions is obvious. In both cases, a virus cycle involving only man and the *Aedes aegypti* mosquito is possible. During the era of the sailing vessel this mosquito was carried to all parts of the world, epidemics of yellow fever and dengue became common on shipboard, and probably in this way the diseases were introduced from Africa to the Americas.

Continuity of land surfaces leads to a wide distribution of agents. Nearly all the arbor viruses identified from North America are also endemic in South America. A recent serum-antibody survey among Indians in Guatemala revealed the presence of a large number of arbor viruses, many of them also known in South America. Direct continuity of land has been a major factor in the periodic invasions of Central America by the virus of yellow fever. The most recent invasion commenced in Panama in 1948; during the next few years the infection spread up Central America until it reached Guatemala, where it apparently died out. The close proximity of Trinidad to South America is probably responsible for the variety of agents present there; in the other Caribbean islands very few viruses have been found to date.

The influence of land continuity has recently been demonstrated by the dramatic appearance of African horse-sickness in India. This disease, which is of great economic

importance, has been known for many years. Its distribution is very wide in Africa south of the Sahara, and at times epidemics have also extended into Egypt and Israel. The causative virus is transmitted by a species of very small biting midges belonging to the genus *Culicoides*. The incidence of the disease is highly seasonal; in South Africa it is intimately associated with the summer rains.

During the past few years the disease has invaded an increasing number of Middle East countries, and in 1959 it reached Pakistan. The first recognized outbreak in India occurred in April, 1960, in an army cavalry unit stationed in Jaipur, Rajasthan State. By the middle of November the disease had been reported from nine other states in India, with a recorded mortality of over 9,000 horses. In May, at the invitation of army authorities, the Virus Research Centre in Poona began an investigation. At that time there was merely a suspicion, based on clinical observations, that the epidemic disease was African horse-sickness. Although many strains of virus were isolated from the epidemic, a diagnosis of African horse-sickness could not be established since neither the type strains of the virus nor specific immune sera were available in India. Eight strains were therefore sent to Dr. R. A. Alexander, of the Onderstepoort Laboratories in South Africa, who showed that all eight belonged to one type of African horse-sickness virus and that they were similar to a Pakistan strain but differed somewhat from the seven known African types.

Preliminary studies in Jaipur revealed that *Culicoides* midges, the insects incriminated as vectors in Africa, were the most abundant bloodsucking arthropods in the area. Their breeding place seemed to be a nullah near the cavalry lines. All available methods of controlling these midges were immediately employed, and the epidemic was rapidly brought to an end.

In Africa, the main reliance for protection of horses is placed on vaccination. The vaccine, used on a large scale, is a mixture of live attenuated strains representing all seven immunological types of the virus. Some of this vaccine has been made available to the Indian authorities, but whether it will prove efficacious against the type of virus occurring in India is not known. There will probably be no difficulty, however, in attenuating the Indian strains and producing a satisfactory vaccine against them.

Although arbor viruses are world-wide in distribution and occur under many different kinds of ecological conditions, they are found in the greatest abundance and variety in the tropics. The Belém Virus Laboratory has for several years been studying the prevalence of arbor viruses in the Amazon rain forest. This region has been unusually productive, not only in sheer quantity but also in the types of agents isolated. To date, no less than 32 distinct agents have been isolated by the Belém workers. These viruses belong to eight different immunological groups. One group, of six members, has so far been found only in the Amazon Valley, although serum-anti-body surveys indicate that infections with these agents are quite widespread in South and Central America. During the year a completely new group, comprising three members, was established; one of these viruses has also been isolated in Trinidad. The great majority of the Belém isolates have been obtained through the use of sentinel animals--mainly monkeys, but more recently suckling mice. Sixteen distinct agents have been isolated from man, usually from the blood of febrile individuals. As a result of the continuous surveillance, a great deal of information has been acquired about the prevalence of the various agents. Some, such as yellow fever, Mayaro, and eastern equine encephalitis viruses, appear in epidemic waves, whereas others occur yearly but with fluctuations in incidence according to rainfall.

The island of Trinidad has proved to be of unusual interest by reason of the wide variety of ecological situations represented there, each apparently with its own collection of arbor virus. In the large cities, such as Port-of-Spain, only dengue has been isolated. Serum-antibody surveys have shown that type 2 dengue is endemic in these localities. Since 1954, however, when an epidemic of yellow fever occurred, an intensive eradication campaign has been directed against the mosquito *Aedes aegypti*, which is also the vector of dengue, and it therefore seems probable that dengue will disappear from the island.

In the tropical rain forest, infection with Ilhéus virus is very prevalent in the lowland areas, where there are abundant pools of water in which the main vector of the virus, *Psorophora* mosquitoes, can breed. In the mountain rain forest, the infection is relatively infrequent, presumably because suitable pools of water are scarce. Infection with Mayaro virus is also common in the rain forest, although, for an undiscovered reason, this virus is active principally in the southeastern portion of the island.

A very distinct ecological region of Trinidad—the Nariva swamp on the east coast—has recently been under intensive investigation. These studies were undertaken largely because of the finding of two cases of yellow fever in man that apparently had been contracted in the immediate vicinity of the swamp. Chiefly by the use of suckling mice as sentinel animals, a large number of virus strains has been isolated. While none of these has proved to be yellow fever, many of the isolates have been identified as Venezuelan equine encephalitis virus, an agent which is widely distributed in South America and causes a severe and often fatal disease of horses. Epidemics involving human beings have also been reported but, as a rule, the infection in man is benign. The virus has been known in Trinidad since 1944, when it was isolated from an epidemic among horses. Although no sub-

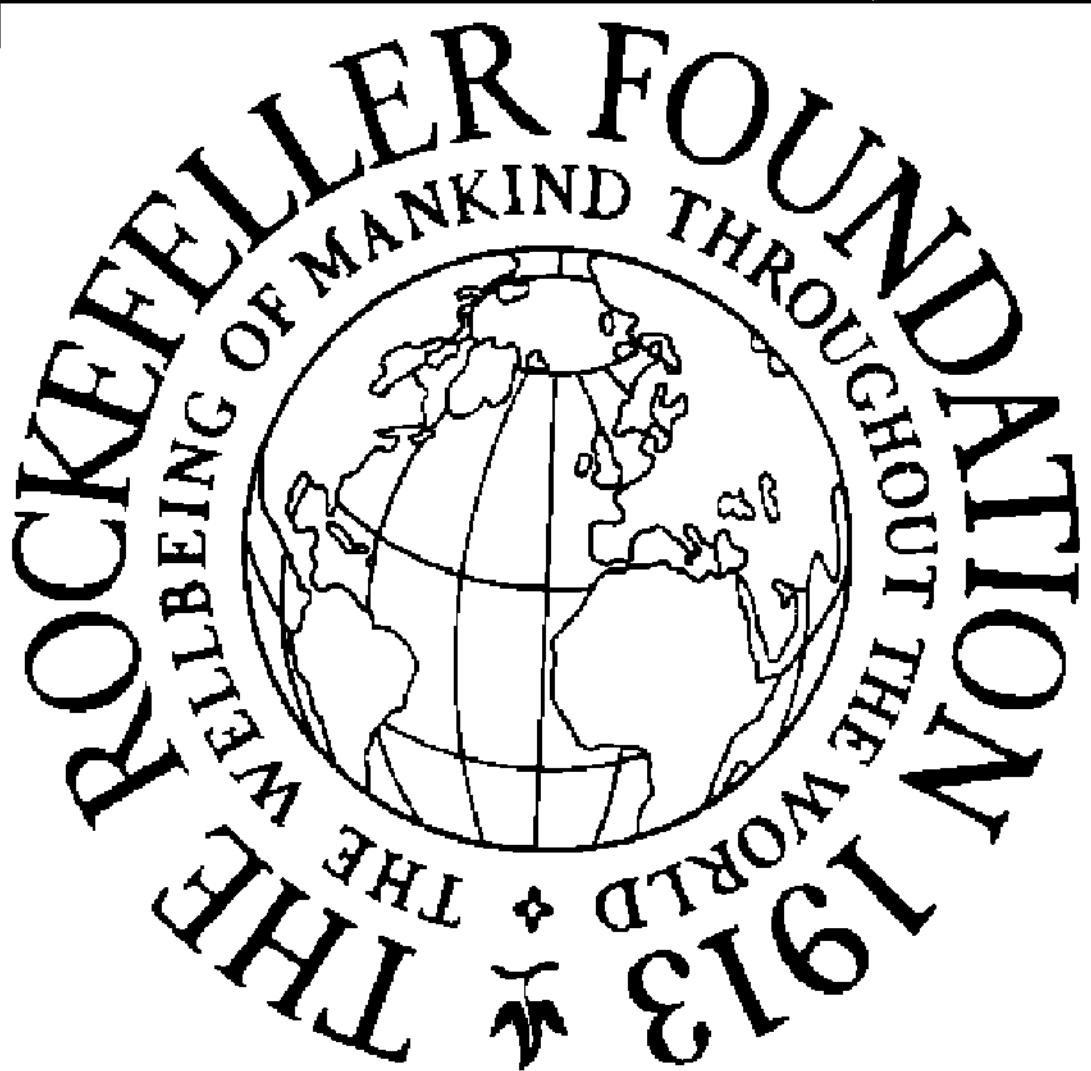
sequent infections have been reported, serum-antibody surveys indicate that human infections must have occurred in recent years. The present findings point to the existence of a permanent focus of infection in Trinidad, and an effort is being made to determine the natural history of the virus cycle in the Nariva swamp.

In North America, relatively few distinct arbor viruses have been discovered so far. The most prevalent are the viruses of eastern and western equine encephalitis and St. Louis encephalitis. In a recent study, sera from the Seminole Indians in Florida were tested against a wide spectrum of agents, including those known to be endemic in North America as well as many indigenous to South America. Antibodies to St. Louis encephalitis were quite prevalent. In addition, a fairly high proportion of sera reacted with Venezuelan equine encephalitis virus. The majority of such sera were obtained from the Indians living on the Big Cypress Reservation, which is essentially a swamp. Thus, here again, a high rate of immunity is found to be associated with a distinct ecological region. This evidence, however, does not warrant a definite conclusion regarding the presence of Venezuelan equine encephalitis virus in Florida, and for the time being, it can only be said that this virus or one closely related to it is present there. Settlement of the question must await isolation of the virus and its comparison with South American isolates.

Organizational Information

MEETINGS

The annual meeting of the corporation and a regular stated meeting of the Board of Trustees were held on April 6; a stated meeting of the Board of Trustees was held on



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MR. DEAN RUSK

December 6 and 7. Six regular meetings of the Executive Committee of the Trustees were held to take actions within the general policies approved by the Board.

TRUSTEES

Mr. Dean Rusk resigned as Trustee and President of the Foundation in January, 1961, to assume his new duties as Secretary of State. He had been a member of the Board of Trustees since 1950 and President since 1952. At the time of his appointment to the Foundation, Mr. Rusk was serving with distinction as Assistant Secretary of State for Far Eastern Affairs. During his tenure as President, Mr. Rusk guided a reassessment of the Foundation's program that culminated in the decision of the Trustees some six years ago to draw upon capital to enable the Foundation to give major emphasis to the problems of the less well-developed areas of the globe during the critical period when a number of nations were newly emerging into statehood.

Dr. J. George Harrar, Vice-President of the Foundation, was elected Trustee and President to succeed Mr. Rusk. Dr. Harrar, a distinguished biological scientist, first joined the Foundation's field staff in 1943 to initiate a cooperative agricultural operating program in Mexico. From its small beginning as a one-man mission, the Foundation's agricultural program, largely under Dr. Harrar's guidance, has expanded to include cooperative research and training units not only in Mexico but also in Colombia, Chile, India, and the Philippines. Dr. Harrar left Mexico in 1952 to become Deputy Director for Agriculture with headquarters in New York, and three years later was made Director for Agricultural Sciences. He was elected Vice-President in 1959.

Mr. C. Douglas Dillon, Secretary of the Treasury, also resigned from the Board of Trustees during January. Formerly Chairman of the Board of Dillon, Read, and Company,

Inc., and Ambassador to France from 1953 to 1957, Mr. Dillon had been elected to the Board in April, 1960, when he was serving as Under Secretary of State. Another member of the Board who resigned in 1961 because of his responsibilities in the new administration was Mr. Chester Bowles, now Under Secretary of State. Former Governor of Connecticut and United States Ambassador to India, Mr. Bowles had been a Trustee since 1954.

Other members and new Trustees elected in 1960 were Mr. Orvil E. Dryfoos, publisher of *The New York Times*, Dr. Lowell T. Coggesshall, Vice-President of the University of Chicago, and Dr. Clark Kerr, President of the University of California.

Retiring from the Board of Trustees on June 30, 1960, were Dr. Robert F. Loeb, Bard Professor of Medicine at Columbia University and Director of Service for Medicine at the Columbia-Presbyterian Hospital; Mr. Lewis W. Douglas, former Ambassador to Great Britain; and Mr. Henry Allen Moe, Secretary-General and Trustee of the John Simon Guggenheim Memorial Foundation.

At their meeting on April 5, 1961, the members of the corporation elected five new members and Trustees. Sir Oliver S. Franks, Chairman of Lloyd's Bank Limited of London and Provost-elect of Worcester College, University of Oxford, was elected to succeed Mr. Robert A. Lovett, a partner of Brown Brothers Harriman and Company, New York, who retired on June 30, 1961.

Dr. Richard Bradfield, professor of agronomy at the New York State College of Agriculture at Cornell University, was succeeded on his retirement on June 30, 1961, by Dr. Clifford M. Hardin, Chancellor of the University of Nebraska. The Reverend Theodore M. Hesburgh, c.s.c., President of the University of Notre Dame, was elected to succeed Mr. Benjamin M. McKelway, editor of the *Evening Star*, Washington, D.C., who also retired on June 30.

Dr. Frank Stanton, President of the Columbia Broadcasting System, was elected to succeed Mr. Bowles, and Mr. George D. Woods, Chairman of the Board of the First Boston Corporation, New York, succeeded Mr. Dillon. Mr. Wallace K. Harrison, of the architectural firm of Harrison and Abramovitz, also retired on June 30, 1961. He had been a Trustee of the Foundation since 1951.

OFFICERS AND STAFF

Dr. Charles W. Cole, former President of Amherst College who was elected a Vice-President in 1959, assumed his duties in July, 1960. A distinguished economic historian, Dr. Cole is giving special attention to the Foundation's programs in the social sciences and the humanities.

Dr. Lindsley F. Kimball, Executive Vice-President who had been with the Foundation since 1949, retired on June 30, 1960. Before coming to the Foundation Dr. Kimball had enjoyed a notable career as a chief executive of the Boy Scouts of America, President of the United Service Organizations, and director of corporation and special gifts for the Greater New York Fund. Although retired from the Foundation, Dr. Kimball is continuing to serve as Trustee and Treasurer of The Rockefeller Institute, and is also associated with the Rockefeller Brothers Fund.

In July, 1960, Dr. Philip C. Jessup, distinguished professor, author, international lawyer, and diplomat, was appointed an Associate of The Rockefeller Foundation. He resigned at the end of January, 1961, on his appointment to the International Court of Justice.

At the meeting of the Board of Trustees on April 6, 1960, Dr. Albert H. Moseman, formerly Associate Director for Agriculture and in 1959 Deputy Director, was elected Director for Agricultural Sciences. Dr. Kenneth W. Thompson, who joined the Foundation's staff in 1953 and had

been Associate Director since 1957, was named Director for Social Sciences at the same meeting. Mr. Jesse P. Perry, Jr., who had been Administrative Assistant to the Executive Vice-President, was named Executive Assistant.

During 1960 several new appointments were made in the different programs. Dr. Virgil C. Scott, formerly Assistant Director, was appointed Associate Director for Medical and Natural Sciences. In the Agricultural Sciences, Dr. John J. McKelvey, Jr., and Dr. Lewis M. Roberts, both formerly Assistant Directors, were named Associate Directors; Dr. Robert D. Osler, who had served as Geneticist with the Mexican Agricultural Program, and Dr. Dorothy Parker, formerly Bibliographer and Librarian with the Mexican and Indian Agricultural Programs, were named Assistant Directors. Dr. Erskine W. McKinley, formerly Assistant Director, was appointed Associate Director for Social Sciences in April, 1960, but resigned in September to resume his teaching career. Dr. Gerald Freund and Mr. Walter Salant joined the staff for Social Sciences as Consultants.

With the assumption in August, 1960, by South African organizations and scientists of all phases of the virus research program in Johannesburg, the Foundation's staff members in the Medical and Natural Sciences stationed there are being relocated. Dr. C. Brooke Worth has been transferred to the virus laboratory in Trinidad, and Dr. Robert H. Kokernot is on study leave pending reassignment. Dr. Donald E. Carey joined the staff of the New York Virus Laboratories during the year as a temporary staff member, Dr. Jorge Boshell was appointed a temporary staff member assigned to the Virus Research Centre in India, and Dr. Andries H. Jonkers accepted a temporary assignment with the virus research staff in Trinidad.

Other changes in the Medical and Natural Sciences included the transfer to Cali, Colombia, of Dr. Guy S. Hayes, Assistant Director, who had been on study leave

since the fall of 1959; the appointment of Dr. Joe D. Wray as a staff member stationed in Turkey; and extension for an additional year of the temporary assignment in Cali, Colombia, of Dr. Robert H. Lennox. The temporary appointments of Dr. Ruth B. Freeman and Dr. Hubert E. Webb terminated during 1960.

Several new appointments and reassessments were made during the year in the agricultural programs in Chile, Colombia, India, Mexico, and the Philippines. Dr. Norman E. Borlaug, formerly Plant Pathologist in Mexico, was named Director of the recently established Inter-American Wheat Improvement Project with headquarters in Mexico City; Dr. Ulysses J. Grant, Acting Director of the Colombian Agricultural Program in 1959, was named Director; and Dr. John A. Pino, formerly Animal Scientist, was appointed an Assistant Director of the Mexican Agricultural Program.

The new appointments included Dr. Paul J. Fitzgerald, Geneticist in Chile; Dr. Alvin A. Johnson, temporary staff member, Seed Production Specialist in India; Mr. Loyd Johnson, Agricultural Engineer with the International Rice Research Institute in the Philippines; Dr. Charles F. Krull, Assistant Geneticist in Colombia; Dr. A. Colin McClung, Soil Scientist in Colombia; Dr. B. L. Renfro, Assistant Plant Breeder in India; and Dr. Sterling Wortman, a former member of the staff assigned to the Mexican Agricultural Program between 1950 and 1954, Assistant Director of the International Rice Research Institute.

A number of temporary staff members in the Agricultural Sciences completed their assignments during the year: Dr. Will M. Myers as Geneticist in India; Dr. Milton L. Sunde as Poultry Husbandman in Colombia; and Dr. A. J. Ullstrup as Plant Pathologist in India.

Six Foundation staff members were on special assignment during 1960. Dr. John C. Bugher, Consultant on Nuclear Energy Affairs, was seconded to the University of

Puerto Rico to become Director of the Puerto Rico Nuclear Center on July 1. Mr. Robert Letort, who resigned as Assistant Treasurer of the Foundation in September, was appointed Treasurer of the International Rice Research Institute. In the Medical and Natural Sciences, Dr. Marshall C. Balfour, Associate Director, remained on loan to the Population Council, New York, until his retirement; Dr. Osler L. Peterson, Assistant Director, was seconded to the Harvard Medical School, Boston, throughout the year; Dr. J. Austin Kerr, a member of the field staff, continued on assignment with the Pan American Health Organization, Washington, D.C.; and Dr. John B. Grant completed a postretirement appointment in Puerto Rico for the Foundation on June 30, but remained at the University of Puerto Rico School of Medicine at the request of local authorities. Dr. Robert F. Chandler, Jr., Associate Director for Agricultural Sciences, has been serving since 1959 as Director of the International Rice Research Institute; and Mr. John Marshall, Associate Director for Humanities, was assigned to the Villa Serbelloni, Bellagio, Italy, throughout 1960.

Dr. Balfour, who retired on June 30 as Associate Director for Medical and Natural Sciences, had served with the Foundation since 1926. Dr. Harry M. Miller, Jr., Associate Director for Medical and Natural Sciences who had joined the Foundation's staff in 1932, also retired on June 30. Miss Katharine E. Oster, since 1958 Assistant to the Secretary under a postretirement appointment, who had served with the several Rockefeller boards for nearly 40 years, completed her assignment at the end of July.

Dr. Telford H. Work, a member of the staff of the New York Virus Laboratories, resigned at the end of 1960. Dr. William D. Yerkes, Jr., resigned as Plant Pathologist of the Mexican Agricultural Program on July 12. The resignation of Dr. McKinley, Associate Director for Social Sciences, was mentioned earlier.

Summary of Appropriations Account

FUNDS AVAILABLE

Balance from 1959	\$ 3,130,405
Income for 1960	23,764,531
Amount transferred from Principal Fund as of December 31, 1960	3,864,372
Unused balances of appropriations allowed to lapse and refunds on prior year grants	2,074,663
	<hr/>
	\$32,833,971
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FUNDS APPROPRIATED

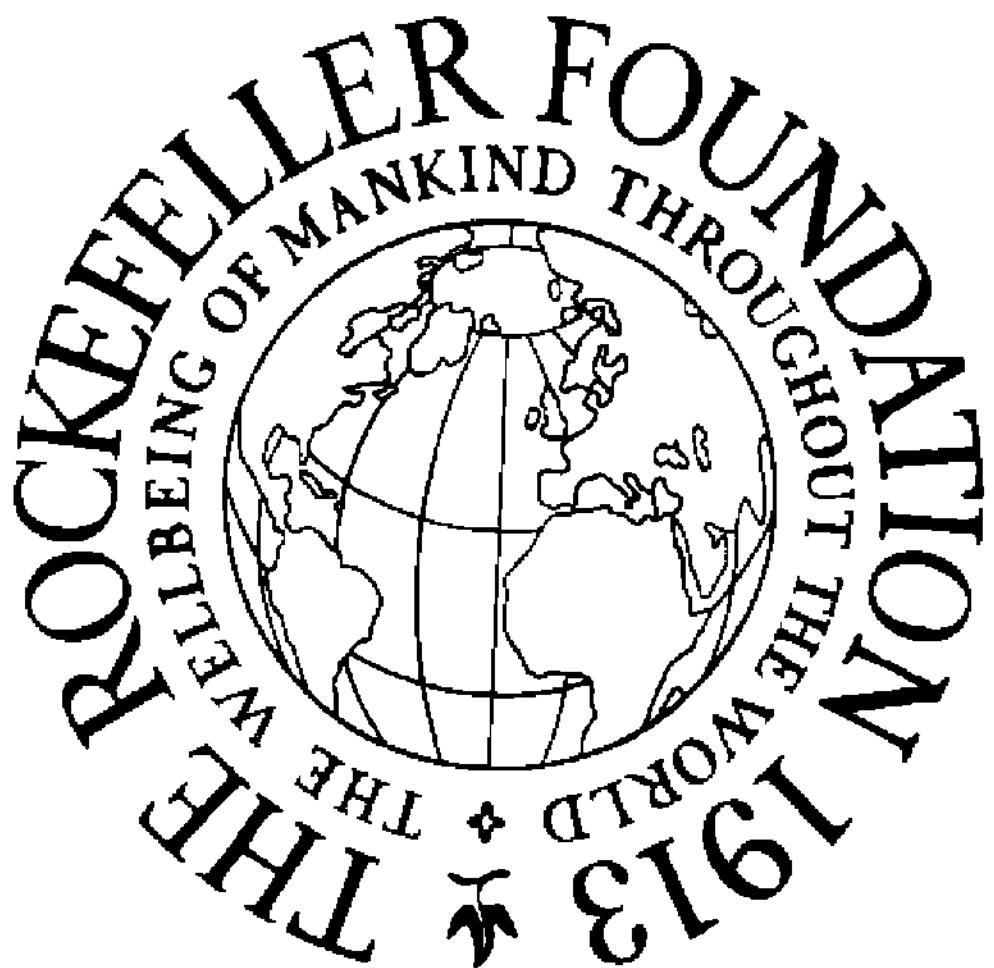
Appropriations ¹	
Agricultural Sciences	\$ 6,713,314
Humanities	4,471,298
Medical and Natural Sciences	10,250,060
Social Sciences	3,968,080
General	4,131,799
Administration and Supporting Services	3,299,420
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	\$32,833,971
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Principal Fund

Book value, December 31, 1959	\$130,524,412
Additions during the year	2,663,124
	<hr/>
Less amount transferred to Income Account	\$133,187,536
	<hr/>
Book value, December 31, 1960 (Market value, \$469,576,720)	\$129,323,164
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¹ These totals include appropriations for grant-in-aid, fellowship, and scholarship funds to be allocated in 1961, and \$300,000 appropriated conditionally for later allocation and release, but do not include \$525,000 appropriated in prior years.

Illustrations

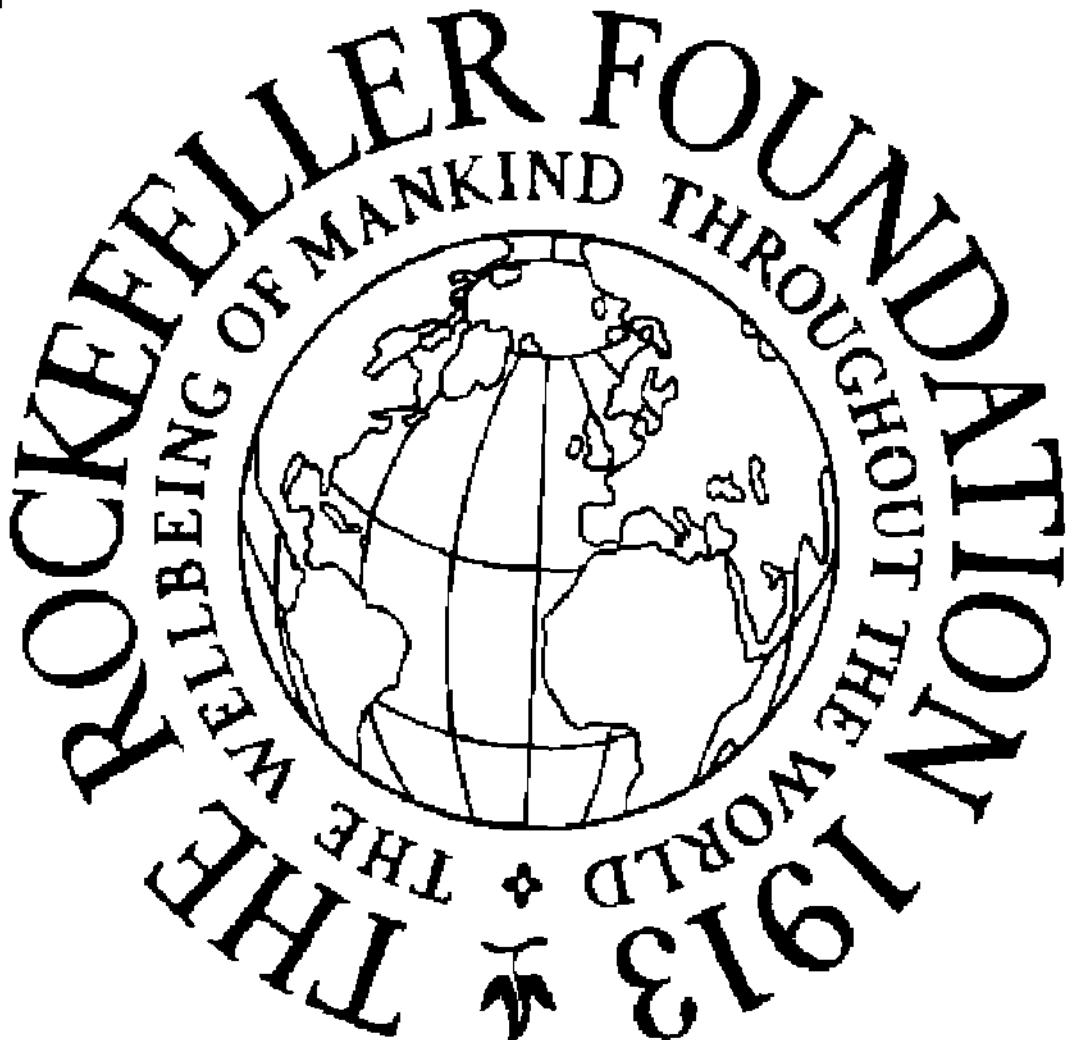


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Conway Studios

DR. LINDSLEY F. KIMBALL

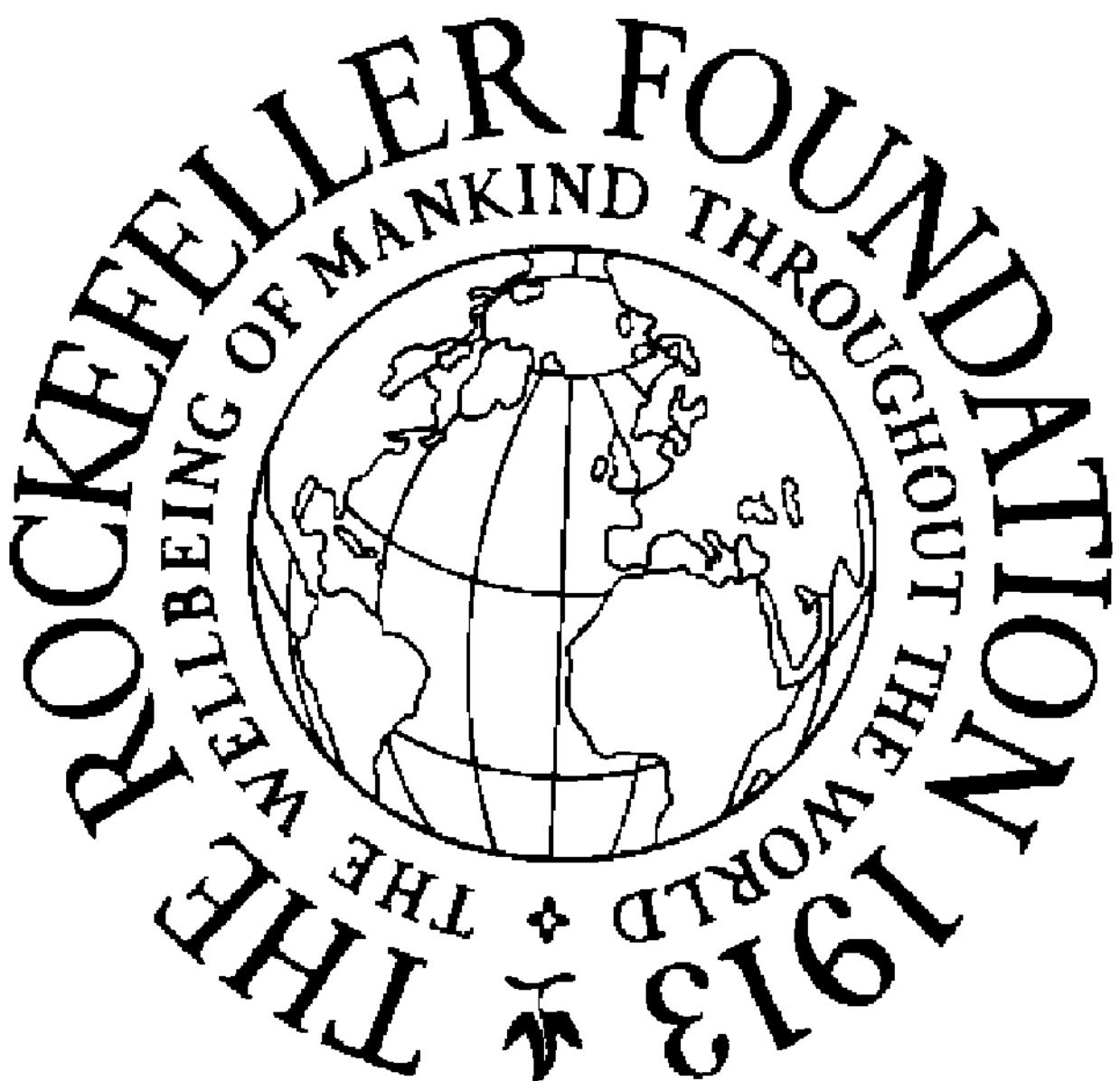
Executive Vice-President of The Rockefeller Foundation, retired.



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This picture from the cooperative agricultural program of The Rockefeller Foundation in Mexico shows the pedigree bonding system for poultry in operation. The Mexican program, like the Foundation's other agricultural operating programs, is jointly supported and staffed by the Ministry of Agriculture and the Foundation. Its studies on the nutrition of chickens and chicks are yielding important new information, and the poultry disease diagnostic laboratory at Chapingo receives research specimens for testing from all over the Republic. In addition to its work with chickens, the program staff is conducting investigations with several kinds of domestic and wild turkeys; although the turkey is indigenous to the area and had been bred by the Indians for centuries before the discovery of America, it has not, until now, been scientifically studied in Mexico.

The milling and baking laboratory of the Foundation's cooperative agricultural program in Chile is now in full operation, and is contributing to the wheat breeding work through the early determination of the bread-making properties of local varieties and new lines. *Below*, the head of the laboratory operates the mixer used for experimental bread dough. Although substantial amounts of wheat must still be imported, tests have shown that flour of an excellent quality for bread can be obtained from wheats grown in Chile. Several improved varieties, adapted to different conditions and seasons, are being developed within the program, and two new varieties have been released to farmers.



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This cow is suffering from milk fever, a disease of cattle that frequently occurs after calving or at periods of peak milk production. To offset a severe drop in the animal's blood calcium, the two scientists are administering an intravenous injection of calcium dextrose solution. The sections of The Rockefeller Foundation's cooperative agricultural program in Colombia dealing with the animal and dairy sciences and veterinary medicine continued to grow during 1960. Soon three new research laboratories, to be constructed and maintained by the Ministry of Agriculture and the National University, will provide improved facilities for research on animal diseases in Colombia.

Most of the corn (maize) and sorghum produced in India is raised for human consumption; one important use of both grains is in "chappati," the type of bread being made by the housewife in the picture below. During the past year, double cross hybrid varieties of maize with superior yielding capacity and good grain quality have been developed by scientists of the Foundation's co-operative agricultural program in India for most of the country's corn growing regions. Germ plasm of the sorghums and millets has been collected from the whole country for evaluation and for use in breeding projects to create higher-yielding and better-adapted varieties.



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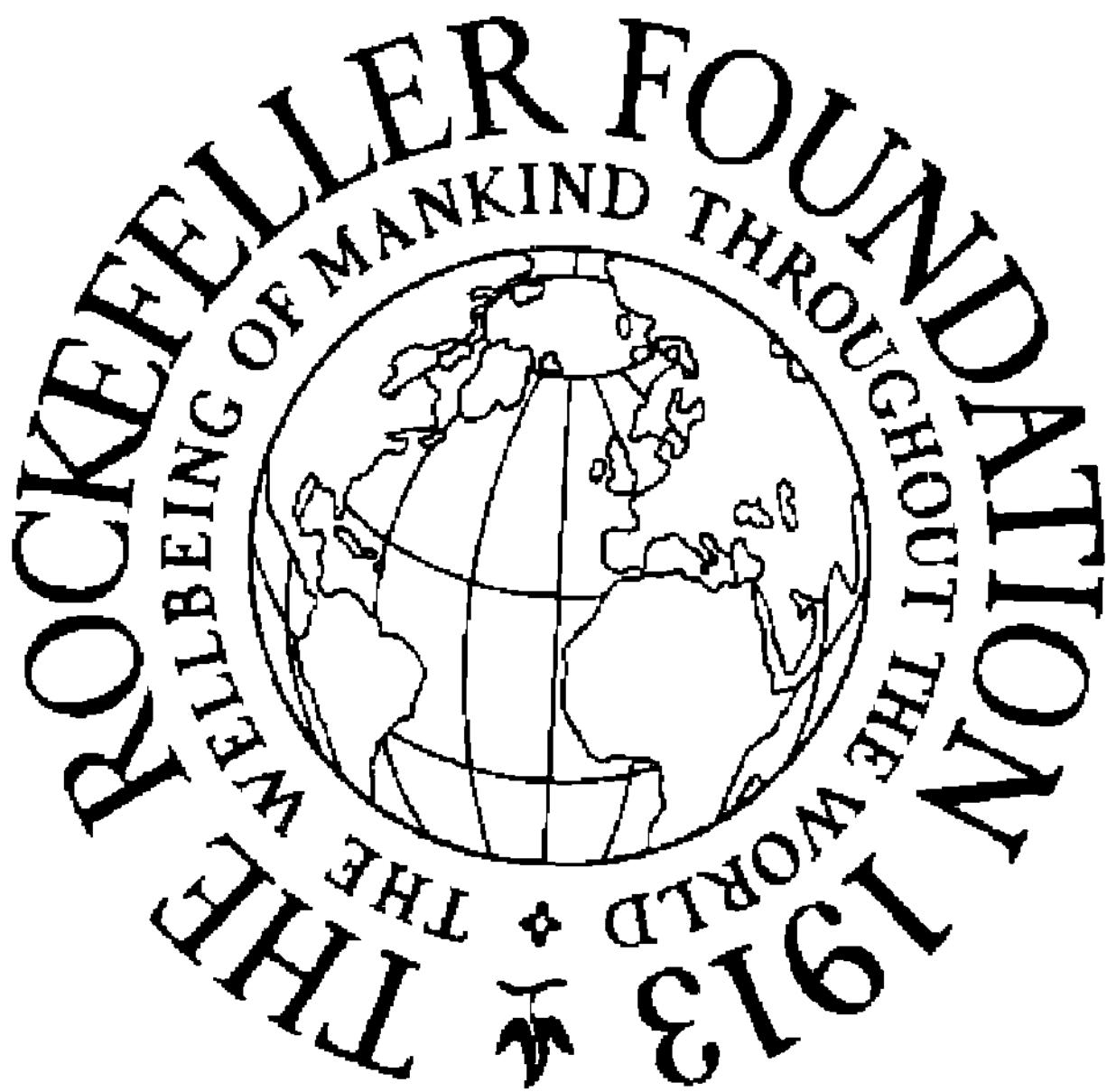
In response to a growing concern about rice production among the world's agricultural leaders, the International Rice Research Institute has been established at Los Baños, the Philippines, for the study of all aspects of the improvement and cultivation of this important food plant. The Ford Foundation made a large appropriation for the capital costs of the institute, and The Rockefeller Foundation has undertaken responsibility for its operation and maintenance. Construction (shown in progress here) was started in 1960, on land provided by the Government of the Philippines. Within two years, a staff of about 20 senior scientists will be at Los Baños conducting basic and applied research on the rice plant, directing the training of the young foreign scientists who will study there on scholarships, and developing the institute and its library into an international center of information on rice.

Home economics students who are majoring in child development and family life at the University of the Philippines do their practice teaching at this nursery school; here, a dietitian is shown weighing sample food for the children's lunch. Graduates of the Department of Home Economics are in great demand as food technologists, home economics extension workers, teachers, dietitians, welfare agency workers, textile designers, and research workers in public institutions and private industry.



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These assistants at the Plant Breeding Station, Njoro, Kenya, are using a single-plant thresher to prepare wheat for study in the breeding laboratory. An especially destructive race of black stem rust of wheat — Race 189, which had previously been known only on the west coast of Peru and in China—has recently been found to be prevalent in Kenya. In view of the significance of this discovery for agriculture in East Africa, the station's research program in cereal pathology will now be expanded.

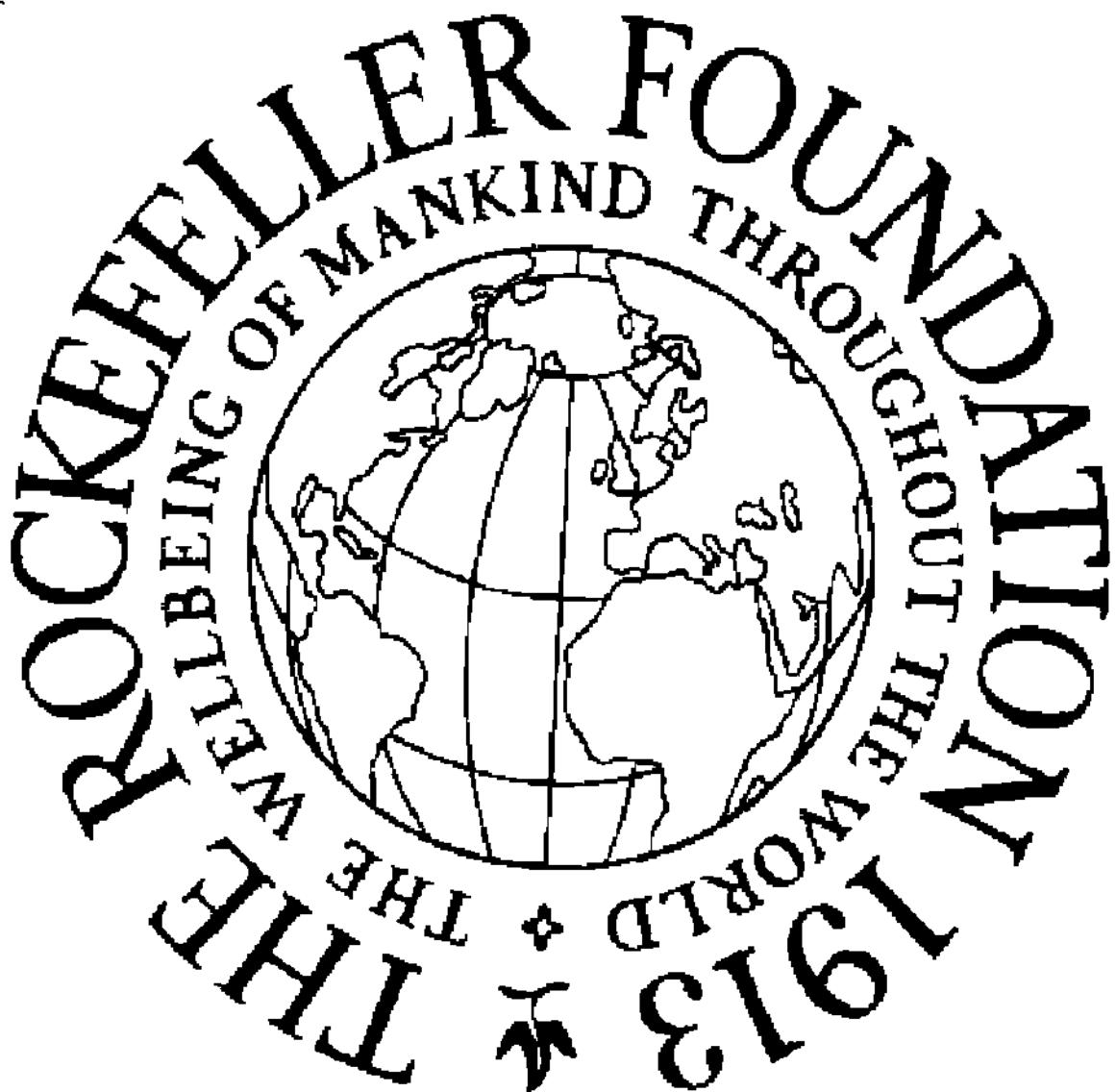


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Through a better understanding of the biology and ecology of the vectors that transmit diseases to animals and man resulting from research now under way at the University College of Rhodesia and Nyasaland, progress in agriculture and public health in Africa will be greatly aided. Diseases in animals cause depletion of an important source of protein, and deprive communities where they exist of a substantial economic return from agriculture and cattle production. One vector of particular economic importance is the tick; in this picture, blanket tails which have been dragged along the ground are examined for larval ticks. Collections are made throughout the day to record tick counts as they vary in relation to time, season, temperature, humidity, and other factors.



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These young men are working in the meats program of the Agrarian University, Peru. Plans have been made for this institution to engage to an increasing degree in joint projects with the Cooperative Program of Agricultural and Livestock Experimentation (PCEA) of the Ministry of Agriculture. In these programs, the university will assume responsibility for research, while PCEA will furnish funds, equipment, and the use of experiment stations, and will retain general supervisory authority.

The role played by the Faculties of Agriculture and Veterinary Sciences of the University of Khartoum in training scientists to serve in government and education is particularly important in a country like the Sudan, which is characterized by a large cattle and wild animal population and by great need for diversification of crops. These graduate students in the Faculty of Agriculture are checking the progress of an experiment being conducted by the Crop Protection Department.

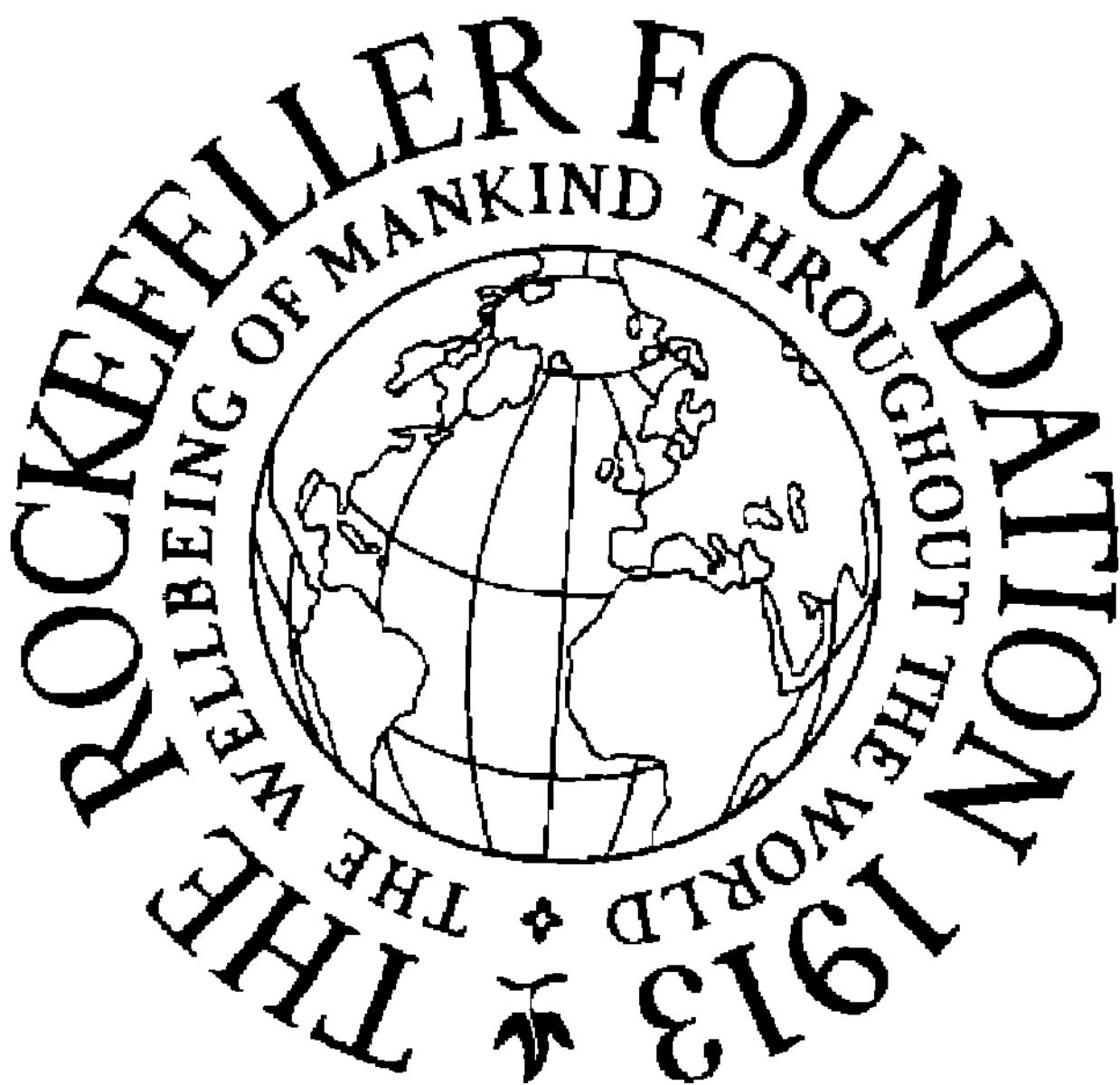


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Studies of Tibet have always been difficult because of that country's extreme inaccessibility and because Tibetan authorities have followed a policy of discouraging foreign visitors. The emergence since 1959 of about 30,000 refugees from Tibet, including important political and religious figures, has created an opportunity for experts to learn much about the culture of the country and its civilization, now threatened with extinction. With Rockefeller Foundation aid, several of the world's centers of Tibetan studies have been able to bring refugees from South Asia to assist them in their research. The picture below was taken during a reading session at the University of Washington, Seattle, where several Tibetan religious leaders are sharing their knowledge with American and other scholars; the man at the blackboard is a lama of the Sa-skya sect.



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The Ryukyu Islands, south of Japan, have an important artistic tradition in dance, music, architecture, ceramics, textiles, lacquer work, and native crafts, which has survived despite heavy destruction in the fighting for Okinawa during World War II. In cooperation with the Folk Art Museum in Tokyo and the University of the Ryukyus, the Honolulu Academy of Arts has prepared an extensive written and photographic record of the traditional culture of the islands, from which this picture of a harness maker from Naha was taken.



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In recent years, the tribal ties of Indians of the American Southwest have begun to disintegrate and, as a result, their traditional art is threatened with the loss of its meaning, function, and vitality. A program of workshops organized in 1960 at the University of Arizona helps talented young Indian artists to seek new forms that will draw upon their cultural heritage without reflecting a way of life that no longer exists. In addition to creating new works of art in the medium of their choice, all the artists study the elements of design and attend lectures on the traditional cultures and archaeology of the Southwest. These young Indians have chosen to concentrate on ceramics; other fields in which instruction is offered include painting, metalwork, and weaving.

Since its founding ten years ago, Arena Stage has mounted more than eighty plays representing the works of the great dramatists of Western Europe and the United States, and, more recently, of contemporary American playwrights. As its name indicates, this permanent resident repertory company, the only group of its kind in the nation's capital, was formed mainly to present productions in the round. Soon it will move to a new, specially designed building, which is basically an arena theatre but also provides facilities for modified proscenium staging. Below is the setting designed by Arena Stage for Act One of Shaw's *Major Barbara*.

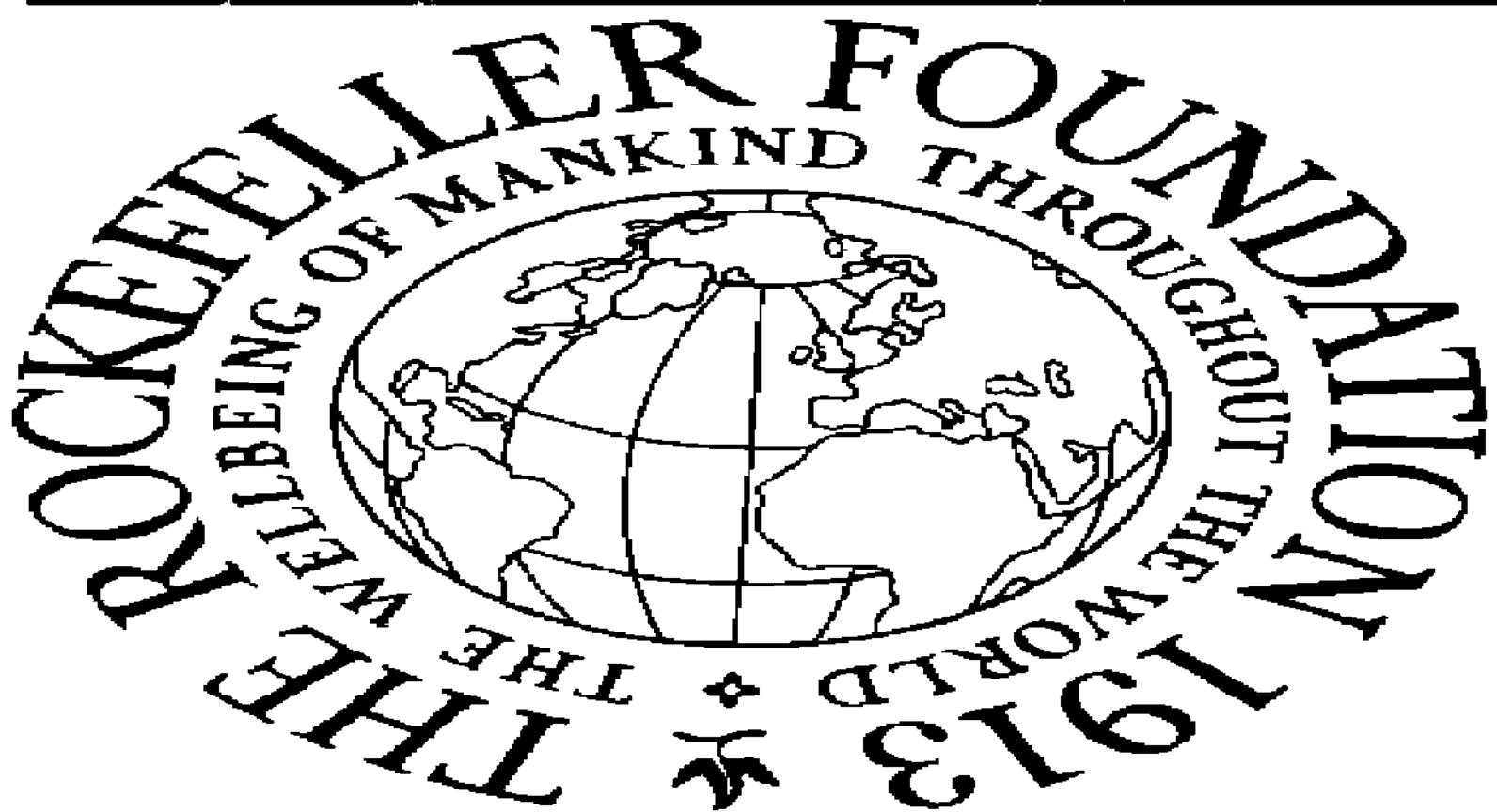


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The development, at the Yale School of Drama, of the synchronous winch (a one-man, motor-driven hoisting system for scenery) is considered by many experts to be the first fundamental advance in stage rigging since the Renaissance. Other far-reaching devices designed at the school's electromechanical laboratory include a one-man electronic lighting apparatus, which permits more varied and better controlled lighting effects for the theatre than were previously possible. This picture taken at the Loeb Drama Center at Harvard—one of a few theatres where the winch has been installed—shows the inventor of the system, George C. Izenour (*center*), demonstrating the use of the control panel.



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Kabuki, or "the art of music and dance," is a form of drama which originated in Japan in the seventeenth century and still thrives today. The actors, all male, belong (sometimes by adoption) to a few families who have carried on the tradition. Because of the large size of the company and the technical complications involved in its productions, a Kabuki troupe had never, until 1960, toured the Western world. The picture above, which shows a scene from *Kanjincho*, was taken during the Kabukiza company's three-week engagement at the City Center of Music and Drama in New York.

enlarge photo

Just after World War II, a previously unknown type of meningoencephalitis began to occur sporadically in forested areas of Slovenia, near the Austrian border of Yugoslavia. The disease has persisted in endemic form since then, with occasional localized epidemic outbreaks and gradual extension of the area involved. Research at the nearby University of Ljubljana showed the virus to be that of Russian spring-summer encephalitis. Experts at Ljubljana now plan to extend their findings through studies of other arthropod-borne viral infections, since little is known of the incidence of these in Yugoslavia. In the picture below, an investigator at the university's Institute of Microbiology is reading the results of an experiment with viruses in tissue culture.



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This picture shows two experts at the Karolinska Institute, Stockholm, working at the construction of a device for the automatic analysis of amino acids. During the course of their research in enzyme chemistry, investigators in the Department of Biochemistry have developed a number of new methods and instruments. For example, new methods of fluorimetry are being used to follow the rates of conversion of coenzyme I, one of the most important hydrogen carriers in biological oxidations and reductions. Fluorimetry is considered to be a hundred times more sensitive than spectrophotometry, which has been the usual technique in such studies.

At three field stations established by the Faculty of Medicine, University of Valle, new knowledge is being acquired daily about the health problems of Colombia. Siloé, where the investigators pictured are gathering information, is representative of urban conditions, and typical rural conditions surround the station at Candelaria. The faculty is setting up a third field center in order to study the special conditions which exist in areas of tropical rain forest. The new station, at Buenaventura on the western coast, will serve as a base for all departments, for the early observation of viral, bacterial, fungal, and entomological specimens, and for pathological, clinical, and physiological studies of the population. In addition, it will be used as a center for consultation and continuing education for local medical personnel.

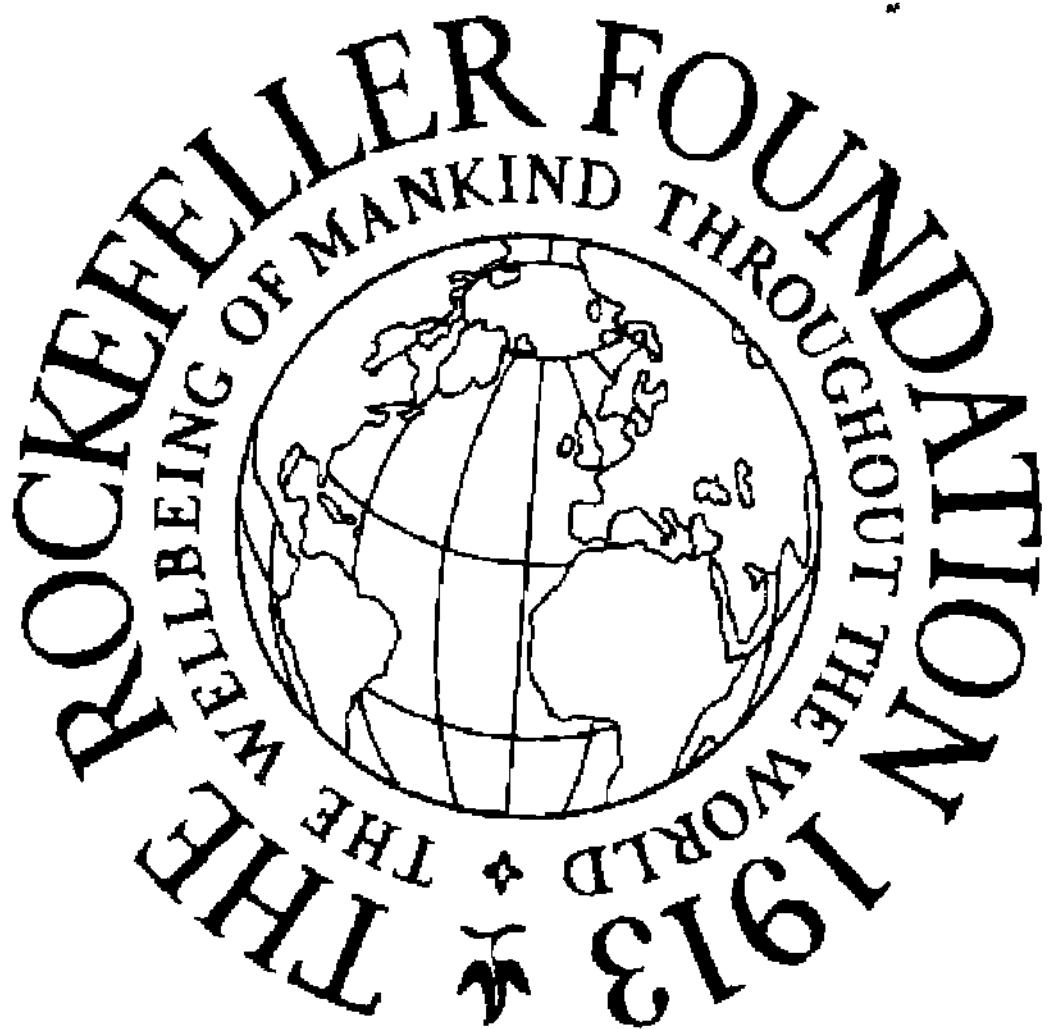


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For the past several years, Ankara, Turkey, has been the scene of increased activity in the field of child health. This picture shows work in progress in the radiology department of the new Research Institute of Child Health. The institute shares responsibility for pediatric work in the Turkish capital with the Hacettepe Children's Hospital, which has 180 beds, a large outpatient clinic, and ancillary services. Both are part of the Department of Child Health and Pediatrics of the Faculty of Medicine, University of Ankara. This department now provides a full-scale, four-year residency program for 34 house staff. In addition, training is offered for nurses, dietitians, social workers, and laboratory technicians, and there is special training in child health for public health workers. Well-baby clinics offer instruction for the public in maternal and child health.



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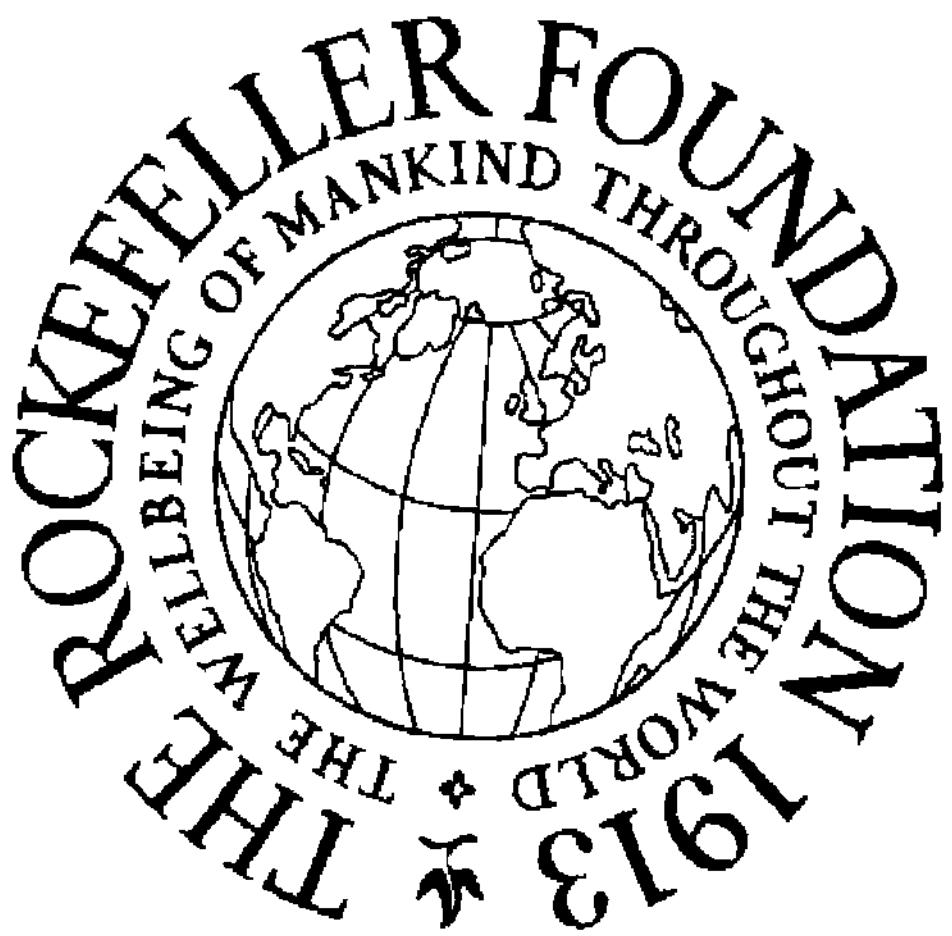
The picture above shows an outdoor health demonstration in progress at a typical rural health center in Kenya. In accordance with the system established ten years ago by officials of the Ministry of Health, such centers, each serving 15,000 to 20,000 persons, are being set up in villages throughout the country. At each center is a local health team consisting of half a dozen trained subprofessional personnel, headed by an assistant medical officer, who work under the supervision of a district hospital and its fully qualified professional staff. It has now been decided to set up one expanded center, at which supervised internships for newly graduated local teams—and short inservice training programs for existing teams—will be offered, and facilities for epidemiological, educational, and social studies of African villages will be provided.

Research on the adrenal gland has hitherto been handicapped by the difficulty of carrying out the required procedures without physical or emotional disturbance to the experimental animals involved. Using Merino sheep, which have large folds of neck skin, investigators at the University of Melbourne have been able to develop a procedure in which a functioning adrenal gland is permanently transplanted into an animal's neck and connected to the carotid artery and jugular vein. Here, the director of the project introduces a needle into the carotid artery of a sheep, so that a continuous local alteration can be made in the chemical composition of the blood passing through the adrenal gland. The animal has been specially trained, and is therefore undisturbed by the manipulations.



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Graduate facilities for the training of instructors and administrative personnel in public health nursing are at present nonexistent in Africa south of the Sahara. The World Health Organization plans to help develop two centers for such training in the area, one of which will be based on the School of Nursing of Lovanium University at Leopoldville. The international personnel, while learning realistic methods of dealing with the public health nursing problems of their own countries, will also serve as teachers in the basic nursing program which is already established at Lovanium. In this picture, two undergraduate students are receiving instruction in the art of preparing well-balanced meals.

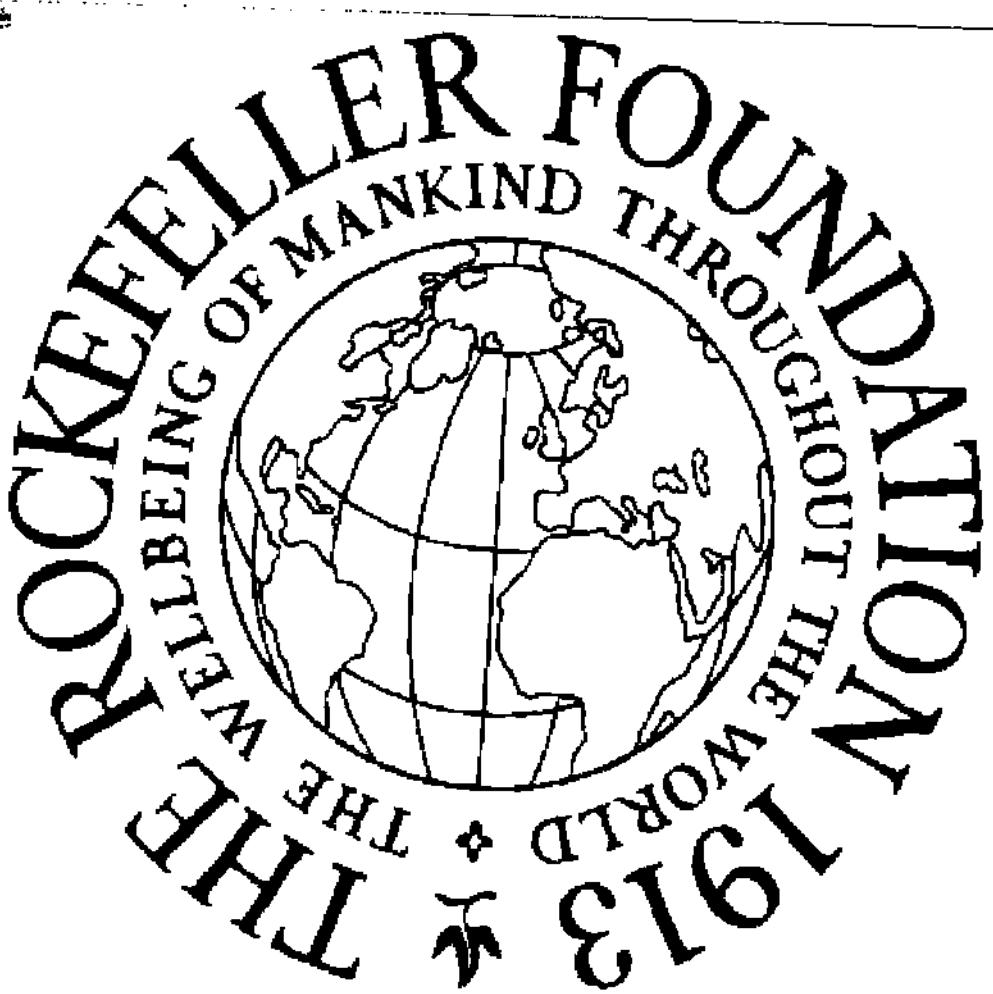


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For the last twelve years, researchers at Kyoto University have been engaged in a series of investigations of the behavior of the common Japanese monkey. Now they will go to India to make studies, using the techniques they have evolved, of two similar species of Indian monkeys. Epidemiological research has shown that these species play an important role in the maintenance and spread of Kyasanur Forest disease, an arthropod-borne viral infection which has been under intensive study since it first appeared in India in 1957. Understanding of the disease depends, at least in part, on precise information about the habits of the incriminated monkeys. Shown here are two of the investigators recording body weights of several of the Japanese species.



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Outbreaks of severe and often fatal infections of horses in British Guiana have been recorded for 1953, 1958, and 1959, and earlier years. In the cattle-growing regions of the Rupununi Savannah, the horse population has been decimated, and, as this picture shows, the Wapishana and Macusi Indians have been reduced to riding bullocks and steers, or to walking. Causes of earlier epidemics remain unknown; however, the 1959 epidemic, considered to have been caused by trypanosomiasis or by Venezuelan equine encephalitis (V.E.E.) was identified as an outbreak of eastern equine encephalitis virus (EEE), an agent previously unrecognized in British Guiana. The identification resulted from isolation of virus from horse brains submitted to the Trinidad Regional Virus Laboratory. The virus of western equine encephalitis (WEE) was also recovered from a horse

brain; this is another new record for British Guiana. Study of horse serum specimens collected on expeditions made by laboratory personnel in 1956 and 1959 show EEE to have been the principal troublemaker. EEE was active in the United States in 1959, and caused a number of human fatalities. Dutch investigators have also presented serological evidence of the activity of EEE among equines in Surinam.

Another aspect of public health work in the Rupununi is shown in the picture below, in which a trained Amerindian sanitary officer is dispensing medicine at an impromptu clinic in one of the native villages.



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Rugged travel conditions, including those shown here, were encountered by scientists from the Trinidad laboratory during a collecting trip to Dutch Guiana early in 1960. On this expedition, blood specimens were obtained from about 500 individuals in the coastal lowlands, in savannah regions, and in native villages up the rivers. Studies on these sera are still incomplete, but evidence has been found of immunity to yellow fever, dengue, Ilhéus, St. Louis, Mayaro, and Venezuelan equine encephalitis viruses, which indicates that these

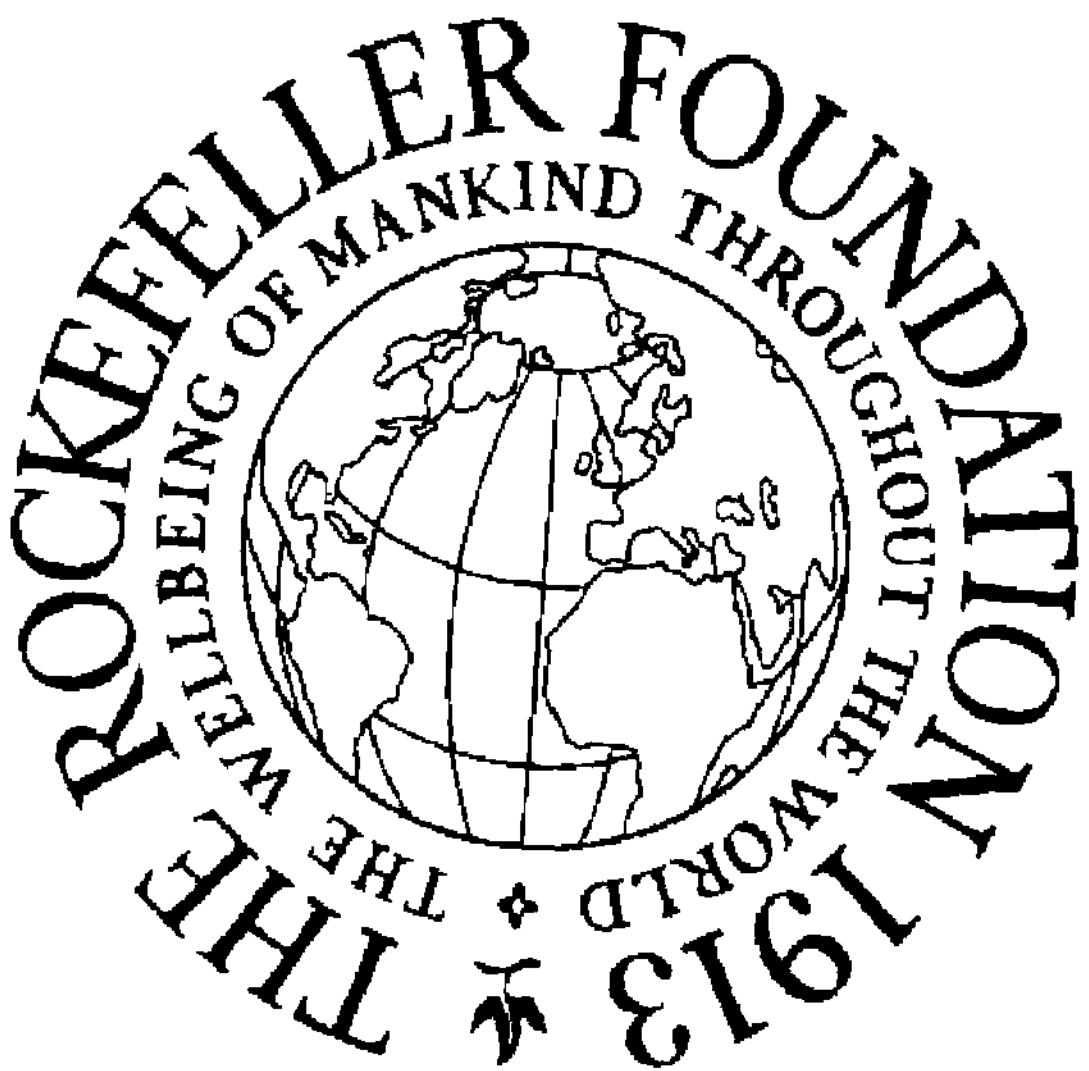


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agents have been active in the area. Personnel of the laboratory also collect specimens of Trinidadian fauna for serological and other study; the assistant in the picture above is preparing a trap for small forest rodents. Eastern equine encephalitis virus has been isolated from mosquitoes in Trinidad and staff members have noted that the isolations correspond with bird migration periods, but whether the incidents are related is a matter for conjecture.



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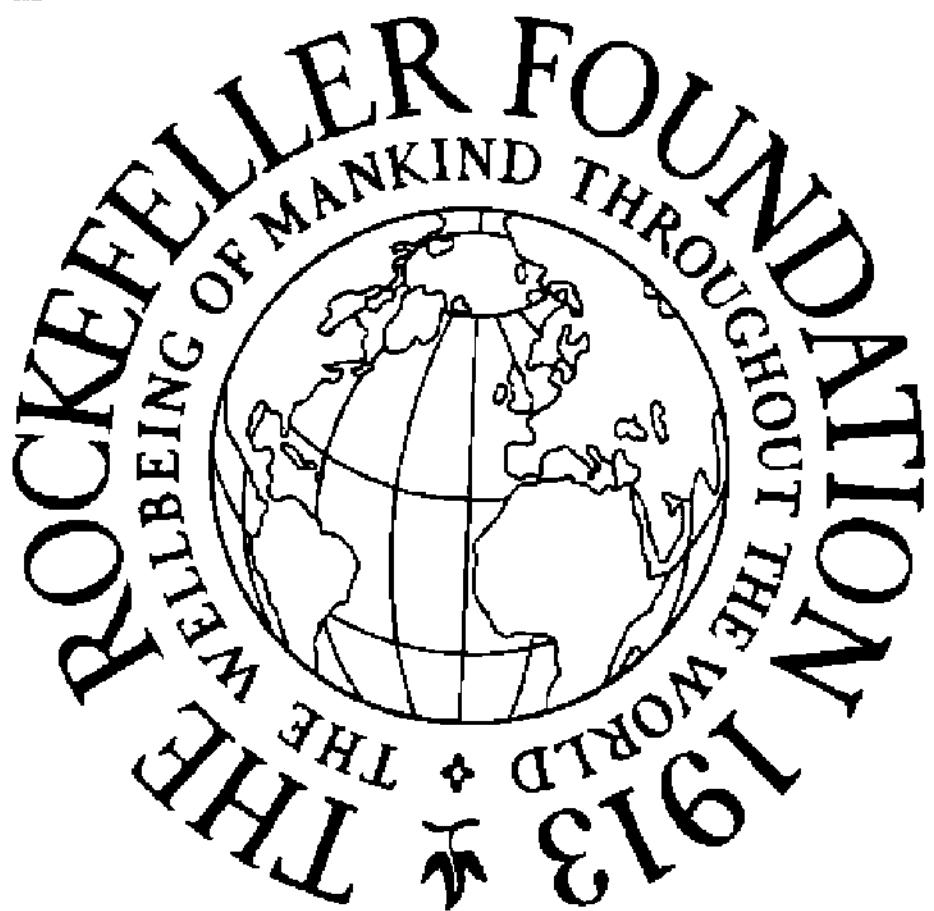
These three population experts are relaxing briefly during the course of a fact-finding trip in Pakistan. The Government of Pakistan is one of several which have applied to the Population Council for advice and help in devising programs for the control of population expansion. Working with government officials and with investigators from the School of Hygiene and Public Health of the Johns Hopkins University, the council has formulated an experimental program of public education designed to test the effectiveness, in Pakistan, of different sorts of approaches to population control.

Among the projects now under way at the Institute of Advanced Legal Studies (University of London) is research on the medieval background of the common law. Below is an illuminated page from a manuscript thought to have been written in London in the time of Edward I. Although in this illustration counsel is depicted wearing a coif as a mark of his profession, others are shown in the same manuscript with no distinctive headdress, and it is therefore assumed that custom had not yet required lawyers to wear one. (Reproduced from *Select Cases in the Court of King's Bench Under Edward I*, ed. G. O. Sayles, Selden Society, Vol. 57, 1938, with permission of the Selden Society and the Provost and Fellows of Oriel College.)



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At the Center for International Affairs, Harvard University, a dozen or so diplomats on study leave from the United States, Europe, and Asia are able to engage in the study and analysis of fundamental issues free from the pressures of daily decision-making which they encounter in their work. These officials join with permanent and temporary faculty members for the consideration of problems of mutual interest. The center's curriculum takes form around three seminars—in economic development, military and defense problems, and political questions—in which the scholars and diplomats are able to benefit from the experience of their fellows and to exchange observations. This picture shows two non-Western diplomats discussing a point made in one of the seminars.



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Medical and Natural Sciences

MEDICAL AND NATURAL SCIENCES

Major Interests, 1960

Professional Education.....	\$4,187,285
Medical Care.....	125,000
Experimental Medicine.....	487,990
The Biological Basis of Behavior.....	293,050
General Biology.....	1,418,750
Genetics.....	257,490
Biochemistry.....	611,372
Biophysics.....	262,500
Virology, including the Foundation's Virus Research Program.....	1,477,485
Special Projects.....	202,330
Field Services.....	397,165
Fellowship and Scholarship Fund.....	1,050,000

MEDICAL AND NATURAL SCIENCES

THE GREAT MAJORITY of the grants recorded in the succeeding section of this report have for their purpose the development of research and teaching programs in medicine and the biological sciences in areas of the world which have so far failed to share more than very partially in the benefits of scientific advances made in Western Europe and North America over the past three centuries. The under-developed areas would not be in a position to enjoy these benefits even now if it were not for a small core of unusual men with the vision to see that better things are possible and with the emotional drive and intellectual capacity to mount the effort to attain them.

Some 50 years ago when the Foundation began its program of improving health services in what were then called backward areas, few capable local people existed and it was necessary to rely on imported public health personnel. Necessarily, these programs were restricted very largely to the control of single epidemic diseases which were thought to be of crucial importance. Sometimes such programs led to the establishment of a rudimentary public health service, but nothing resembling a self-perpetuating chain reaction of improvement ordinarily resulted. Continued progress had to await the establishment of indigenous institutions which

could investigate a variety of local problems and train local personnel to solve them. It is only since the last war that such institutions have been established in appreciable numbers, and those that have achieved their objectives have done so largely through the inspiration and efforts of one or a few outstanding individuals with a "spirit of wisdom and understanding."

In some cases listed below—the University College of the West Indies, the American University of Beirut, the Ministry of Health in Kenya, for example—the original spark which is now fanning into a flame was brought from abroad by men who dedicated their careers to making the good side of the colonial coin shine more brightly than its currently better publicized dark face. Perhaps special mention should be given to the men and women of the staff of the Lovanium University who so courageously stood by their posts while ignorant armies clashed by night.

In a hearteningly increasing number of cases the citizens of the local community have provided distinguished leadership, as in the All-India Institute of Medical Sciences in Delhi, the National Council of Scientific and Technical Research in Buenos Aires, and the pediatrics hospital in Ankara which has set an entirely new standard of medical achievement in the Middle East. These are but examples of the growing number of leaders with whom the more fortunate countries can share their accumulated wealth and experience in redressing the temporary imbalance which has been the price of progress. As a further help to them, the Foundation continues to supplement grants with the services, where appropriate, of its own field staff members, on whose specialized "know-how" local experts can draw in establishing and developing medical schools and health services.

The current pull to exploit these swelling opportunities abroad continues to move the Foundation away from its former preoccupation with the development of medical edu-

cation and research in the United States. This is due partly to the fact that there are now a great many other organizations in this country with large funds available for this purpose. From time to time, however, some small piece of a big local effort may recommend itself for special consideration. Such an instance is illustrated by the grant to the Harvard Medical Center for developing a library designed to serve the needs of the entire medical community of the Boston area, as part of an over-all development program expected to cost nearly \$60,000,000.

The grants to Oberlin, Carleton, and Chicago were part of a modest subprogram, undertaken during the last three or four years, to help certain outstanding undergraduate institutions refurbish their obsolete laboratory facilities so that they can make effective use of the relatively large amount of research money available for work in the natural sciences. As was pointed out last year, this program could never expect to do more than draw attention to the need for this sort of aid, as the total requirement for new building is far beyond the means of any private organization. It is heartening to find government, industry, and private individuals giving increasing attention to putting our liberal arts colleges in an improved position to satisfy the demands of an expanding younger generation that is eager for better education.

As in previous years, most of the Foundation's support for specialized research projects in the general field of biology and its subdivisions has gone to institutions in Europe and, increasingly, in Japan. Here again the growth of support from other sources is impressive. The Foundation's participation may be expected to decline fairly sharply now that war-induced deficiencies have been largely made up.

Professional Education

HARVARD MEDICAL CENTER

CENTRAL MEDICAL LIBRARY

With three medical schools and numerous associated teaching hospitals, Boston, Massachusetts, has long been a center of major importance to American medicine. In 1956 eight of Boston's medical institutions formalized their long-standing cooperative association by the creation of the Harvard Medical Center, through which they could make more effective united efforts to advance medical knowledge and united appeals for the increasingly large funds needed in medical education and research. The institutions are the Harvard Medical School, the Massachusetts General Hospital, Peter Bent Brigham Hospital, Beth Israel Hospital, the Boston Lying-In Hospital, Children's Hospital, the Free Hospital for Women, and the Massachusetts Eye and Ear Infirmary.

As part of a multimillion-dollar campaign, the Harvard Medical Center is now raising some \$8,000,000 for a new medical library that will serve not only its own members but all the other medical institutions in Boston as well. With medical literature currently appearing in more than 5,000 journals and a constantly growing series of textbooks and monographs, the libraries of the separate institutions are finding it both difficult and expensive to maintain comprehensive collections for the use of their staffs and students. When the new plan is realized, the participating institutions will need only modest working libraries, and the great bulk of the literature will be housed in the central location.

The central library will be formed by the consolidation of the historical collection of the Boston Medical Library with the working library of the Harvard Medical Center. It

will develop an efficient catalogue and facilities for rapid distribution of requested material from the central library to the participating institutions.

As its contribution to the Harvard Medical Center campaign, The Rockefeller Foundation has appropriated \$1,500,000, which will be used to help endow the new central medical library. Boston's other medical schools—those of Boston and Tufts Universities—are also cooperating in planning and financing the library.

ALL-INDIA INSTITUTE OF MEDICAL SCIENCES

TEACHING HOSPITAL AND SCHOLARSHIP PROGRAM

The All-India Institute of Medical Sciences was established by the Indian government 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 in India. On a campus of 150 acres allotted to the institute, buildings have been constructed for the basic science departments of the medical school and a college of nursing. Housing for staff and students has been provided, a clinical sciences building is nearing completion, and construction of an outpatient department is under way. The Rockefeller Foundation has made an outright grant of \$500,000 for the non-rupee expenses of building and equipping a teaching hospital, the next unit planned under the institute's construction program.

Superior staff and students are, however, far more essential for the development of a first-class medical center than fine buildings. To enable outstanding graduate students from all economic backgrounds and from all sections of India to study at the institute, The Rockefeller Foundation has appropriated \$30,500 which will provide about 60 scholar-

ships over the next four years in addition to undergraduate and graduate scholarships available from other sources. These will provide for training in the basic medical sciences or in clinical subjects usually consisting of one year's practical experience, somewhat like the rotating internship in the United States, followed by a minimum of two years of specialized training.

UNIVERSITY COLLEGE OF THE WEST INDIES

FACULTY OF MEDICINE

Recognizing that age structure of the population, incidence of various diseases, and economic status all have a bearing on the practice of medicine within a country, the Faculty of Medicine of the University College of the West Indies, Mona, Jamaica, has concentrated on developing instruction and research on medical problems as they appear in the local villages and the crowded suburbs of the rapidly growing cities of the Caribbean.

The faculty's Department of Social and Preventive Medicine has been investigating the relative importance of nutritional and parasitic disease, and the way in which certain common disorders, such as cardiovascular disease, manifest themselves in tropical areas. Methods have been devised by the department for instructing students and house staff on the care of patients who live under stringent economic conditions, and a home-visit program has been worked out to acquaint students with the major health problems of the average West Indies citizen. In addition, the faculty has been experimenting with a plan to bring physicians from the various isolated islands to Jamaica for periods of a month or more for refresher courses. Research is also being conducted on the prevalent arthropod-borne, enteric, and respiratory viruses in the area.

While orienting its programs to local needs, the faculty has at the same time been expanding its facilities to accommodate an increasing number of students and to add new courses of instruction. An addition to the hospital, a building that will house the dean's office and five of the departments, a museum, and an animal house are currently under construction.

A \$288,000 Rockefeller Foundation grant will help support education and research at the Faculty of Medicine during the period ending in June, 1965.

UNIVERSITY OF GUADALAJARA

FACULTY OF MEDICINE

Established near the end of the eighteenth century, the University of Guadalajara Faculty of Medicine, Mexico, serves the educational needs of nine provinces in western Mexico with a population of over 5,000,000 people, and provides, as well, much of the medical care required by residents of the city of Guadalajara and the State of Jalisco. To strengthen its contribution to its region, the university administration in the past few years has been making changes in its medical faculty reflecting the rapid advances in medical knowledge and in research and teaching techniques.

Initial steps in the modernization program involved the limitation of student admissions to 80 per year, initiation of full-time teaching and research appointments for as many faculty members as possible, and renovation of the hospital to provide more laboratory space. Greater emphasis is being placed on basic science teaching, and the clinical program has been reorganized to provide for two years of clerkship and a final year of an obligatory internship.

With the help of state and federal sources and of the Guadalajara community, funds have been obtained for the

construction of a modern medical school, nursing school, and teaching hospital that will have 1,500 beds and outpatient facilities. The state and federal governments have also assured a higher level of annual support for the school. Now university officials, led by Dr. Roberto Mendiola, the rector, are moving ahead with the establishment of additional full-time posts in the basic sciences and of at least one full-time teaching and coordinating position in each of the major clinical fields.

Through the quality of its program and its pioneering outlook, the University of Guadalajara Faculty of Medicine has attained a position of influence among the 18 provincial medical schools of Mexico. To help it continue its development, The Rockefeller Foundation has appropriated 2,052,000 Mexican pesos and \$66,000 (a total of about \$240,420) for use through January 31, 1966.

AMERICAN UNIVERSITY OF BEIRUT

MEDICAL SCHOOL

During the next ten years the School of Medicine of the American University of Beirut, Lebanon, is planning to improve its facilities to serve as a training center for teachers and researchers for the newly created medical faculties in the Near East and Africa. The school has recently established nine new posts in the basic and clinical sciences and strengthened others. Building plans have also been formulated which call for the expansion of teaching hospital facilities, additional space for research and graduate study in the clinical and basic sciences, and the renovation of the present outpatient department.

Assistance for the ten-year expansion program will be provided by a \$230,000 Rockefeller Foundation appropriation, of which \$130,000 will be used for faculty expenses and

the remainder will be made available for operating costs when the university has secured \$200,000 for the same purpose from other sources.

Since 1924 the Foundation has made appropriations totaling \$3,560,500 for medical and nursing education at the American University of Beirut.

NATIONAL INSTITUTE OF NUTRITION, MEXICO

HOSPITAL FOR NUTRITIONAL DISEASES

Long an outstanding center for the study and treatment of nutritional diseases, the Hospital for Nutritional Diseases in Mexico City began in 1947 to widen the scope of its activities to include the entire field of internal medicine and, subsequently, to combine its laboratory program with field studies in nutrition in Mexican communities.

New and enlarged clinical facilities are currently being constructed for the hospital at the National Medical Center. The new building will enable the hospital to inaugurate in 1961 a residency training program in internal medicine. Basic science instruction will be emphasized the first year, and will include courses in pathology, biochemistry, and clinical physiology and pharmacology. During the second year clinical work will be continued and formal courses in radiology and radioisotopes will be added. Specialty training in preparation for academic posts or for major clinical assignments will begin the third year. To be eligible, candidates must be less than 30 years of age and have graduated not more than five years previously from a Faculty of Medicine in Mexico or another Latin American country. They will be admitted to each stage of their training on the basis of selective examinations.

The Rockefeller Foundation will support the new training program with a \$152,000 appropriation to the National

Institute of Nutrition, created in 1958 with the hospital as one unit. The grant is available during the period ending December 31, 1966.

UNIVERSITY OF ANKARA

RESEARCH INSTITUTE OF CHILD HEALTH

When the Pediatric Clinic of the University of Ankara first opened its doors in 1957, the occasion marked the advent of a modern clinical, teaching, and research service in pediatrics which would help to establish new patterns for medical education in Turkey and throughout the Middle East.

At the present time the clinic's facilities include a 180-bed hospital; a large, full-time staff, including 34 who are four-year residents; and an outpatient clinic. Auxiliary services provide training for nurses, dietitians, social workers, and laboratory technicians; and well-baby clinics to instruct mothers in child and maternal health.

The clinic has led the way toward a new educational pattern in the university's medical school. Enrollment has been selectively limited, teaching of the basic sciences has received increased emphasis, regular student laboratory exercises and clinical clerkships have been introduced, and the academic year has been increased from five to nine months. About ten per cent of the University of Ankara's medical students come from other Middle Eastern nations.

To assist the clinic in its further development, The Rockefeller Foundation has appropriated \$145,000 to the University of Ankara for the Research Institute of Child Health, research center of the Pediatric Clinic. Of the sum, \$115,000 will be used to purchase equipment and supplies for a new biochemistry laboratory and an enlarged outpatient clinic, which are now under construction. The remainder will be available to bring visiting teachers and specialists to the institute from time to time.

MINISTRY OF HEALTH, KENYA

RURAL PUBLIC HEALTH CENTER

Throughout most of the African continent, only a handful of doctors assisted by supporting medical personnel are available to care for the health needs of large populations. For the most part, such medical personnel as are available are required in the district and general hospitals and urban community health centers. For the majority of the African population living in rural villages, basic medical and public health services are seriously understaffed.

The Government of Kenya has been attempting to ameliorate this shortage by training assistant health officers for work at village centers caring for from 15,000 to 20,000 persons under the supervision of a district hospital and its professional staff. The local group, comprised of an assistant medical officer, health inspector, assistant nurse, assistant midwife, assistant health visitor, and laboratory technician, treats patients with immediate or simple problems at a morning outpatient clinic. More complicated cases are sent to the district hospital by ambulance. During the afternoon and evening hours, the team works within the villages and sub-centers developing community health services, sanitation, and maternal and child care programs. So far the government has organized 79 rural health centers, and anticipates a final establishment of 250 centers covering all of Kenya within the next ten years.

As the program has developed, it has become clear to the Kenya authorities that, if the public health work is to have lasting benefits for the country's 6,000,000 people, the training given the health teams must be initially more thorough and later repeated at intervals, and that more accurate epidemiological information must be obtained. They are therefore creating an expanded health center at Wangige, some 30 miles from Nairobi, where health workers who have

just completed their academic studies can intern as a team under the supervision of experienced personnel, and where working teams can be brought for short refresher courses.

The Wangige center will also serve as the base for extensive epidemiological, educational, and social studies of African villages. The investigations will be aimed primarily at gathering the data on levels of various diseases and causes of death needed by the Kenya government in planning for future medical services.

To help meet the expenses of the Wangige center, The Rockefeller Foundation has appropriated £50,000 (about \$142,500) to the Ministry of Health of Kenya, Nairobi. The Government of Kenya, the African District Council, the World Health Organization, and the United Nations Children's Fund are also contributing funds for the center.

CORNELL UNIVERSITY MEDICAL COLLEGE

ORIENTATION COURSE FOR FOREIGN MEDICAL STUDENTS

For ten years the Cornell University Medical College, New York, has offered a graduate-level orientation course for foreign medical students in preparation for residency training in American hospitals. More than 100 Fellows of The Rockefeller Foundation, the Kellogg Foundation, the International Cooperation Administration, and of their own institutions, have been assisted in adapting to American hospital conditions and procedures. Most of the Fellows who have completed their training have returned home to use their acquired knowledge of academic medicine and clinical investigation in schools of medicine and hospitals in their own countries.

The Cornell faculty now plans to extend the course from six months to one year, but to reduce the orientation period to three months. The remainder of the year will be spent in individually supervised work tailored to meet each student's particular needs. The students will see patients as junior

consultants, organize and participate in specialty rounds, conferences, and clinical teaching exercises, and carry on an individual research project.

The expanded course will be partially financed through the period ending June 30, 1966, by a Rockefeller Foundation grant of \$125,000.

NATIONAL UNIVERSITY OF MEXICO

DEPARTMENT OF BIOCHEMISTRY

Directed by Dr. José Laguna, the Department of Biochemistry of the National University of Mexico, Mexico City, includes four research groups each headed by a full-time senior investigator. The groups are working on steroid chemistry, cholesterol metabolism, and antimetabolites; immunochemistry; nucleotide chemistry; and the mechanism of action of antibacterial agents. In addition, Dr. Laguna conducts a program of instruction in medical biochemistry for the approximately 1,200 members of the second-year class at the university's medical school, with the assistance of leading biochemists from other institutions in Mexico City.

The National University of Mexico has received a five-year Rockefeller Foundation grant of \$125,000 for support of the teaching and research programs of its Department of Biochemistry.

LOVANIUM UNIVERSITY

SCHOOL OF NURSING

In spite of the disturbances that have beset the Congo Republic since it achieved independence in 1960, Lovanium University, Leopoldville, has been able to continue operating. Its School of Nursing, opened in 1958 and one of the few centers for training in the field in Central Africa, has had

the support of the government in its efforts to organize a complete nursing curriculum.

Now, as part of a regional plan, Lovanium is cooperating with the World Health Organization in creating a center of graduate education for nursing instructors and administrative personnel in the 15 French-speaking countries of Africa. The graduate unit will have the dual purposes of preparing African nurses for essential work in public health nursing, and training nurses from other parts of the world in teaching and service techniques adapted to African customs.

Under the plan a one-year program concerned specifically with public health nursing administration will be offered to graduate nurses from French-speaking countries. At the same time, the school will serve as a field training center for practicing nurses from other countries who have been recruited for World Health Organization assignments in Africa. The graduate courses will be opened in 1962.

Approximately 14 African postgraduate students and six World Health Organization nurses are expected to participate during each of the first five years of the program. To assure adequate attendance, the World Health Organization will provide ten fellowships annually to supplement funds which the African countries will make available for the students' expenses.

To help meet the costs of the additional physical facilities and equipment required in the expansion of the School of Nursing, The Rockefeller Foundation has appropriated \$100,000, available through 1962.

NATIONAL BOARD OF MEDICAL EXAMINERS

DEVELOPMENT OF IMPROVED TESTS

The National Board of Medical Examiners was established in 1915 to prepare and administer qualifying examinations which could be accepted on a nationwide basis by legal

agencies governing the practice of medicine. The board's certificate is now accepted as adequate qualification by medical licensing authorities in all but eight of the 50 states. The examination consists of three parts, one given usually after completion of the sophomore year in medical school, another given at the end of the senior year, and the final, prelicensing test at the end of one year of internship. In June, 1959, the Part III examination was given at 49 different centers to 2,250 candidates by about 2,700 examiners.

As presently constituted, the Part III test consists of a one-day oral and written exercise during which candidates are assigned a patient in each of four major subjects—medicine, surgery, pediatrics, and obstetrics-gynecology—for clinical evaluation. The candidates then prepare short essays on each clinical problem, after which they are examined by a specialist in the field.

With the numbers of candidates and of medical schools requiring National Board examinations both constantly growing, the Part III test is proving more time consuming than is practicable, and the board is attempting to devise a new exercise that can be processed more rapidly but still meet the need for objective, reliable, valid, and thorough examination of the candidate's clinical judgment and skill.

To finance the development and evaluation of a new Part III test, which is being done by the American Institute of Research, The Rockefeller Foundation has appropriated \$75,000 to the National Board of Medical Examiners, Philadelphia, Pennsylvania. The first two sections of the board examination were redesigned in 1951 and 1952.

UNIVERSITY OF BRAZIL

INSTITUTE OF MICROBIOLOGY

In the last few years the Institute of Microbiology of the University of Brazil has been developing its various

programs of instruction. Now a major training center in microbiology for Brazilian universities, the institute conducts all professional courses in this field offered by the University of Brazil for students in the School of Medicine, the School of Pharmacy, the School of Philosophy, and the Ana Nery School of Nursing. Its graduate program has been expanded to provide one- to three-year training courses in microbiology for personnel in all health fields, 79 of whom have been trained in the last three years under the CAPES (Campaign for the Improvement of Higher Education Personnel) program. In addition, the institute has served as a center for special courses for personnel in state health agencies and programs.

With a similar expansion in its research program accomplished in recent years, the institute's investigators have been working on the microbiological assay of vitamins, on the relation of trace metals to the development of micro-organisms, and on yeast nutrition. Other studies have concerned bacterial cytology, immunochemistry, and neurotropic, respiratory, and arbor virologies, as well as enterobacteria and pathogenic cocci.

Further development of both research and graduate training programs will be possible with the completion, in 1960, of new laboratory facilities. To assist primarily in providing the new building with equipment and supplies, The Rockefeller Foundation has appropriated \$60,000 for use during a three-year period. Previous Foundation grants to the institute total \$81,110.

MEDICAL LIBRARY ASSOCIATION, INC.

FELLOWSHIP PROGRAM

In an effort to foster and improve medical librarianship throughout the world, the Medical Library Association, Inc., Philadelphia, Pennsylvania, sponsors a fellowship program

for its foreign members which requires that grantees return to their native countries to work for at least two years after their training period. With the recent establishment of national library schools in many foreign countries, trainees are now being encouraged to teach medical librarianship in these schools upon their return home. Since the start of the program in 1948, 28 librarians—12 from Latin America, 8 from Asia, 6 from Europe, and 1 each from Africa and Australia—have received the awards.

During the next three years the association will award three study and travel grants annually with the support of a \$24,000 appropriation made by The Rockefeller Foundation in 1960. The grant brings to over \$100,000 the amount given by the Foundation to the association for this program.

OTHER GRANTS

United States

New England

Harvard University, Cambridge, Massachusetts:

Dr. Louis K. Diamond, associate professor of pediatrics, Medical School, Boston; to visit centers of research on anemia in the Middle East, Africa, and Latin America; \$6,000;

Studies of the selection of medical students and their subsequent performance, to be conducted in the Department of Psychiatry, Medical School, Boston; \$5,000;

To enable six students in the Seminar in Preventive Medicine and Public Health, School of Public Health, Boston, to observe the health services regionalization program in Puerto Rico; \$1,500;

Middle Atlantic

American Institute of Biological Sciences, Washington, D. C.: partial expenses of lectures and consultations concerning teaching and research in biology in South Asia and the Far East, by Dr.

Ralph W. Gerard, Mental Health Research Institute, University of Michigan, Ann Arbor; \$2,800;

Columbia University, New York: expenses of visits to scientific institutions in North America by nutrition specialists from the Far East attending the Fifth International Congress on Nutrition in Washington, D.C., to be administered by Dr. W. H. Sebrell, director, Institute of Nutrition Sciences; \$10,000;

Miss Ruth G. Taylor, chief, Nursing Section, Division of Health Services, Children's Bureau, Social Security Administration, Department of Health, Education, and Welfare, Washington, D.C.: to observe programs of maternal and infant care and methods of preparing nurses and midwives for service in these programs at hospitals, schools of nursing, and schools of midwifery in Europe; \$3,000;

Department of Public Health of Puerto Rico, San Juan: expenses of study at the Johns Hopkins University School of Hygiene and Public Health, Baltimore, Maryland, by Dr. Isidro Martinez, chief health officer, Regional Office; \$1,400;

Research Foundation of the State University of New York, Albany: College of Medicine, Syracuse, New York; to hold a conference for Indian medical educators; \$4,800;

Dr. Joseph R. Vivas, dean, Dr. Francisco Raffucci, professor of surgery, and Dr. Mario Garcia-Palmieri, associate professor of internal medicine, School of Medicine, University of Puerto Rico, San Juan: to visit the Faculty of Medicine, University of Valle, Cali, Colombia; \$1,750;

Dr. Henry B. Makover, professor of preventive medicine, Albert Einstein College of Medicine, Yeshiva University, New York: to observe developments in social psychiatry at institutions in Europe; \$2,025;

South

Institute of Religion, Houston, Texas: clinical studies of the effects of religion on the ill individual, and particularly on the cancer and heart disease patient, and evaluation of the data; \$5,000;

Dr. Francisco G. Silva, assistant professor of psychiatry, Tulane University of Louisiana, New Orleans: to visit departments of psychiatry at medical schools in Colombia; \$1,450;

Dr. Richard R. Overman, professor of clinical physiology and director, Clinical Physiological Laboratories, College of Medicine, University of Tennessee, Memphis: to visit the University of Valle, Cali, Colombia, to discuss a long-term cooperative program in the physiological sciences; \$905;

Central West

Association of American Medical Colleges, Evanston, Illinois:

Expenses of deans of Latin American medical schools attending the annual meeting of the association in Florida during October, 1960; \$8,000;

Expenses of two delegates from the United States attending the Second Conference of the Faculties of Latin American Medical Schools; \$2,600;

University of Chicago, Illinois: a study of the nursing care given the sick child, by Miss Florence G. Blake, associate professor of nursing education; \$13,500;

Dr. Lillian Recant, associate professor, Department of Preventive Medicine and Public Health, School of Medicine, Washington University, St. Louis, Missouri: to visit the Royal Free Hospital, London, England, as guest professor in the Department of Medicine, and to observe research techniques in metabolic disease at laboratories in Great Britain; \$3,300;

Miss Irene Bower, associate professor, College of Nursing, Wayne State University, Detroit, Michigan: to study public health and public health nursing in England, Norway, Sweden, and Finland; \$2,720;

Canada

University of British Columbia, Faculty of Medicine, Vancouver: to plan a university hospital; \$10,000;

West Indies

University College of the West Indies, Mona, Jamaica:

Dr. David A. N. Hoyte, senior lecturer in anatomy; to observe current techniques and research in experimental anthropology, embryology, and bone growth at institutions in the United States; \$2,630;

Dr. Michael Locke, lecturer in zoology; to study electron microscopy techniques under the direction of Dr. Keith R. Porter at The Rockefeller Institute; \$2,300;

Dr. David Charles Turk, lecturer in bacteriology, Department of Pathology; to visit pathology centers in the United States and Canada; \$2,050;

Dr. Peter Alexander Weston, lecturer in surgery; to observe developments in urological surgery at hospitals, medical centers, and other institutions in the United States and Mexico; \$2,000;

To continue a faculty exchange program with the departments of physiology of the University College, the University of Puerto Rico School of Medicine, San Juan, and the University of Miami School of Medicine, Florida; \$1,000;

Latin America

Ing. Oscar Santamarina, Faculty of Medicine, University of Cuyo, Mendoza, Argentina: to undertake advanced training in electron microscope maintenance and engineering in the United States; \$2,250;

Miss Celina Viegas, director, Hermantina Beraldo School of Nursing, Juiz de Fora, Brazil: additional expenses of visits to schools of nursing in the United States; \$133;

University of Bahia, Salvador, Brazil: support of a program in public health nursing at the School of Nursing; \$10,000;

University of Recife, School of Nursing, Brazil: Miss Maria José Banza, assistant public health nursing teacher, and Dr. Alvaro Vieira de Mello, professor of public health; to visit schools of medicine and nursing in Colombia; \$5,200;

University of São Paulo, Brazil:

Dr. Odorico Machado de Sousa, professor and head, Department of Anatomy, Faculty of Medicine; to visit medical schools in the United States; \$3,000;

Dr. Berta Lange de Morretes, Faculty of Philosophy, Sciences, and Letters; to study the problems of plant anatomy at the Department of Botany, University of California; \$1,900;

Dr. Almiro Pinto de Azeredo, professor of ophthalmology, Faculty of Medicine at Ribeirão Preto; to visit medical schools in the United States; \$2,925;

Dr. Fritz Koberle, professor of pathology, Faculty of Medicine at Ribeirão Preto; to visit medical schools in Germany and Austria; \$2,000;

Dr. Luis Melendez, virologist, Bacteriological Institute of Chile, Santiago: to visit virus laboratories in the United States; \$4,300;

Dr. Francisco Montiel Avendano, assistant bacteriologist, Department of Bacteriology, School of Medicine, Catholic University of Chile, Santiago: to take a course on the physiology of micro-organisms given by Dr. Metry Bacila at the University of Paraná, Curitiba, Brazil; \$670;

University of Chile, Santiago:

A graduate training program in the medical sciences, under the direction of the Interuniversity Commission of Faculties of Medicine; 15,000 Chilean escudos (about \$15,000) for a three-year period;

Dr. Jorge Gonzalez Cruchaga, professor of neurology; to visit neurological centers in the United States; \$3,800;

Dr. Guillermo Ugarte, instructor in internal medicine, Department of Medicine, Faculty of Medicine; to observe internship and residency programs and current research in gastroenterology at medical centers in the United States and Mexico; \$3,500;

Dr. Gonzalo Sepulveda, auxiliary professor of medicine in cardiology, Medical School; to visit cardiology centers in the United States; \$2,800;

Dr. Rolando Armijo Rojas, professor of epidemiology, School of Public Health; to observe current work on the epidemiology of chronic diseases at research and teaching centers in Great Britain; \$2,375;

To invite Dr. Herbert McKennis, Jr., professor of pharmacology, Medical College of Virginia, Richmond, to serve as visiting professor at the Institute of Physiology; \$2,000;

Dr. Humberto R. Maturana, Department of Physiology; to return with his family to Chile after advanced study and research in the United States; \$1,050;

University of the Andes, Bogotá, Colombia:

Fellowships for training in biology; \$10,000;

Continued development of the Biology Section of the General Library; \$5,000;

Staff travel in connection with plans for an arts and sciences program for Colombian universities; \$1,000;

University of Antioquia, Medellín, Colombia: books for the reference collection of the Medical Library; \$10,000;

National University of Colombia, Bogotá: to invite Dr. Santiago Renjifo, former professor of preventive medicine, University of Valle, Cali, Colombia, to assist in the reorganization of the Department of Preventive Medicine, Faculty of Medicine and School of Public Health, and to serve on a full-time basis as chairman of the department and director of the school; \$6,600;

University Hospital of Valle, Cali, Colombia:

Development of technical services and training of technical teaching personnel; \$10,000;

Dr. Alfonso Ocampo, director of medical services; to undertake graduate study at the School of Public Health and Adminis-

trative Medicine, Columbia University, New York, and to visit centers of medical administration in Cleveland, Boston, and San Juan, Puerto Rico; \$5,000;

University of Valle, Cali, Colombia:

To invite Dr. George Barlow, assistant professor of clinical physiology, University of Tennessee, Memphis, to assist in the organization of a graduate program in clinical physiology and of research in clinical fields in the Faculty of Medicine; \$10,000;

To continue a faculty exchange program between the University of Valle Faculty of Medicine and the Faculty of Medicine of the University of San Marcos, Lima, Peru; \$5,000;

Dr. Adolfo Velez-Gil, assistant professor of surgery, Faculty of Medicine; to visit surgical centers in the United States; \$2,600;

Dr. Vicente Rojo, professor and chairman, Department of Morphology, and assistant professor of surgery, Faculty of Medicine; to visit surgical centers in the United States; \$2,475;

Dr. Cipriano Antonio Canosa, visiting professor of pediatrics, Faculty of Medicine, and currently research associate and senior trainee, Division of Pediatrics, College of Medicine, University of Tennessee, Memphis; to observe methods of teaching and research in medicine at centers in Sweden and Finland; \$2,325;

Dr. Alvaro Cuadros, Department of Obstetrics and Gynecology, Faculty of Medicine; to visit medical schools in the United States; \$2,190;

Dr. Carlos Sanmartin, head, Section of Virology, Faculty of Medicine; to visit virology laboratories in the United States; \$2,000;

Dr. Carlos Guzmán L., professor of experimental surgery, Faculty of Medicine; to conduct research in the Department of Surgery, Tulane University of Louisiana, New Orleans, and to visit Baylor University, Houston, Texas, and the University of Miami, Florida; \$1,785;

Dr. Antonio Colás, professor of biochemistry and dean of graduate studies, Department of Physiological Sciences, Faculty of Medicine; to attend a course in radioisotope techniques at the Oak Ridge Institute of Nuclear Studies, Tennessee; \$1,120;

Xavier University, Bogotá, Colombia: development of the Medical School library; \$5,000;

Dr. Carlos Rodriguez Estrada, professor of physiology, Faculty of Medicine, University of Guadalajara, Mexico: to undertake research studies in the Department of Physiology, School of Medicine, Tulane University of Louisiana, New Orleans; \$1,200;

National University of Mexico, Mexico City:

Research in the Department of Pathology, School of Medicine, under the direction of Dr. Ruy Perez Tamayo; \$7,200;

Dr. Alberto Sandoval L., director, Institute of Chemistry; to visit centers of research in organic chemistry in North America, Europe, and the Far East; \$4,500;

Postdoctoral study in chemistry in the United States, by Dr. Raul Cetina Rosado, Institute of Chemistry; \$1,800;

Rafael Villalobos-Pietrini, biologist, Institute of Biology; to study at the Institute of Genetics, University of Milan, Italy; \$1,175;

Dr. José Luis Mateos Gómez, research director, Institute of Chemistry; to participate in research on nuclear magnetic resonance at the California Institute of Technology, Pasadena; \$1,150;

University of Asunción, Paraguay: Dr. Carlos Centurión, dean, Medical School, and Dr. Manuel Riveros, professor of surgery; to visit medical schools in Colombia and Chile; \$3,200;

Dr. Carlos Monge C., associate professor of clinical medicine, Faculty of Medicine, University of San Marcos, Lima, Peru: to observe research in renal physiology at laboratories in Europe; \$3,800;

Dr. Jose Roberto Sotelo, head, Cell Ultrastructure Department, Research Institute of Biological Sciences, Montevideo, Uruguay: to visit centers of electron microscopy in the United States and Europe and to attend the Congress of Cell Biology in Paris; \$3,750;

Europe

University of Helsinki, Finland:

Professor Unto U. Uotila, professor of forensic medicine and vice-dean, Medical Faculty; to visit medical centers in the United States; \$3,100;

Professor Ilmari A. Vartiainen, professor of medicine and dean, Medical Faculty; to visit medical centers in the United States; \$3,100;

Dr. Peter B. B. Gatenby, professor of clinical medicine, Medical School, Trinity College, University of Dublin, Ireland: to observe procedures in medical education and the organization of medical teaching at medical schools in the United States; \$1,200;

Mrs. Jadwiga Izycka, assistant director, Ministry of Health, Warsaw, Poland: to visit schools of nursing in the United States and Belgium; \$4,375;

Mrs. Janina Staniewska, director, Nursing Service, Municipal Hospital, Warsaw, Poland: to visit schools of nursing in England, Sweden, and Finland; \$2,400;

Miss Rachela Hutner, director, Teachers College, Warsaw, Poland: to observe trends in nursing education and professional activities at nursing schools and associations in Europe; \$2,500;

Le Bon Secours School of Nursing, Geneva, Switzerland: expenses of study visits to other European countries by members of the faculty; 40,000 Swiss francs (about \$9,400);

Miss Alice Christine Pauline Sher, assistant general secretary, International Council of Nurses, London, England: to participate in the educational conference and convention program of the American Nurses' Association, and to visit boards of nursing and nursing education programs in the United States and Canada; \$3,200;

Northern Ireland Hospitals Authority, Belfast: development of a Nurse-Teacher Exchange Program and evaluation of the experience of the participants; \$18,000 for a three-year period;

Miss Mary Freda Carpenter, director, Education Department, Royal College of Nursing, London, England: to observe recent developments in nursing education at centers in the United States and Canada while en route from Australia to England; \$1,755;

University of Edinburgh, Scotland:

Miss Kathleen Jean Wallace Wilson, assistant lecturer, Nursing Studies Unit; to observe nursing education at schools of nursing and hospitals in Singapore, Malaya, New Zealand, and Australia, and to attend the annual meeting of the International Council of Nurses in Melbourne; \$3,640;

Miss Audrey Laura John, research fellow in nursing, Nursing Studies Unit; to attend an International Seminar on Nursing Problems in Delhi, India, and to visit nursing facilities in India; \$2,200;

Africa

University College of Ghana, Accra: to establish a visiting physics professorship; 1,000 Ghanaian pounds (about \$2,850);

University College, Ibadan, Nigeria:

Dr. Herbert M. Gilles, lecturer-at-large, Liverpool School of Tropical Medicine, England, and now lecturer, Department of Medicine, University College; to observe methods used for the study, control, and eradication of endemic diseases at centers in the West Indies and Latin America; \$3,200;

Dr. Olumbe Bassir, senior lecturer in biochemistry, Faculty of Medicine; to observe teaching and research in nutrition and biochemistry at medical centers while in the United States; \$830;

Dr. G. Webbe, Schistosomiasis Research Team, East African Institute for Medical Research, Mwanza, Tanganyika: to observe techniques for screening molluscicides at the laboratory of Dr. R. Gonnert, Wuppertal-Elberfeld, Germany; \$1,230;

Dr. Alexander Galloway, professor of anatomy and dean, Faculty of Medicine, Medical School, Makerere College, Kampala, Uganda: to visit centers of medical education in the United States; \$2,990;

Dr. John D. L. Hansen, senior lecturer, Department of Child Health, University of Cape Town, Union of South Africa: to visit centers of nutrition and pediatrics in the United States, Latin America, the West Indies, and England; \$6,400;

High Institute of Public Health, Alexandria, United Arab Republic:

Dr. Ahmed Zahar Zaghloul; to observe medical insurance programs in Europe; \$1,500;

Study at the School of Public Health, University of California, Berkeley, by Dr. Ahmed Moustafa Taher; \$787;

Middle East

American University of Beirut, Lebanon:

Dr. Farid Joseph David Fuleihan, resident physician, Department of Medicine, Faculty of Medical Sciences, and Mrs. Fuleihan; to accept a research fellowship at the Johns Hopkins Hospital, Baltimore, Maryland; \$2,000;

Dr. Riad Tabbara, professor of medicine, School of Medicine, Faculty of Medical Sciences; to observe recent developments in community health services in Puerto Rico and Colombia while en route from the United States to Lebanon; \$800;

Ministry of Health and Social Assistance, Ankara, Turkey: teaching and research equipment for the School of Hygiene, Ankara; \$10,000;

University of Ankara, Turkey:

Professor Zafer Paykoç, professor of medicine and dean, Faculty of Medicine; to observe the organization of medical teaching and research in the United States; \$3,500;

Dr. William L. Nute, Jr., director, Department of Social Pediatrics, Research Institute of Child Health, Hacettepe Children's Hospital; to observe programs in preventive medicine and pediatrics at medical centers in Pakistan, India, Singapore, Thailand, and Japan; \$2,000;

South Asia

Christian Medical College and Hospital, Vellore, India:

Surgical and operating room equipment for the Department of Neurology and Neurosurgery; \$10,000;

Dr. Arnold Francis Desmond, lecturer in otorhinolaryngology; to observe new procedures in the field of otolaryngology and methods of medical education in the United States; \$4,750;

Dr. Santokh Singh Anand, principal and professor of surgery, Government Medical College, Amritsar, India: to observe recent developments in medical education at medical centers in the United Kingdom, Canada, and the United States; \$4,300;

M. P. Shah Medical College, Jamnagar, India: equipment for research in the Department of Pharmacology, under the direction of Dr. M. V. Rajapurkar, professor of pharmacology; \$8,500;

Dr. Shrikrishna Vasudeo Joglekar, dean, Seth Gordhandas Sunderdas Medical College and King Edward Memorial Hospital, Bombay, India: to observe methods of medical education in Europe, Canada, and the United States; \$4,775;

University of Delhi, Vallabhbhai Patel Chest Institute, India: research in the Biochemistry Department, under the direction of Dr. T. A. Venkita Subramanian, head, and assistant director of the institute; \$8,500;

University of Lucknow, India: support of the residency program at King George's Medical College; 40,000 rupees (about \$8,500) through March 31, 1962;

Far East

Dr. Alfred Gottschalk, honorary fellow, Department of Microbiology, Australian National University, Canberra: to visit centers of research in immunology and virology while in the United States; \$600;

University of Melbourne, Australia:

Dr. Maurice Rossie Ewing, professor of surgery; to visit medical teaching and research centers while in the United States; \$1,950;

Dr. Oscar A. Oeser, professor of psychology; to visit centers of psychological and psychiatric research and teaching while in the United States; \$1,600;

Dr. Vernon Leslie Collins, professor of child health; to observe developments in pediatric teaching and research in the United States and Canada while in North America; \$1,015;

Dr. Austin Eric Doyle, first assistant, Department of Medicine; to visit medical research centers while in the United States; \$750;

Dr. Frank Rees Magarey, dean, Faculty of Medicine, and professor of pathology, University of Sydney, Australia: to observe developments in medical education and particularly pathology in the United States; \$2,250;

Dr. Charles Henry Gurd, teacher and physician, Medical School and Medical Services of the Fiji Government, Suva: to observe developments in medical education and cardiology in the United States; \$2,200;

Miss Nancy Joan Kinross, scholar, British Commonwealth Nurses' War Memorial Fund, Wellington, New Zealand: to observe nursing education at schools of nursing in the United States and Canada; \$1,950;

Dr. John Borrie, senior lecturer in thoracic surgery, Faculty of Medicine, University of Otago, Dunedin, New Zealand: to observe recent advances in thoracic surgery and methods of postgraduate teaching while in the United States; \$1,690;

Hokkaido University, Sapporo, Japan: development of laboratory teaching, particularly in physiology, in the School of Medicine, under the direction of Dr. Katsuo Takeda, dean, and Dr. Bunichi Fujimori and Dr. Shinji Itoh, professors of physiology; \$10,000;

Yoshinari Tsuda, chief medical librarian, Keio University, Tokyo, Japan: to observe library organization and practice at medical libraries while in the United States; \$1,900;

Dr. Jun-ichi Tomizawa, National Institute of Health, Tokyo, Japan: to observe recent developments in microbiology at centers in Europe while en route back to Japan from the United States; \$1,900;

Osaka University, Japan:

Kazuo Fujii, chief librarian, Medical School; to observe library organization and practice at medical libraries in the United States; \$3,450;

Dr. Kenjiro Shoda, president, and Mrs. Shoda; to observe administrative procedures and the teaching of mathematics at universities in the United States and Canada while en route from Mexico to Japan; \$1,975;

Dr. Isao Yamane, Bacteriological Division, Institute for Tuberculosis and Leprosy, Tohoku University, Sendai, Japan: to visit centers of microbiology while in the United States; \$750;

University of Tokyo, Japan:

Dr. Kenji Uraguchi, professor of pharmacology, Division of Health Care and Nursing, Faculty of Medicine; to observe nursing education and research in experimental toxicology at nursing schools and pharmacology research centers in the United States and Canada; \$4,000;

Dr. Ryoichi Fujii, associate professor and head, Department of Pediatrics, Faculty of Medicine; to visit centers of nursing education in the United States; \$1,100.

Medical Care

HARVARD UNIVERSITY

STUDY OF MEDICAL CARE

In recent years an increasing amount of attention has been devoted to the quantitative aspects of medical care in the United States—the number of physicians and nurses needed, requirements for additional physical facilities, and, perhaps most of all, methods of meeting steadily rising costs. Insufficient consideration, however, has been given to the quality of medical care and ways to maintain and improve it. Relatively little is known, for example, about the extent to which doctors maintain the high standards of their medical school and hospital training once they are launched in private practice. Information on this critical point should be available to guide the efforts that are being made to meet the quantitative demands of medical care.

Harvard University is now inaugurating a study of the caliber of care given patients by both specialists and general practitioners similar to the study of general medical practice in North Carolina made a number of years ago with Rockefeller Foundation assistance. The work will be carried on in the Department of Preventive Medicine of the Harvard Medical School, Boston, Massachusetts, under the leadership of Dr. Osler L. Peterson, Assistant Director for Medical and Natural Sciences at the Foundation, who also directed the North Carolina project.

Among the studies that will be made are an analysis of physicians' competence in terms of the quality of their hospital training, and an investigation of surgical competence in which the types of operations performed will be compared with the training of the surgeon. The motivations of medical students when they choose their schools and types of practice, and the possible influence of such factors as premedical edu-

cation, finances, and marriage, will also be assessed. Relationships between doctor and patient and participation in refresher courses for practicing physicians are other topics that will be examined.

To help support the new Harvard project, The Rockefeller Foundation has appropriated \$125,000, available during a three-year period.

Experimental Medicine

NATIONAL COUNCIL OF SCIENTIFIC AND TECHNICAL RESEARCH, ARGENTINA

MEDICAL RESEARCH

The National Council of Scientific and Technical Research, Buenos Aires, Argentina, founded in 1958 as a base for the development of Argentine science and technology, awards fellowships, encourages research in undeveloped areas, and supports scientific projects. Since its origin the council has awarded nearly 300 fellowships to young scientists for advanced study in major universities in Latin America and abroad.

Through its fellowship program, the council is developing academic personnel as rapidly as possible to staff Argentine universities. By providing adequate equipment and upgrading salaries, it also seeks to attract senior Argentine scientists to universities where they may continue their research and training activities. As a means of maintaining communications between Argentine scholars and their colleagues abroad, the council has provided funds to enable scientists to attend international meetings and to purchase scientific journals.

The Rockefeller Foundation has made a two-year appropriation of \$150,000 for laboratory equipment to help support the medical research of approximately 30 fellows returning to Argentina. A sum of 50,000,000 pesos or about \$625,000 will be provided by the government to finance new teaching and research positions for the returning fellows.

UNIVERSITY OF CHILE

MEDICAL RESEARCH PROJECTS

Now operating with expanded physical facilities, a professional staff numbering more than 500, and a higher proportion of full-time teachers, the Faculty of Medicine at the University of Chile has stepped up its research activities to include projects covering a wide range of studies in physiology, biology, biochemistry, and pharmacology.

For a number of years the Faculty of Medicine has had a good record of productive research in many of its departments, in both the basic and clinical sciences. Progress is being made in studies of embryological development through histochemical techniques, and of the physiological action of morphine and other alkaloids. Staff members have also contributed vital knowledge to the field of *Drosophila* genetics.

The Government of Chile has assisted the development of the medical faculty with large budgetary appropriations, of which a substantial amount has been earmarked for direct support of research. To help purchase essential equipment and supplies abroad, \$100,000 has been granted by The Rockefeller Foundation for use over a three-year period.

The funds are being disbursed by the faculty's Research Committee, composed of ten senior professors charged with determining priorities among projects proposed by investigators in the faculty. Projects are approved after careful review by subcommittees in the basic and clinical sciences.

UNIVERSITY OF VALLE

FACULTY OF MEDICINE

A substantial number of the world's people live in tropical rain forests or similar environments, but as a rule the medical centers capable of studying their health problems are not located close to them. An exception is the Faculty of Medicine of the University of Valle at Cali, near Colombia's western coast. Over the last few years members of the faculty have been making field trips into the forest area, a large and scientifically unexplored section of the Cauca Valley, to collect specimens for study. But excessive rainfall and lack of roads have made access to the dispersed population of fishermen and miners difficult and time consuming, and detailed studies of human disease and the fauna of the area a practical impossibility.

To overcome these difficulties the University of Valle is establishing a field station on the coast at Buenaventura. There members of the Faculty of Medicine will conduct preliminary investigations of viral, bacterial, fungal, and entomological specimens, as well as pathological studies of the population in the area. A government hospital nearby will be able to supply services and facilities for examination of patients brought in from the field.

A second research program will be undertaken by the faculty in Cali. Members of the departments of surgery, radiology, and pathology will cooperate in clinical studies in gastroenterology, including work on the physiopathological factors in ulcer production and the chemotherapy of inoperable carcinomas of the gastrointestinal tract.

A \$96,000 Rockefeller Foundation grant, available during the period ending July 31, 1963, will finance the field laboratory and the clinical research program. The new appropriation brings Foundation grants to the University of Valle to a total of \$1,201,174.

NATIONAL UNIVERSITY OF MEXICO

CHEMISTRY RESEARCH PROGRAM

The National University of Mexico, Mexico City, is expanding research activities in its Institute of Chemistry, concentrating on the study of natural product chemistry. Mexico's varied climates produce a wide range of flora that provides excellent opportunities for this field of research. These plants are analyzed for terpenes, alkaloids, and glucosides which may be biologically active.

Established 19 years ago, the institute has developed into one of Latin America's leading centers for research and training in all phases of chemistry. Among other studies, researchers are attempting to define the structural formulas of biologically important compounds and to synthesize them in the laboratory. An interesting recent development has led to an increasing appreciation of the significance for genetics of related plants which can be differentiated only on the basis of intrinsic chemical variations in their terpenes and alkaloids.

Emphasis is also placed on organic synthesis of other natural products which may have significance in medicine, particularly steroids and hormones. The staff of the institute includes 18 full-time investigators who collaborate in teaching chemistry in the Hospital for Nutritional Diseases, the National School of Medicine, and the Faculty of Sciences at the university.

Dr. Alberto Sandoval L., director of the institute, has been a leader in advancing the study of chemistry in Mexico. His contributions to natural product chemistry attracted first-rate scientists to the institute, which made it possible for the university to establish complete graduate training programs in the field. The Rockefeller Foundation has made a three-year grant of \$60,000 to help further research activities at the institute.

OTHER GRANTS

Makerere College, Kampala, Uganda: research equipment for a biochemistry laboratory in the Department of Pathology, Medical School; \$18,000 through December, 1961;

University of São Paulo, Brazil: research in the Laboratory of Experimental Endocrinology of the Department of Physiology, Faculty of Medicine; \$18,000 through December, 1962;

Royal North Shore Hospital, Sydney, Australia: research in the Institute of Medical Research, under the direction of Dr. F. F. Rundle and Dr. M. R. Lemberg; \$10,000;

American University of Beirut, Lebanon: research on connective tissue disorders, under the direction of Dr. Amal K. Kurban, instructor in medicine, Faculty of Medical Sciences; \$8,500;

Royal Children's Hospital, Melbourne, Australia: research in pediatrics, under the direction of Dr. J. W. Perry and Dr. D. B. Cheek; \$8,500;

Tohoku University, Sendai, Japan: equipment and supplies for research, in the Medical School, on intestinal malabsorption, under the direction of Dr. Shoichi Yamagata, professor of internal medicine, and Dr. Makoto Ishikawa, senior assistant; \$8,000;

University of Valle, Cali, Colombia: research in the Departments of Physiology and of Medicine, Faculty of Medicine; \$7,650;

Dr. Lester Breslow, chief, Bureau of Chronic Diseases, California Department of Public Health, Berkeley: to participate in an international epidemiological symposium in Prague, Czechoslovakia, and to observe developments in chronic disease epidemiology in Europe; \$2,200;

Dr. P. N. Chhuttani, professor of clinical medicine, Government Medical College, Amritsar, India: to observe gastroenterological research at medical centers in the United States while en route from Canada to India; \$1,140.

The Biological Basis of Behavior

UNIVERSITY OF MELBOURNE

RESEARCH IN EXPERIMENTAL PHYSIOLOGY

Although great progress has been made in recent years in elucidating the regulatory action of the adrenal hormones and other factors on salt and water balance, laboratory investigations have been handicapped by the physical and emotional disturbance they cause in the experimental animals. A unique modification in experimental procedure has, however, been developed by physiologists under the direction of Dr. Derek A. Denton at the University of Melbourne, Australia.

The technique makes use of the large neck folds of the Merino sheep as a transplant site for its adrenal gland. In the sheep's neck the gland is connected with the carotid artery and the jugular vein, so that the investigator is able to alter locally the flow and composition of the arterial blood and to measure the hormone and other constituents of adrenal venous blood directly and with a minimum of disturbance to the animal. Concurrently, through a permanent fistula in the salivary gland, the amount and variation in electrolyte loss can be quantitatively followed.

Using the new technique, the Melbourne physiologists have discovered that the animal possesses a remarkable ability to regulate its appetite for salt promptly and precisely in accordance with salt deficit even before the salt has had time to reach the blood stream. Other findings have been made concerning the roles of sodium and potassium, the central nervous system, and an important new humoral agent in adrenal secretion.

A two-year grant of \$113,000 from The Rockefeller Foundation will help defray the costs of a new building

required to provide ample quarters for long-term studies of chemical regulation and behavior in animals the size of Merino sheep.

KYOTO UNIVERSITY

BEHAVIOR STUDIES

In several frequently fatal virus infections, yellow fever and the recently discovered Kyasanur Forest disease, monkeys apparently are involved in both maintaining and spreading the infection. Yet very little information is available concerning the monkeys' exact role in the life cycle of the viruses. Until more is known about the social structure, behavior patterns, and migratory habits of the species of monkeys associated with the diseases, major questions relating to the extent to which they participate in the spread of disease, the nature of this spread, and possible means of controlling it, cannot be answered.

A group of Japanese scientists led by Dr. Denzaburo Miyadi at Kyoto University have devised particularly effective techniques for studying the behavior of wild monkeys. At the invitation of Indian researchers, they will now conduct field studies of two species of monkeys in Mysore State, India, where Kyasanur Forest disease was found. Their investigations will cover the basic social structure of groups, communication between individuals and groups, personality development, innate or instinctive behavior, and learning. A Rockefeller Foundation grant of \$37,000 to Kyoto University will help finance the work over a two-year period.

OTHER GRANTS

Free University of Brussels, Belgium: research in neurophysiology, under the direction of Professor Frederic Bremer; \$12,000 for a two-year period;

Andhra Medical College, Visakhapatnam, India: research in physiology in the Department of Physiology, under the direction of Dr. P. Brahmayya Sastry; \$10,000;

California Institute of Technology, Pasadena: a symposium on cerebral systems and computer logic, held during the spring of 1960; \$10,000;

Kyoto Prefectural University of Medicine, Japan: research in physiology, under the direction of Dr. Hisato Yoshimura, professor of physiology; \$10,000;

Kyushu University, Fukuoka, Japan: research in physiology, under the direction of Dr. Masayosi Goto, professor of physiology; \$10,000;

Osaka City University, Japan: research expenses and equipment for research on the neurophysiology of vision in the Department of Physiology, Medical School, under the direction of Dr. Taro Furukawa, assistant professor; \$10,000;

Osaka University, Japan: research in neurophysiology, under the direction of Professor Naosaburo Yoshii; \$10,000;

University of Antioquia, Medellín, Colombia: equipment for teaching and research in neurophysiology in the Department of Physiology, Faculty of Medicine; \$10,000;

University of the Republic, Montevideo, Uruguay: equipment for research in the Institute of Neurology; \$10,000;

Academy of Medicine, Warsaw, Poland: research equipment for the Institute of Physiology; \$8,000;

University of Graz, Austria: equipment for research in physiology and animal behavior at the Institute of Zoology; \$8,000;

University of Turku, Finland: research equipment for the Institute of Physiology; \$8,000;

University of Genoa, Italy: equipment for research in neurophysiology, under the direction of Dr. G. F. Rossi; \$7,500;

Austrian Academy of Sciences, Vienna: research on animal behavior at the Wilhelminenberg Biological Station, under the direction of Dr. Otto Koenig; \$6,000;

University of Vienna, Austria: equipment for research in neurophysiology, under the direction of Professor F. Brücke; \$5,000;

University of El Salvador, San Salvador: research in the Department of Physiology, School of Medicine; \$4,900;

University of Otago, Dunedin, New Zealand: research in the Department of Physiology, Faculty of Medicine, under the direction of Professor Archie McIntyre; \$2,500;

University of Buffalo, New York: to invite Dr. Stepan Figar, Czechoslovak Academy of Sciences, Prague, to visit laboratories concerned with neurophysiology, neurology, and related fields while in the United States; \$600;

Polish Academy of Sciences, Warsaw: equipment for research in neurophysiology at the Nencki Institute of Experimental Biology, under the direction of Professor J. Konorski; \$550.

General Biology

OBERLIN COLLEGE

NATURAL SCIENCE BUILDING

Oberlin College, Ohio, fourth among the top 50 liberal arts schools in the number of graduates who go on to earn doctoral degrees, particularly in scientific pursuits, is taking steps to maintain its standing in the sciences through the construction of a new building for the departments of chemistry, zoology, and botany.

The new building will replace inadequate laboratories now housed in quarters which date back 70 years. Not only are the laboratories unsuitable for undergraduate studies but they are in general poorly adapted to the faculty's research program.

Oberlin, like many small private colleges, does not have sufficient endowment to provide the facilities and equipment necessary for research. These schools must, however, possess such facilities if they are to attract and hold the teachers who will maintain their excellent educational standards.

The cost of the new building is estimated at \$2,500,000 of which \$724,000 will be for the part used directly for research. An additional \$26,000 is needed for equipment and research installations.

The Rockefeller Foundation has appropriated \$375,000 to pay for one-half of the research component, payable when the construction is assured.

POPULATION COUNCIL, INC.

COOPERATIVE PROGRAM ON POPULATION PROBLEMS

Incorporated in 1952 to encourage, conduct, and support activities in the broad area of population, the Population Council, Inc., New York, has won respect internationally for its efforts to advance knowledge, understanding, and objectivity in the field. Members of the council's staff, supplemented occasionally by scholars from other institutions, carry out studies on demographic trends and on the physiology of reproduction. The council also supports the researches of other specialists in these two fields, and maintains, with Rockefeller Foundation assistance, a fellowship program under which candidates from Asia, Latin America, the Middle East, and Africa are being trained to deal with both the medical and demographic aspects of population problems in their own countries.

The Population Council is receiving an increasing number of requests for advice and assistance from the governments of nations where rapid population growth is causing much concern to those charged with responsibility for guiding economic development. To deal adequately with these in-

quiries, the council has been forced to call upon other organizations for the temporary services of the relatively few specialists in the field.

Under a new arrangement between the council and the Johns Hopkins University School of Hygiene and Public Health, the university will add to its staff a number of experts in population problems who will be regularly available for assignments with joint council-government projects in other countries. The new staff members, who will include an associate professor with field experience in the medical aspects of maternal and child health, a social anthropologist, and a statistician, will be assigned to the Division of Maternal and Child Health, which for some time has had a special interest in population problems.

As a contribution to the expenses of the expanded Johns Hopkins University faculty, The Rockefeller Foundation has appropriated \$250,000 to the Population Council. The funds will also help finance the council's expanded research and consultation services over the next five years.

UNIVERSITY COLLEGE OF RHODESIA AND NYASALAND

DEPARTMENT OF ZOOLOGY

Established in 1955 by the people of the Federation as a multiracial institution to educate all races for citizenship and to provide information for the continued development of the country and of Africa as a whole, the University College of Rhodesia and Nyasaland, Salisbury, has focused its research efforts primarily on problems of local importance. Among the most urgent of these are the serious diseases affecting the population and others that limit the production of livestock.

The staff of the college's Department of Zoology have been carrying on investigations of great potential importance to the control of two major unconquered diseases—sleeping

sickness and bilharziasis—that are still barriers to the development of the African economy. Although considerable data have been obtained about the vectors of the diseases and about the mode of transmission, little has yet been done to bring together available information in a coherent control program that takes every factor into consideration.

Among the relevant researches in progress at the University College are studies of the metabolism and response to light of tsetse flies, the vectors of sleeping sickness, which may help explain the factors conditioning the behavior of the insects in the field, presumably during the time they transmit the disease. Of comparable importance to control measures for bilharziasis are investigations concerned with the ecology of the shallow ponds in which vectors breed, and the role of snails, the vectors of bilharziasis, in transmitting trematode parasites of fish. Research on factors conditioning oviposition of Red Locust, also under way in the department, may prove valuable to the development of control measures against this serious agricultural pest.

To make possible a more extensive research program concerned with biological phenomena important to public health and agriculture in the Federation, the University College is now planning to increase its technical staff, accept a larger number of research fellows, and improve its facilities. To help finance this development, The Rockefeller Foundation has appropriated 75,000 Rhodesian pounds (about \$213,750) for use through 1965.

CARLETON COLLEGE

DEPARTMENT OF BIOLOGY

Carleton College, Northfield, Minnesota, ranked seventh on a list of 50 superior schools compiled after a 1953 Knapp and Greenbaum survey aimed at evaluating the contributions made by liberal arts colleges to the pool of trained

scientific manpower and to scholarly work in general. The survey used as its main criterion the proportion of students from each college who later undertook advanced study. In recent years, more than half of Carleton's alumni have attended graduate or professional schools, and of these about one-third went into the sciences. In the last 20 years, 54 per cent of the Ph.D. degrees earned by Carleton graduates have been in the sciences.

Since World War II a modern experimental and teaching laboratory has been developed for the college's biology department where important studies are being conducted in a variety of fields. The quality of research in all of Carleton's scientific departments is indicated by the financial support (about \$100,000 per year in grants) received from private and government sources for specific projects.

At present Carleton is working on the improvement and modernization of research facilities for the biological and physical sciences, currently housed in a structure dating back to the turn of the century when the school was approximately one-third its present size. In 1958 the Olin Foundation gave Carleton \$1,500,000 for a new biology and physics building. Still needed are modern research equipment of both a basic and a specialized nature and a reserve fund guaranteeing salaries for young graduates working in teaching laboratories. The Rockefeller Foundation has made an outright appropriation of \$175,000 to help fill these needs.

UNIVERSITY OF CHICAGO

BOTANY AND ZOOLOGY-PSYCHOLOGY LABORATORIES

In recent years a number of interdisciplinary studies of animal behavior have taken place at the University of Chicago. These investigations, in which the approaches of the zoologist and the experimental psychologist have been

fused, have involved the observation of natural behavior patterns under controlled laboratory conditions. Perhaps the most famous of these has been the study of the social relations of fowls which added the picturesque phrase "pecking order" to everyday language.

Members of the university's Departments of Zoology and Psychology are now planning new studies of maturation and learning, for which the university will construct laboratories to house animals over the long periods of time necessary to observe these processes.

Similar ecological studies are to take place in the university's botany department. Here a controlled-environment laboratory is to be constructed which will enable botanists to maintain year-round control of temperature, humidity, and diurnal light cycles for investigations of dormancy, "bud-break," and leaf abscission in woody plants; the ecology of grasses; mineral nutrition and the mechanism of blossoming; and periodicity, growth patterns, and reproduction in algae.

Construction of both laboratories will be partially supported by an outright grant of \$75,000 from The Rockefeller Foundation. Previous Foundation appropriations to the University of Chicago for research in the biological sciences total \$2,252,150.

UNIVERSITY OF PALERMO

INSTITUTES OF ZOOLOGY AND COMPARATIVE ANATOMY

Two biologists at the University of Palermo, each head of his own institute, collaborate actively in research aimed at probing more intimately into the processes whereby the fertilized egg develops into a complex living organism made up of many different tissues and organs. Professor Giuseppe Reverberi, the comparative embryologist, and his colleagues

at the Institute of Zoology have discovered, among other things, that in certain types of eggs the most active organs develop from sections where the mitochondria, bodies supplying the cell with most of its usable energy, are more highly concentrated.

Professor Alberto Monroy, a comparative anatomist, has been tracing the formation of proteins in the embryo with isotope-labeled methionine and has shown that even before fertilization the methionine is rapidly taken up by the egg to be stored in its nonprotein pool or converted into the peptide, glutathione. Within 15 to 30 minutes after fertilization this activity of the nonprotein pool declines while uptake by the mitochondria and microsomes greatly increases. The isotope-labeled compound is not incorporated into peptide linkages of these bodies, however, until the third or fourth hour after fertilization, after which synthesis of mitochondrial proteins proceeds exponentially. The Monroy group in the Institute of Comparative Anatomy is still seeking for an explanation of what happens during this long period of delay.

Both professors' research has been supported since 1958 by The Rockefeller Foundation. A 1960 grant of \$55,000 will assist their work in experimental embryology and developmental physiology for five more years.

MARINE BIOLOGICAL ASSOCIATION OF
THE UNITED KINGDOM

MARINE BIOLOGICAL LABORATORY

Devoted to fundamental studies of life in the sea, the Marine Biological Laboratory at Plymouth, England, has long been an outstanding independent center for research in the field of marine biology. Seventeen full-time staff members and over 150 guest investigators use the extensive research

laboratories and the excellent library noted for its collection of current scientific journals and periodicals. The laboratory's fleet of research vessels, originally consisting of two ships for in-shore gathering of marine specimens, now includes the 318-ton, 128-foot *Sarsia* which has a cruising range of 3,000 miles and is equipped for deep-sea work.

Dr. Frederick S. Russell, co-author of a classic work in marine biology, *The Seas*, is director of the laboratory and lately has been emphasizing studies dealing with the biochemical and physiological aspects of marine biology. One study in this field now under way at the laboratory concerns photoreceptor mechanisms as a means for understanding the underlying biological significance of bioluminescence.

The laboratory's researches will be facilitated by more modern equipment to be purchased with the help of a \$30,000 grant from The Rockefeller Foundation. The grant, available for two years, was made during 1960 to the Marine Biological Association of the United Kingdom for the laboratory's use.

UNIVERSITY OF BERGEN

BIOLOGICAL STATION

The University of Bergen, Norway, is converting portions of its Biological Station at Espegrend into permanent living quarters for guest investigators. Visiting scientists currently reside in space needed for laboratory work.

Norway's chief laboratory for basic marine research and for the training of young men in the chemistry and biology of the sea, the station is located several miles south of Bergen at Espegrend where it has occupied a reconverted estate since 1958.

Although it includes excellent laboratories, new equipment, and a modern research vessel for work in the open sea and deep fjords, lack of permanent accommodations for

scientists has hindered research activity. The Rockefeller Foundation has made an outright grant of 165,000 Norwegian crowns (about \$23,265) to meet half the cost of installing dormitory, kitchen, and dining room facilities at the station, the balance having been provided through a special grant from the Norwegian government.

The appropriation will also help the station convert space now used for residence back into laboratories. Norway's development of the Espegrend station is part of a collaborative effort in marine biology which has been organized among the Scandinavian countries.

UNIVERSITY OF SÃO PAULO

LABORATORY FOR CELL PHYSIOLOGY

The Laboratory for Cell Physiology at the University of São Paulo is one of the outstanding research centers in the field in South America. Its publications, which appear largely in American and European journals, have attracted international attention. Among its studies are those of Dr. Ivan Mota on mast cells and those of Dr. Jose Ferreira Fernandes on the enzyme system of the human parasite *Schistosoma mansoni*, and on pancreatic protein synthesis.

The laboratory is also a principal training center for Brazilian teachers of histology and embryology under the auspices of CAPES (Campaign for the Improvement of Higher Education Personnel) as well as for postdoctoral fellows from other South American countries.

The work of the laboratory will be assisted over the next three years by a \$21,000 Rockefeller Foundation grant. Since 1948 the Foundation has made a total of \$86,900 available to the laboratory, some of which has supported recently added research in organic chemistry and work with radioactive isotopes. Four of the laboratory's members have been trained abroad under Rockefeller Foundation fellowships.

FACULTY OF PHILOSOPHY, SCIENCES,
AND LETTERS OF RIO CLARO

RESEARCH IN ZOOLOGY AND GENETICS

At the Faculty of Philosophy, Sciences, and Letters of Rio Claro, one of ten faculties established by the State Government of São Paulo, Brazil, Professor Warwick E. Kerr leads members of the Department of Natural History in studies on a variety of topics in modern experimental biology. Major emphasis is being given investigations of the physiology, cytology, ecology, and genetics of bees, as well as of certain aspects of their behavior, including communication among workers of stingless varieties, food gathering, the division of labor, and the biology of reproduction. In addition, Professor Kerr is supervising work on the induction of mutations in fowl through blood injections, and on the breeding and selection of eucalyptus trees.

A \$20,000 appropriation from The Rockefeller Foundation will support the research over the three-year period that began June 1, 1960.

OTHER GRANTS

University of Copenhagen, Denmark: equipment and library materials for the Marine Biological Institute, Elsinore; \$15,000 for a two-year period;

University of Miami, Florida: research in marine biology; \$15,000;

Hokkaido University, Sapporo, Japan: research in the Department of Chemistry, under the direction of Dr. Koichi Yagi, assistant professor; \$10,000;

Kyoto University, Japan: equipment and supplies for research on tissue culture in the Department of Anatomy, under the direction of Dr. Michio Okamoto, professor of anatomy, and Dr. Kazuo Ogawa, instructor in anatomy; \$10,000;

Ochanomizu University, Tokyo, Japan: equipment and supplies for research and teaching in the Department of Biology, under the direction of Dr. Jean Clark Dan; \$10,000;

Technological Institute of Veracruz, Secretariat of Public Education, Mexico: development of research in marine biology, under the direction of Jorge Carranza F., director, Marine Biological Station; \$10,000;

University of Antioquia, Medellín, Colombia: equipment for the Department of Biology, Faculty of Medicine; \$10,000;

University of Edinburgh, Scotland: equipment for research in plant physiology in the Department of Botany; \$10,000;

University of Paraná, Curitiba, Brazil: research in the Department of Zoology, Faculty of Philosophy, under the direction of Professor Jesus S. Moure; \$10,000;

University College of Rhodesia and Nyasaland, Salisbury: studies, in the Department of Zoology, of the biology of ticks; \$8,700;

University of Melbourne, Australia: research in zoology and physiology in the Department of Zoology, under the direction of Dr. Geoffrey Burnstock, senior lecturer; \$8,000;

University of London, England:

Equipment for research in plant physiology in the Department of Botany, Queen Mary College; £2,700 (about \$7,700);

Dr. Douglas Somerville Bertram, professor and director, Department of Entomology, London School of Hygiene and Tropical Medicine; to observe research on insect-borne diseases at centers of medical entomology in Egypt, India, Pakistan, and Ceylon; \$2,500;

University of Auckland, New Zealand: research in marine biology, under the direction of Dr. Valentine J. Chapman, professor of botany; \$6,600;

Harvard University, Cambridge, Massachusetts:

Research on creativity, under the direction of Dr. Jerome Bruner, Laboratory of Social Relations; \$6,000;

Dr. John H. Welsh, professor of zoology; to visit centers of research in physiology in Latin America; \$1,500;

Indian Cancer Research Centre, Bombay: scientific equipment and supplies; \$6,000 for a three-year period;

Jagiellonian University of Cracow, Poland: research equipment for use in the Institute of Comparative Anatomy, under the direction of Professor Z. Grodziński; \$5,000;

University of Oslo, Norway: research in neuroanatomy at the Anatomical Institute, under the direction of Professor Jan Jansen; \$5,000;

Dr. Alberto Monroy, professor of comparative anatomy, University of Palermo, Italy: to observe research in embryology and cytology at institutions in the United States, Japan, and India, and to participate in a research project at Nagoya National University, Japan; \$3,270;

Lovanium University, Leopoldville, Congo: equipment for the Department of Anatomy and Histology, Faculty of Medicine; \$2,460;

British Museum (Natural History), London, England: preparation of a monograph on the *Anopheles* of Malaya, by Dr. John A. Reid: £750 (about \$2,175);

Carlsberg Foundation, Copenhagen, Denmark: equipment for research in cytophysiology, in the Institute of Biology, under the direction of Dr. Erik Zeuthen; \$2,000;

University of Ljubljana, Yugoslavia: equipment for research in the Institute of Pathophysiology, under the direction of Professor A. O. Zupancic; \$1,500;

Polish Academy of Sciences, Warsaw: research equipment for the Institute of Experimental Zoology, Cracow; \$1,100;

Dr. Norman Alan Burges, professor of botany, Hartley Botanical Laboratories, University of Liverpool, England: to visit laboratories of biology and soil microbiology while in the United States; \$720;

Institute of Science, Bombay, India: to meet unanticipated increased costs of equipment provided under a 1959 grant for research in cytology in the Department of Zoology, under the direction of Dr. N. B. Inamdar; \$510;

Fund for grants of amounts not exceeding \$500 for allocation under the supervision of the Foundation's Director for Medical and Natural Sciences; \$10,000.

Genetics

NATIONAL CENTER OF SCIENTIFIC RESEARCH, FRANCE

LABORATORY OF PHYSIOLOGICAL GENETICS

Since World War II, the French National Center of Scientific Research has developed a complex of institutions for basic biological and chemical research at Gif, some 20 miles from Paris. At one of the member units, the Laboratory of Physiological Genetics, researchers are using all the tools of modern biochemistry to explore problems of heredity.

Directed by Professor Boris Ephrussi, work is in progress on transformations in bacteria induced by nucleic acid, the analysis of nuclear and cytoplasmic factors controlling the synthesis of respiratory enzymes in yeasts, and the nature and mode of action of factors tending to block the synthesis of various enzyme systems. Other investigations at the laboratory concern biochemical mutants in certain fungi and algae. Professor Ephrussi is well known for his many important contributions to genetics over the years, and his

laboratory attracts numbers of young foreign investigators who come from many countries to participate in the research program.

The work of the laboratory will be assisted over a three-year period by a Rockefeller Foundation grant of \$47,000.

UNIVERSITY OF LONDON, UNIVERSITY COLLEGE

RESEARCH IN HUMAN GENETICS

At the Galton Laboratory of University College, University of London, England, Professor L. S. Penrose has directed distinguished research on such problems as the genetic analysis of hereditary characteristics, mutation rates in man, the inheritance of metabolic defects, and a method for precise mapping of human chromosomes. Professor Penrose, who is a pioneer in the field of human genetics, and his associates have also worked on a theoretical analysis of the replication of deoxyribonucleic acid, the chemical substance by which inherited characteristics are transmitted. Most recently, they have made contributions to a new technique for cytological study of human chromosomes which has attracted widespread interest and has thrown important light on the genetic mechanisms involved in a number of hereditary diseases, such as mongolism.

The laboratory, which is also a major training center for young investigators in human genetics, has received a \$43,500 Rockefeller Foundation grant for its work over a five-year period.

TEL HASHOMER GOVERNMENT HOSPITAL, ISRAEL

RESEARCH IN HUMAN GENETICS

Favism, an anemia produced in certain individuals who eat the fava bean, has existed in the Mediterranean basin since the time of Pythagorus, who, it is reported, chose to be

captured and slain rather than set foot in a fava bean field lying in his path of flight from his enemies. Lately favism has been investigated in Israel, whose ethnically varied population provides unusual opportunities for research in human genetics; there Dr. Chaim Sheba, director and chief of the Department of Medicine of the Government Hospital, Tel Hashomer, has conducted some interesting work on this disease.

Both favism and anemia caused by certain widely used drugs, including sulfonamides and a class of antimalarial agents, are associated with a deficiency of the enzyme, glucose-6-phosphate dehydrogenase. The defect was first found in the red blood cells of American Negroes, and now researchers at the Government Hospital have demonstrated that in Jewish populations the deficiency occurs not only in red cells but in white blood cells, platelets, saliva, and liver and skin cells. It thus appears that two separate genetic mechanisms are involved, and further work is in progress on this point.

Research in human genetics will be conducted for another three years by Dr. Sheba and his group with the help of a Rockefeller Foundation grant of \$30,000 made to the Government Hospital in 1960.

OKAYAMA UNIVERSITY

RESEARCH ON THE GENETICS OF ACATALASEMIA

In 1947 a Japanese surgeon operating on a child with oral gangrene observed that hydrogen peroxide applied to the lesion did not foam in the normal manner. The surgeon, Dr. Shigeo Takahara, later demonstrated that this arose from a rare, hereditary abnormality, an absence of catalase in the blood and body tissues. Catalase, which specifically catalyzes the decomposition of hydrogen peroxide, is normally found in all cells except certain bacteria.

In subsequent investigations Dr. Takahara and his co-workers found 53 cases of acatalasemia, the absence of catalase, in 25 families from various parts of Japan. Studies of hypocatalasemia, in which catalase is present but in reduced amounts, revealed that it occurs 500 times more frequently among an isolated group with a high rate of consanguineous marriage than it does among a general population. It has been found only among Japanese families and among North Koreans living in Japan.

Dr. Takahara and his associates have received a three-year grant of \$23,000 from The Rockefeller Foundation to continue their studies of hypocatalasemia and acatalasemia. They will attempt to determine the occurrence of these abnormalities in fairly large cross-sections of the population in several areas and to follow up positive cases. These studies should provide a ready means for checking the distribution of a genetic trait in population groups and for determining how well genetic prediction corresponds to observed facts. Dr. Takahara's group will also continue and expand immunological and biochemical studies on the nature of the chemical defect in acatalasemia.

OTHER GRANTS

University of London, England: research in human biochemical genetics, under the direction of Professor Harry Harris, King's College; £7,000 (about \$20,000) for a two-year period;

University of Geneva, Switzerland: research in human genetics; 42,000 Swiss francs and \$2,500 (a total of about \$12,500) for a three-year period;

Juntendo University, Tokyo, Japan: research on the genetics and anthropology of selected Japanese families, under the direction of Professor Kozi Tsubaki; \$10,000;

University of Adelaide, Australia: research on "kuru," an unusual

neurological disease, under the direction of Professor J. H. Bennett and Professor H. N. Robson; \$10,000;

University of the Andes, Bogotá, Colombia: equipment and supplies for use in the research program of the Section of Genetics, under the direction of Dr. Hugo Hoenigsberg; \$10,000;

University of Turin, Italy: research in human genetics, under the direction of Acting Professor Ruggero Ceppellini, director, Department of Medical Genetics; \$10,000;

University of Copenhagen, Denmark: research in genetics in the Institute of Genetics, under the direction of Professor Mogens Westergaard; \$9,000 for a three-year period;

University of Wisconsin, Madison: research on the genetics of Eskimos, under the direction of Professor William S. Laughlin, Department of Anthropology; \$8,000;

University of Stockholm, Sweden: equipment for the Institute of Genetics; \$6,500;

University of Parma, Italy: research in human genetics, under the direction of Acting Professor L. L. Cavalli-Sforza; \$5,800 for a 15-month period;

University of Warsaw, Poland: research equipment and materials for use in the Institute of Genetics, under the direction of Professor W. Gajewski; \$4,000;

University of Pavia, Italy: research on the genetics of the housefly at the Institute of Zoology; \$3,000;

B. J. Williams, Departments of Anthropology and of Human Genetics, College of Literature, Science, and the Arts, University of Michigan, Ann Arbor: to carry out, in India, a study in population genetics and anthropology; \$2,090;

University of Naples, Italy:

Dr. Corrado Baglioni, Institute of Genetics, and currently visiting lecturer, Department of Biology, Division of Biochemistry, Massachusetts Institute of Technology, Cambridge; to

visit centers of research in human genetics and protein chemistry while in the United States; \$900;

Dr. Marcello Siniscalco, assistant professor, Institute of Genetics; to accept an appointment as visiting lecturer at the Massachusetts Institute of Technology, Cambridge, and to visit laboratories at other institutions while in the United States; \$750;

Dr. Benedetto Nicoletti, first assistant, Institute of Genetics, University of Rome, Italy; to visit centers of research and training in genetics while in the United States; \$750;

Dr. David A. Hopwood, Botany School, University of Cambridge, England; to participate in research at the laboratories of Professor Giuseppe Sermonti, Higher Institute of Health, Rome, Italy; \$700.

Biochemistry

HARVARD UNIVERSITY

CENTER FOR STUDY OF NUTRITIONAL DISEASES

As more has been learned about the underdeveloped areas of the world, the clearer it has become that nutritional deficiencies underlie many of the most serious causes of illness and death. Insufficiency either of total calorie intake or of an essential food substance may cause specific diseases, while relatively minor infections may prove dangerous or even fatal to a malnourished individual. Although laboratory investigation has now provided much information on the biochemistry and physiology of malnutrition, and dramatic advances in agriculture have brought adequate food production much nearer realization, not nearly enough is known about how to supply malnourished people with optimal amounts of the right foods at reasonable cost.

To remedy this serious deficiency, the Harvard University School of Public Health, Boston, Massachusetts,

and the University of Valle, Cali, Colombia, are cooperating in establishing a center in the underdeveloped but potentially rich Cauca Valley, in Colombia, where nutritional diseases can be studied on the spot and ways of overcoming them investigated. The center will be attached to the Valle Faculty of Medicine, a relatively new school dedicated to solving the health problems of its region. Harvard will provide consultants who will assist in planning and conducting surveys in the suburban and rural areas of the Cauca Valley, in giving dietary advice to the teaching hospital, and in establishing a school for dietitians that is expected to draw its students not only from Colombia but from other Latin American countries as well.

To help support the nutrition center during its initial years, The Rockefeller Foundation has appropriated \$90,000, available over a three-year period, to Harvard University.

KAROLINSKA INSTITUTE

RESEARCH IN ENZYME CHEMISTRY

A number of studies in enzyme chemistry are being conducted in the Department of Biochemistry of the Karolinska Institute in Stockholm. Work on the yellow enzymes and hemoproteins, for which the department's director, Professor Hugo Theorell, was awarded the Nobel prize in medicine in 1955, is continuing. Other studies involve the use of delicate methods of magnetic susceptibility to follow the chemical behavior of metal-containing enzymes. Recently members of Professor Theorell's group built their own electron spin resonance machine so that they can trace the formation and disappearance of free radicals in controlled enzyme reactions.

The present research program, however, is centered on investigations of respiratory enzymes, for which Professor Theorell and his associates have developed new meth-

ods of fluorimetry to follow rates of conversion of coenzyme I, one of the most important hydrogen carriers in biological oxidations and reductions.

For these and other enzyme studies, The Rockefeller Foundation has made a \$50,000 appropriation, available to the Karolinska Institute during the five-year period that began in March, 1960.

UNIVERSITY OF OXFORD

DEPARTMENT OF BIOCHEMISTRY

A group of more than 60 investigators in the Department of Biochemistry at the University of Oxford, England, collaborate actively on studies of cellular metabolism. Too numerous to function as a single team, they have, under the leadership of Nobel Laureate Sir Hans Krebs, become a group of teams, each led by able senior workers who have their own special skills and their own special interest in some particular area of biochemistry.

Professor Krebs' own team is concerned with the factors that determine the rates of individual metabolic processes and how they form a pattern appropriate to the living organism's needs and environment. They are studying the accumulation of ketone bodies in the liver, fat synthesis and degradation, and the active transport of solutes across the cell membrane. Other teams are studying the relation between vitamin B₁₂ and the growth factor, folic acid, in intermediary metabolism; how nucleic acids control the specific structure of proteins; and the primary biological effects of ionizing radiations. Still others are working on the identification of certain substances in human urine which may shed light on metabolism; the properties and functions of thiol and sulfide groups in the proteins insulin and hemoglobin; and the biosynthetic activity of intestinal mucosa.

Equipment, research materials, and the salaries of research assistants will be provided over a five-year period by a \$50,000 Rockefeller Foundation appropriation.

UNIVERSITY OF ROME

BIOCHEMICAL RESEARCH

At the Institute of Biological Chemistry of the University of Rome, Italy, Professor Alessandro Rossi-Fanelli and his associates have developed a number of new and promising ways of investigating the structure and function of the respiratory proteins, myoglobin and hemoglobin.

They have split the myoglobin and hemoglobin molecules into their heme and globin components and have then attempted to resynthesize the original compounds. These "artificial" myoglobins and hemoglobins are providing valuable information on the relation between structure and functional property, and on the ways in which different parts of the molecule may serve as transporters of oxygen. They have also approached these problems through work with a synthetic protoporphyrinogen which differs from natural hemoglobin in that it lacks the iron atom, and through the study of myoglobin obtained from a mollusk which does not have either hemoglobin or the related compound, hemocyanin, in its circulating body fluids.

For these and other studies in biochemistry at the institute The Rockefeller Foundation has appropriated 5,000,000 Italian lire and \$21,500 (a total of about \$30,000) for use over a four-year period.

INDIAN INSTITUTE OF SCIENCE

RESEARCH IN BIOCHEMISTRY

The Department of Biochemistry at the Indian Institute of Science, Bangalore, is regarded as one of the

leading centers in India. Strengthened by a full-time staff, most of whom have had training in recognized laboratories abroad, the department is headed by Dr. P. S. Sarma who is primarily concerned with nutritional biochemistry, particularly vitamin interrelationships.

Other faculty members are conducting important investigations on the chemistry of antibiotics, fat metabolism, biological oxidation, nucleic acid metabolism, and the chemistry of vitamin A. The Rockefeller Foundation is supporting these studies with an appropriation of \$28,500 available over a two-year period. Foundation funds will be used for stipends and to purchase equipment.

UNIVERSITY OF CAMBRIDGE

REPRODUCTIVE BIOCHEMISTRY

Growing world-wide interest in the problems of fertility and sterility has led to the realization that much more information is needed concerning the biochemical and physiological factors influencing fertility and reproduction. One of the foremost groups working in this field is that directed by Dr. T. R. R. Mann in Cambridge, England. Dr. Mann and his colleagues have made important contributions to knowledge of the metabolism and distribution of steroid sex hormones, the biochemical components and oxidative enzyme systems of spermatozoa and ova, the relationships between hormones and the development of biochemical processes in the reproductive tract, and the role of nutrition in reproduction. They are also applying their findings to problems of animal breeding, and cooperating in the researches of senior visiting investigators.

The University of Cambridge, where Dr. Mann is reader in the School of Veterinary Medicine, and the Agricultural Research Council's Unit of Reproductive Physiology and Biochemistry, of which he is director, cooperate

in financing his work. Recently the council provided a new laboratory building which will include such special facilities as a tissue culture room, radioactive tracer laboratory, and chromatography room. To complete the equipment needed in the new building, The Rockefeller Foundation in 1960 made a three-year grant of \$25,000 to the University of Cambridge.

UNIVERSITY OF GHENT

DEPARTMENTS OF BIOCHEMISTRY AND MICROBIOLOGY

As a result of a recent rebuilding program at the University of Ghent, Belgium, most of the basic science departments of the Faculty of Medicine have been relocated in new buildings adjacent to those of closely related institutes of the Faculty of Sciences, and the laboratories of the Departments of Biochemistry and of Microbiology are now housed under one roof. By combining their resources of equipment, special apparatus, and library, the researchers in the two departments will have access to facilities not heretofore readily available to them individually.

The Rockefeller Foundation has made a two-year appropriation of \$25,000 to the university for the use of the two departments, part of which will be allocated for the purchase of an analytical ultracentrifuge.

UNIVERSITY OF AMSTERDAM

RESEARCH IN ENZYME CHEMISTRY

Scientists of the Laboratory of Physiological Chemistry at the University of Amsterdam, the Netherlands, are devoting their major attention to the complicated series of chemical events whereby the cell utilizes various food-stuffs, chiefly glucose, to respire and to obtain energy for the work it must perform. Although no fewer than 11 enzymes

are involved in this process, much progress has already been made in piecing together the full story. Some of the members of the laboratory, which is directed by Professor E. C. Slater, are also working on the mechanism of action of another group of respiratory enzymes, the cytochromes.

To assist the research activities of the laboratory, The Rockefeller Foundation has made a two-year grant of \$23,000. The grant will be used primarily for the purchase, shipment, and installation of a recording spectrophotometer.

OTHER GRANTS

South West Metropolitan Regional Hospital Board, London, England: research on the biochemistry of the nervous system, under the direction of Dr. Derek Richter at the British Medical Research Council Neuropsychiatric Research Unit, Carshalton, Surrey; \$23,000 through February, 1963;

University of Munich, Germany: equipment for research in biochemistry in the Institute of Biochemistry; \$15,000;

University of Tokyo, Japan: research in pharmacology, under the direction of Professor Hiroshi Kumagai and Professor Setsuro Ebashi, Faculty of Medicine; \$15,000;

Victoria University of Manchester, England: research on the biosynthesis of naturally occurring plant compounds, under the direction of Professor A. J. Birch, Department of Organic Chemistry; \$15,000 for a three-year period;

University of Parma, Italy: research on the chemistry and pharmacology of naturally occurring substances of biological importance, under the direction of Professor Vittorio Erspamer; \$14,000 for a three-year period;

University College, Dublin, Ireland: research in biochemistry, under the direction of Professor E. J. Conway; \$12,000 for a three-year period;

Australian National University, Canberra: equipment and supplies for research in biochemistry, under the direction of Dr. A. H.

Ennor, professor of biochemistry and dean, John Curtin School of Medical Research; \$10,000;

Hokkaido University, Sapporo, Japan:

Research on the biosynthesis and metabolism of steroids and lipids, under the direction of Dr. Morio Yasuda, Dr. Toshio Torii, and Dr. Hiroshi Mitsuhashi; \$10,000;

Dr. Morio Yasuda, professor of biochemistry, Medical School; to visit centers of research in biochemistry in the United States while en route from Europe to Japan; \$900;

Tohoku University, Sendai, Japan: research in biochemistry in the School of Medicine, under the direction of Dr. Goro Kikuchi, professor of biochemistry; \$10,000;

Tokyo University of Education, Japan: research in biochemistry in the Department of Chemistry, under the direction of Dr. Koji Nakanishi, professor of chemistry; \$10,000;

University College of the West Indies, Mona, Jamaica: equipment and research expenses of the section of biochemistry, Department of Physiology; \$10,000;

University of Caldas, Manizales, Colombia: equipment for a microbiology laboratory in the Faculty of Medicine; \$10,000;

University of Liège, Belgium: research on tissue transplant immunity at the Laboratory of Experimental Surgery; \$10,000;

University of Melbourne, Australia:

Equipment for research in microbiology in the Bacteriology Department, under the direction of Dr. Sydney Rubbo, professor of bacteriology; \$10,000;

Dr. Robert William Henderson, lecturer in biochemistry; to visit biochemical research centers in the United States while en route from Europe to Australia; \$1,350;

Dr. Francis John Raymond Hird, reader in agricultural biochemistry; to visit biochemical research centers in the United States and Canada while en route from Europe to Australia; \$1,250;

University of Antioquia, Medellín, Colombia:

Equipment for the laboratory of biochemistry, Faculty of Medicine; \$9,355;

Teaching and research equipment for the Department of Microbiology, Faculty of Medicine; \$6,500;

University of Padua, Italy: equipment for use in the Institute of Biological Chemistry; \$9,000;

University of Strasbourg, France: equipment for use in the Laboratory of Biological Chemistry; \$9,000;

University of Chile, Santiago: equipment and supplies for research in the Institute of Physics and Mathematics, under the direction of Dr. Marco Perretta; \$8,750;

American University of Beirut, Lebanon: research equipment for the Faculty of Medical Sciences; \$8,500;

Pasteur Institute, Paris, France: continued research in biochemistry, by Dr. and Mrs. Thomas Erdős, Hungarian refugees; 37,500 French francs (about \$7,875);

University of Istanbul, Turkey: research equipment for the Institute of Pharmacology; \$7,500;

National Institute of Health, Tokyo, Japan: research on nucleic acids in the Department of Chemistry, under the direction of Dr. Den'ichi Mizuno, head; \$7,100;

University of Poznan, Poland: research equipment for the Institute of Organic Chemistry; \$6,500;

Academy of Medicine, Poznan: research equipment for the Institute of Physiological Chemistry; \$6,000;

University of Adelaide, Australia: equipment for research on biologically active compounds now directed by Dr. Geoffrey M. Badger; \$6,000;

University of Sydney, Australia: research on biologically active organic substances, under the direction of Dr. C. W. Shoppee, professor of organic chemistry; \$5,600;

University of Warsaw, Poland:

Professor Osman Achmatowicz, professor of organic chemistry, and Vice-Minister of Higher Education; to observe research in organic chemistry and the organization of university education and research at institutions in the United States, Canada, and Europe; \$3,900;

Research equipment for use in the Institute of Organic Chemistry, under the direction of Professor Osman Achmatowicz; \$3,200;

University of Sarajevo, Yugoslavia: research equipment for use in the Institute of Pharmacology, under the direction of Professor Pavao Stern; \$3,200;

Dr. Serge Florent Lissitzky, professor of biochemistry, Faculty of Medicine and Pharmacy, University of Marseilles, France: to observe research on thyroid hormones and proteins at biochemistry laboratories in the United States; \$2,800;

Dr. Brian Spencer, professor of biochemistry, School of Physic, Trinity College, University of Dublin, Ireland: to observe current teaching programs and research in biochemistry at medical centers in the United States; \$1,592.

Biophysics

UNIVERSITY OF HELSINKI

ELECTRON MICROSCOPY

To facilitate investigations using the technique of electron microscopy, indispensable in many areas of modern biological research, the University of Helsinki, Finland, three years ago created an Institute of Electron Microscopy as an interfaculty center for both independent research and interdepartmental studies. Since then, through the efforts of the Finnish Natural Sciences Research Coun-

cil, Finnish foundations, and the university itself, laboratory space has been converted and most of the essential instrumentation obtained.

Still needed is an electron microscope capable of giving reliable and consistent results in work involving the size range of molecules and of dealing effectively with such structures as protein molecules and plant and animal viruses. To make possible the completion of the institute's equipment through the purchase and installation of a powerful electron microscope of this type, The Rockefeller Foundation has made a two-year grant of \$36,000.

UNIVERSITY OF LONDON, KING'S COLLEGE

RESEARCH IN BIOPHYSICS

Fourteen years ago, when Professor J. T. Randall joined King's College, University of London, as Wheatstone Professor of Physics, he began to assemble at the college a group of physicists who were interested in applying their knowledge of electronics, spectroscopy, and X-ray crystallography to the solution of fundamental biological problems. In the intervening years Professor Randall and his group were among the first to use the techniques of X-ray diffraction to point out the basic helical structure of deoxyribonucleic acid. They also developed methods of interference microscopy that make possible measurements of dry mass and concentration of proteins in minute tissue fractions. In addition, they made significant contributions to knowledge of muscle structure, collagen fibers, and collagen proteins.

In the years immediately ahead the King's College biophysicists intend to concentrate on the ultrastructure of nucleic acids, the fine structure of muscle, and the chemical behavior of chromosomes. They also will work on the ultrastructure of nucleoproteins and chromosomes, the role

of nucleic acids in protein synthesis, the mechanism of muscle contraction, and the physical and biochemical properties of cilia and flagella. This work will be supported by a \$30,000 Rockefeller Foundation grant for use during the three-year period that began October 1, 1960.

INDIAN CANCER RESEARCH CENTRE

RESEARCH IN BIOPHYSICS

One of the first institutions in India to concentrate on biophysics research was the Indian Cancer Research Centre, Bombay. At the center Dr. K. S. Korgaonkar, assisted by 12 professional and technical research workers in the Department of Biophysics, has been using spectroscopic methods to study the nature and specific location of the structural changes produced by ionizing radiation in nucleic acids and hemoglobin. Dr. Korgaonkar and his group plan also to study the nature of irradiation injury in cell systems using monobeam irradiation and microspectroscopy.

The Rockefeller Foundation has appropriated \$26,000 for support of research in biophysics at the center over a five-year period.

INSTITUTE OF ATOMIC ENERGY, BRAZIL

RESEARCH IN RADIOCHEMISTRY

The first nuclear research reactor in Latin America, as well as betatron and Van de Graaff generators, are situated in São Paulo, Brazil, the hub of Latin American research in physics. A milestone in this field was passed in September, 1957, when the world's largest "swimming pool" type of experimental reactor achieved the first nuclear chain reaction in Latin America. The reactor, located at the Institute of Atomic Energy in São Paulo, also produces

iodine-131 and phosphorus-32 isotopes which have been supplied to investigators in biology and medicine.

The institute, directed by Professor Marcello Damy de Souza Santos, is presently completing a wing with extensive laboratories for work in reactor physics, biology, and radiochemistry. The Radiochemistry Division of the institute, although limited by temporary laboratories and partial instrumentation, has produced a number of important studies, among them one dealing with the chromatographic separation of components of rose bengal tagged with iodine-131.

Equipment for research in the Radiochemistry Division led by Dr. Fausto W. Lima will be purchased with a Rockefeller Foundation grant of \$26,000 made in 1960.

UNIVERSITY OF SÃO PAULO

LABORATORY OF ELECTRON MICROSCOPY

Thirteen years ago the first electron microscope in the São Paulo area of Brazil was purchased by the University of São Paulo for its Laboratory of Electron Microscopy. Since then another instrument has been procured for the area, but the microscope at the laboratory continues to be used by a large number of researchers from the university as well as from local agencies, such as the Marine Biological Laboratory and the Institute of Biology of the State Secretariat of Agriculture. Research conducted under the auspices of these organizations includes studies of the structure of human teeth, of the muscles of invertebrates, and of various aluminum colloidal compounds. Now, with more accurate and higher powered microscopes being produced as a result of recent technological improvements, the instrument in use at the laboratory has become obsolete for advanced research.

An up-to-date electron microscope will be purchased for the Laboratory of Electron Microscopy with the combined

help of the university, the National Research Council of Brazil, and The Rockefeller Foundation, which made a two-year grant of \$23,000 to the university in 1960.

UNIVERSITY OF BRAZIL

INSTITUTE OF BIOPHYSICS

Over the past 15 years the Institute of Biophysics, University of Brazil, has made an important contribution to the development of research in the medical sciences in Brazil. Studies already completed or in progress at the institute include work on curare, the physiology of the cerebral cortex, liver function, the biochemistry of the electric eel, and the ultrastructure and metabolism of protozoans.

The institute also serves as a training center for teachers and research workers from Brazil and abroad, and it has been used as the site of international congresses and special courses in biophysics and related fields.

A \$21,000 Rockefeller Foundation grant, available over a three-year period, will be used for equipment and supplies for the institute. Previous grants, made since 1944, have totaled \$60,000. The institute has also received support from the National Institutes of Health, the United States Air Force, the Brazilian Atomic Energy Commission, and the National Research Council.

STRANGEWAYS RESEARCH LABORATORY

RESEARCH IN EXPERIMENTAL BIOLOGY

The Strangeways Research Laboratory, Cambridge, England, is an internationally recognized center where a large number of workers in tissue and organ culture have gone for study and research. Specializing in bone and cancer research, Strangeways, in recent years, has expanded its facilities to permit greater research in experimental biology.

The laboratory has made significant progress in work on cell physiology, biophysics, and electron microscopy.

Under the leadership of Dr. Honor B. Fell, the staff has found that the techniques of tissue culture can usefully supplement older methods of orthodox pathology. Other investigations at Strangeways include work on the synthetic activity of leukemic cells and of limb-bone rudiments grown in chemically defined media. The Rockefeller Foundation has made a two-year appropriation of \$20,000 to aid the laboratory's research in experimental biology.

OTHER GRANTS

Kyushu University, Fukuoka, Japan: equipment for research in electron microscopy in the Department of Anatomy, Faculty of Medicine, under the direction of Dr. Eichi Yamada; \$20,000;

University of Durham, England: equipment for research in radiation chemistry at King's College, Newcastle upon Tyne, under the direction of Professor Joseph Weiss; \$15,000 for a two-year period;

Botanical Garden of Rio de Janeiro, Ministry of Agriculture, Brazil: research in electron microscopy, under the direction of Raul D. Machado; \$10,000;

National Center of Scientific Research, Paris, France: X-ray crystallographic equipment for use in the Center for Research on Macromolecules, Strasbourg; \$10,000;

University of San Marcos, Lima, Peru: equipment for a biophysics laboratory in the Faculty of Medicine; \$10,000;

University of Utrecht, Netherlands: equipment for research on the structure of biologically active compounds in the Department of X-ray Crystallography; \$8,000;

University of Adelaide, Australia: research on molecular structure in the Physics Department, under the direction of Dr. S. G. Tomlin, reader in physics; \$4,500;

University of Amsterdam, Netherlands: equipment for research in X-ray crystallography in the Laboratory of General and Inorganic Chemistry; \$3,000.

Virology

NATIONAL INSTITUTE OF HEALTH, JAPAN,
AND KYOTO UNIVERSITY

RESEARCH IN VIROLOGY

The National Institute of Health, Tokyo, and the Institute for Virus Research at Kyoto University are recognized as the two leading virology centers in Japan. The staff at the National Institute of Health has focused its attention on epidemiological and field studies of virus diseases while scientists at Kyoto are more concerned with laboratory studies, many of which rely on electron microscope and tissue culture techniques.

Expansion of facilities and staff at the Tokyo institute during the past four years has been accompanied by a record of important scientific accomplishments. At a new field station recent activity has included serum-antibody surveys among human beings, animals, and birds, and studies of the prevalence of arthropod-borne viruses in man and mosquitoes. The so-called Negishi virus has been identified as a probable new group B virus. Several new strains of Japanese B encephalitis virus have also been isolated and distinct immunological differences have been demonstrated among the various strains. In support of continued field research, The Rockefeller Foundation has made a three-year grant of \$46,000.

The institute at Kyoto is directed by Dr. Shigeyasu Amano who, with another staff member, is trying to determine how viruses attach themselves to, enter, and repro-

duce within infected cells. This work has sometimes been referred to as "a new kind of macromolecular embryology." Other work being conducted at Kyoto by a staff of approximately 50 scientists includes studies designed to uncover more knowledge on how macromolecules (nucleic acids and proteins) of virus particles influence the genetic control of the cells they infect and thereby cause them to produce more of the infecting virus. The Rockefeller Foundation is aiding these studies with a three-year, \$42,000 appropriation.

VIRUS RESEARCH PROGRAM

The Rockefeller Foundation in 1960 appropriated \$1,324,160 for the support of its virus research program, carried on in central laboratories in New York and four field laboratories in the United States, Trinidad, Brazil, and India. For a description of the program, see pages 63-74.

OTHER GRANTS

South African Institute for Medical Research, Johannesburg: field expenses and research equipment for the Arthropod-Borne Virus Research Unit; 2,000 South African pounds and \$10,400 (a total of about \$16,100);

University of Ljubljana, Yugoslavia: research in virology, in the Institute of Microbiology; \$14,000 for a two-year period;

University of Medical Sciences, Bangkok, Thailand:

Research in virology, in the School of Public Health; \$10,000;

Dr. Pairatana Ujjin, associate in microbiology, School of Public Health; to visit the Virus Research Centre, Poona, India, for further training in virology; \$1,625;

University of Tokyo, Japan: research on virus diseases in the Institute of Infectious Diseases, under the direction of Professor Minoru Matumoto; \$10,000;

Professor Nils Oker-Blom, professor of virology, University of Helsinki, Finland: to visit virus research centers in the United States, Canada, and Western Europe; \$3,350;

Dr. Jack R. Henderson, research fellow, Department of Epidemiology and Public Health, School of Medicine, Yale University, New Haven, Connecticut: to visit laboratories in Brazil and Trinidad in connection with the application of tissue culture techniques to virus isolation and field work; \$2,930;

Entomological Society of America, Washington, D.C.: to invite two European virologists to participate in a symposium on the biological transmission of agents causing plant and animal diseases; \$2,700;

University of Sarajevo, Yugoslavia: research in virology, under the direction of Professor Alexander Terzin; \$2,500;

Harvard University, Cambridge, Massachusetts: to invite Professor George Ivanovics to serve as visiting lecturer in the Department of Bacteriology and Immunology, Medical School, Boston; \$1,200;

Dr. Dionyz Blaskovic, director, Institute of Virology, Czechoslovak Academy of Sciences, Bratislava: to observe current work in virology at research centers while in the United States; \$920.

Special Projects

UNIVERSITY OF BUENOS AIRES

SCIENTIFIC RESEARCH

Within the past few years an upswing in the development of full-time teaching and research programs at the University of Buenos Aires, Argentina, has allowed for the expansion of research in three of its science faculties.

Aided by the recently established Argentinian National Research Council, the university has been able to give full-

time status to almost all principal professors and their assistants, and to increase research facilities throughout the school.

To meet needs for research equipment, The Rockefeller Foundation has appropriated \$91,000 to the university, available through 1962. It will be used by the Faculties of Medical Sciences, of Pharmacy and Chemistry, and of Natural and Exact Sciences.

Research and training activities in radiation biology, virology, and biochemistry are being conducted in the medical sciences. Topics under investigation include the active transport of ions in biological systems, phosphorus metabolism in the muscles of mice infected with influenza virus, and the citric acid cycle in yeast.

Under the direction of a former Rockefeller Foundation Fellow, scientists in pharmacy and chemistry have developed an active research program in pharmacology, emphasizing polypeptides in studies of pharmacologically active pressor hormones and antibiotics.

Studies of volatile inorganic compounds, the structure of alkaloids isolated from Argentine plants, and porphyrin biosynthesis are under way in three departments of the natural and exact sciences.

HARVARD UNIVERSITY

INTERNATIONAL STUDENT CENTER

Thirty to forty nationalities are represented annually among the physicians, engineers, scientists, and teachers who come to the School of Public Health of Harvard University to prepare for careers of leadership in public health in their own countries. One of the greatest advantages such an education can provide for the foreign students is the opportunity for social and cultural exchange among themselves and with Americans. The visitors' presence in the Boston community can also afford American students and families there an op-

portunity to extend their acquaintance with people of other cultures.

To facilitate this contact, and to allow the foreign students to participate more fully in American life, the school plans to establish a center for cultural and social programs in the basement areas of three adjoining apartment houses recently purchased to provide living accommodations for the married students and their families. In the combined areas the university plans to construct a lounge and meeting room, a library and reading room, a music room, community dining and kitchen facilities, a children's playroom, and a garden court. Although the center will be used primarily by those enrolled in the School of Public Health, it will also be open to other foreign students at the university.

The Rockefeller Foundation has appropriated \$75,000 to help meet remodeling and equipment costs for the international student center.

OTHER GRANTS

National Academy of Sciences—National Research Council, Washington, D.C.: to help meet the expenses of the Eleventh General Assembly of the International Astronomical Union, to be held in Berkeley, California, during August, 1961; \$10,000;

Brazilian Academy of Sciences, Rio de Janeiro: cinematographic and other projection equipment and supplies needed in its new headquarters; \$8,000;

World Health Organization, Geneva, Switzerland: preparation of a repertory of practice of the World Health Organization, by Howard B. Calderwood; \$7,500 through December, 1961;

To meet expenses connected with the preparation of memoirs concerning the history of medicine and public health in other countries, by Dr. John B. Grant, retired Rockefeller Foundation officer; \$5,830;

New York Academy of Medicine, New York: expenses of a symposium on tobacco and health, held in the spring of 1960; \$5,000.

Humanities

HUMANITIES

Major Interests, 1960

Intercultural Studies.....	\$1,131,255
Humanistic Research.....	358,660
The Arts.....	2,270,655
Special Projects.....	232,600
Fellowship and Scholarship Fund.....	425,000

HUMANITIES

THE FOUNDATION'S PROGRAM in the humanities continued in 1960, as in recent years, to emphasize work in three main areas—intercultural studies, humanistic research, and the arts. In many instances these may be so closely related or combined that to use one term rather than another is largely a matter of convenience. Nevertheless, each of the three has its distinctive purposes, approaches, and results.

In the first major field, intercultural studies, the Foundation seeks to encourage understanding of the traditions, values, and conditions of people in one area of the globe and their relation to cultural attitudes elsewhere, since mutual awareness and interdependence are dominant realities for men in today's world. The projects listed under humanistic research, not being focused primarily on a particular foreign culture, aim rather at the advancement of general knowledge in such disciplines as history, philosophy, and linguistics. In the arts, the Foundation gives primary attention to contemporary creative activity and to special programs favoring and generating support for artistic work of high quality. Advanced training in these three spheres is financed on a highly selective basis through fellowships and scholarships.

Finally, grouped under special projects, are the grants made to meet some of the unusual needs and opportunities that are brought to the Foundation's attention from time to time.

Africa south of the Sahara is chosen for particular comment this year because of the immediacy of the problems that attend the emergence of so many newly independent nations. The challenges these new countries face are numerous and complex—the development of modern political states, of systems of universal education, and of economic strength, the eradication of disease, the building of cities and efficient transportation and communication systems, and the substitution of a strong and informed sense of national purpose for local tribal allegiance. The accomplishment of these objectives rests on the Africans' concept of the society they wish to build for themselves; and this, in turn, rests on their development of coherent principles defining their new goals for the individual citizen and the nation, and the new relationships between the individual and the state and among people, nations, and religious groups.

During 1960 the Foundation made a number of grants to help scholars who are attempting to clarify the aims and relationships of the African peoples. Convinced that a deeper knowledge of their past could contribute to Africans' understanding of their present needs and plans for the future, the Foundation assisted several projects in which emphasis is placed on research and training in African history. Chief among these are a research program concerned with African history at the University College of Rhodesia and Nyasaland, and a program at the University of Wisconsin under which scholars are being trained in the techniques of gathering and evaluating oral tribal traditions.

As a contribution to the development of the contemporary arts in Africa, the Foundation appropriated funds for work in African music in Southern Rhodesia and in Nigeria, and for activities in theatre and dance in Ghana. To encourage creative writing, it supported projects in East Africa and Nigeria intended not only to give direct aid to the writing and publication of original manuscripts but also to lead to

a wider dissemination of African literature throughout the continent. The contemporary visual arts were assisted by a grant for the construction of an exhibition gallery at the museum in Lagos, Nigeria. Because of the importance of libraries to the educational and intellectual development of Africa, two grants were made for the improvement of the library systems in Ghana and eastern Nigeria.

Contacts between the musical cultures of the East and the West have been so lively in recent years that rock-and-roll riots have occurred in Asian countries and musicals with an Oriental flavor have been presented with great success on Broadway. Although these are the events that the public notices, they are nevertheless but the fringe on a wide and fascinating fabric of intercultural influence. Prompted by the conviction that this influence can be both rich and constructive, the Foundation in 1960 continued its interest in projects concerned with Oriental music.

In appropriating funds to help the principal Japanese Kabuki drama troupe perform in New York, the Foundation in this one case reversed its general rule of declining to support musical or theatrical performing groups. This exceptional grant enabled American audiences to have the unusual experience of witnessing, in a Western setting, an actual performance of some of the works belonging to this highly sophisticated art form.

Another aspect of Oriental music, which in the Western mind is ordinarily associated with dance or drama, has been assisted by a Foundation grant to the University of California at Los Angeles, where Americans and Asians participate jointly in a program involving study and performance of the music of Japan, Indonesia, India, and China. The assistance given Miss Peggy Glanville-Hicks in her research on non-Western music also sprang from recognition that Oriental musical forms are having a considerable influence on a num-

ber of American composers. Other activities in fields where Western and non-Western cultures are in dynamic and productive contact are reported in the following pages.

Intercultural Studies

YALE UNIVERSITY PRESS

ASSOCIATION OF AMERICAN UNIVERSITY PRESSES

Realizing the power of literature to convey the thought and values of one culture to another, and encouraged by the acceptance of recently published English translations of Latin American works, the Association of American University Presses is planning a new publishing program in the long-neglected field of Latin American literature. For the next six years, the association will assist its members in the publication of translations of approximately 75 of the more important literary and scholarly works of Latin America.

Financing most of the publishing costs themselves, the individual presses will choose the titles for publication and will request only modest assistance from the association to cover costs of translating and editing the manuscripts. So far the attention of the members has centered on books in the humanities and social sciences, with seven university presses already planning to include Latin American works regularly in their publishing programs. The majority of the other members of the association have shown interest in either specific titles or subject fields.

A national committee composed of four specialists in Latin American literature and one university publisher will judge the suitability of titles proposed by the presses and allocate funds. A Rockefeller Foundation grant of \$225,000, made in 1960 and available for six years, will be administered

by the Yale University Press, New Haven, Connecticut, for the association.

CORNELL UNIVERSITY

QUECHUA LANGUAGE PROGRAM

For centuries Quechua has been the lingua franca of the high Andes from northern Ecuador south to northern Argentina. Of the millions of Indians who live in this area, most speak no Spanish at all, or speak it too inadequately for easy communication. This barrier to their full participation in the modern life of Latin America has assumed great importance in recent years with their steady population growth and expansion into coastal centers and industrialized towns.

Cornell University, Ithaca, New York, has recently formulated an extensive research and training program concerned with the Quechua language. Under the direction of Professor Donald F. Solá, the linguistic problems posed by the several Quechua dialects will be investigated, and experiments in applying linguistic techniques in education carried on.

In Andean highland communities, the researchers, who will include North and South Americans, will develop materials and methods in an attempt to evaluate different approaches to the teaching of Spanish, test alternate alphabets, and compare the effectiveness of instruction in Quechua as a means of learning Spanish with the results obtained when Quechua is eliminated from the teaching process.

As an integral part of the program, five Peruvians and one Bolivian will be trained to contribute in their own countries to the solution of linguistic problems. They will be prepared, for example, to teach linguistics at national universities, direct field studies of Spanish dialects in the Peruvian highlands and of the degree of Spanish-Quechuan bi-

lingualism existing at different age levels, and conduct experimental educational programs in Andean highland communities.

In supporting the Quechua language program over the next four years, Cornell University will have the help of a grant of \$155,000 from The Rockefeller Foundation.

COLUMBIA UNIVERSITY

AMERICAN PRESS INSTITUTE

The seminar program for members of the foreign press which is conducted each fall by the American Press Institute, New York, has three purposes: to provide a fruitful exchange of professional information and ideas between leading newspapermen from abroad and their counterparts in the United States; to strengthen free, democratic, and responsible newspapers; and to further understanding of the countries and peoples involved.

During 1960 the last of the seminars supported since 1955 by the Ford and Rockefeller Foundations was held for newspapermen from North Africa and the Middle East. Present at this meeting were about 18 prominent newspaper executives, editors, and correspondents, who spent three weeks in intensive round-table discussion in New York, a week observing press coverage of the national government in Washington, D.C., and a month in independent study and travel to selected newspapers in the United States.

A 1960 grant of \$135,000 to Columbia University from The Rockefeller Foundation, with continued assistance from the Ford Foundation, will enable the American Press Institute to conduct seminars for newspapermen from Asia, the Middle East, North Africa, and Latin America during the next five years. In addition, the Rockefeller Foundation grant includes funds for the study of newspaper operations and needs in Africa.

INTERNATIONAL PRESS INSTITUTE, SWITZERLAND

ASIAN PRESS PROGRAM

Established in 1951 to promote professional standards and practices in the daily press, to increase the international flow of news, and to encourage a free and responsible press, the International Press Institute, Zurich, Switzerland, is currently expanding its program for the Asian press. A. G. P. Vittachi, editor of the *Ceylon Observer*, has been appointed the institute's Asian representative to direct the new series of activities.

During the next two years, the institute plans to conduct four working seminars for editors, sub-editors, correspondents, and reporters of Asian publications. Two of the seminars will be focused on problems and developments within selected Asian countries which have an extensive and influential press. Two others will be organized on a regional basis for close and constructive examination of practical steps that might be taken to improve the collection, dissemination, and interpretation of news, partly for foreign readers. Each seminar will run for about two weeks, and have approximately 25 participants.

To help finance the expanded Asian press program, The Rockefeller Foundation has appropriated \$78,000 to the International Press Institute. The funds are available, with the balance remaining in an earlier grant, through 1961.

UNIVERSITY OF CHILE

CENTER OF GRADUATE STUDIES ON AMERICAN HISTORY

The University of Chile, Santiago, is establishing a Center of Graduate Studies on American History that will afford methodological training in historical research and in the techniques and processes of related social sciences. The proposed center will be the first in South America to give

major emphasis to comparative studies of all Latin American countries. Already the university maintains a series of graduate courses and seminars in history leading to the doctoral degree.

Expected to become a focal point for communication among institutions and individuals in Latin America concerned with the history of the Americas, the research and training center will also be the first in any Latin American country to offer specialized study of the United States on a continuous basis. The graduate curriculum of the center will include seminars designed to provide the student with training in understanding the social, intellectual, economic, and political institutions of his own country from their origin to the present.

The center will be directed by Professor Eugenio Pereira Salas, former dean of the Faculty of Philosophy and Education, who has devoted much of his professional life to study of the history and historiography of the Western Hemisphere. To help finance the center, The Rockefeller Foundation has made a four-year grant of \$75,000 to the university.

SPECIAL FUND FOR TIBETAN STUDIES

In the years since 1951, and particularly since the seizure of control over Tibet by the Chinese Communist government in 1959, over 35,000 Tibetans have left their country and taken refuge in India, Nepal, and Sikkim. The expatriates include political and religious leaders and others who can make invaluable contributions to Western understanding of their unusual country and its civilization.

Although the Western world knows little of Tibet because of its inaccessibility and traditional isolation, centers for study of the country have been established in a number of institutions in Europe, the United States, and Asia. To enable them to invite Tibetan refugees to participate in their

programs on Tibet, the Foundation in 1959 appropriated \$250,000 and made a further \$75,000 grant in 1960.

The institutions to which allocations have been made are concerned with different aspects of Tibet. Among the topics under study are the country's recent economic history, its agricultural and economic potentials, the nature and appeal of its major religious sects, its arts and crafts, and its relations with neighboring countries. The scholars at the various institutions are actively collaborating in their efforts to advance understanding of Tibet.

In each case, the Foundation has provided funds to enable representatives of the institutions to interview Tibetans in South Asia, and for the expenses at their host institutions of the Tibetans and their families. The allocations made from the two Foundation grants during 1960 are listed below.

Bavarian Academy of Sciences, Munich, Germany: to invite Tibetan refugees to participate in research on Tibet, and to enable Professor Helmut Hoffman, professor of Indology, University of Munich, and chairman, Commission for Central Asiatic Studies, Bavarian Academy of Sciences, to visit centers of research on Tibet in Japan, Europe, and the United States; \$26,475 for a four-year period;

Italian Institute for the Middle and Far East, Rome: to invite Tibetan refugees to participate in research on Tibet, and to enable Professor Luciano Petech to visit centers of Tibetan studies in Asia, the United States, and Europe; \$27,000 for a four-year period;

National Office of French Universities and Schools, Paris: to invite Tibetan refugees to participate in research on Tibet at the Institute of Advanced Chinese Studies, University of Paris, under the direction of Professor Rolf A. Stein; \$25,000 for a four-year period;

Toyo Bunko (Oriental Library), Tokyo, Japan: to invite Tibetan refugees to participate in research on Tibet; \$22,000 for a four-year period;

University of Leiden, Netherlands: to invite Tibetan refugees to participate in research on Tibet, and to enable Professor J. W. de Jong, professor of Buddhism and Tibetan, to visit centers of Tibetan studies in Asia, Europe, and the United States; \$30,000 for a four-year period;

University of London, School of Oriental and African Studies, England: to invite Tibetan refugees to participate in research on Tibet, and to enable Dr. David L. Snellgrove, lecturer in Tibetan, to survey resources in South Asia for further research on Tibet; \$57,290 and £889 (a total of about \$59,825) for a four-year period;

University of Washington, Seattle: to invite Tibetan refugees to participate in research on Tibet, and to establish a center for Tibetan studies; \$75,000 for a four-year period.

AMERICAN COUNCIL OF LEARNED SOCIETIES

SOVIET-AMERICAN SCHOLAR EXCHANGES

The American Council of Learned Societies, New York, is administering visits to the Soviet Union by American scholars under two different programs. One enabled a group of scholars to attend the meeting of the XXVth International Congress of Orientalists which was held in the Soviet Union during August, 1960. The other arranges for the exchange of scholars in the humanities between the United States and the Soviet Union.

Approximately 21 scholars were chosen by a committee composed of representatives of the council, the American Oriental Society, and the Association for Asian Studies to attend the congress. Those sponsored by the council also spent several weeks visiting other centers in the Soviet Union.

About a year ago the council began negotiations with the Soviet Union Academy of Sciences and with the cultural officer of the Soviet Foreign Office for a general exchange program between the council and the academy. Plans are

being discussed under which the council would send about 18 Americans to the Soviet Union for periods ranging from one to six months, and arrange comparable visits to the United States by the same number of Russians.

To meet its financial obligation under the exchange agreement, the American Council of Learned Societies is raising \$200,000. Toward this amount The Rockefeller Foundation has contributed \$40,000. Another Foundation grant of \$30,000 assisted American participation in the Congress of Orientalists.

NEW YORK PUBLIC LIBRARY

JOURNAL OF SPANISH-LANGUAGE BOOKS

To help ensure a wider dissemination of information about books published in Latin American countries, the New York Public Library is preparing a quarterly Spanish-language journal containing an up-to-date listing of new publications. Comparable in format to the *American Book Publishing Record*, the journal will give the cost of the book and how it may be obtained. In addition, the journal will provide Latin American libraries with ready-made catalogue entries for all books and a Spanish-language, subject-heading list more usable than those currently available. Timely bibliographic information of this nature will assist specialized research and graduate training centers in Latin America.

Not only will the proposed journal help to create a wider market for Latin American writers, but it will also, for the first time, give libraries in the United States full information on what is being published rapidly enough to enable them to acquire new books directly from the publisher. To help meet preparation and distribution costs, The Rockefeller Foundation has appropriated \$48,000 to the New York Public Library, New York, for use over a two-year period.

MIDDLEBURY COLLEGE

INSTITUTE OF SOVIET STUDIES

Since 1915, when the German School was founded, Middlebury College in Vermont has conducted advanced summer courses in German, French, Spanish, Italian, and most recently Russian, and in the literature, culture, and institutions of the countries in which they are spoken. A high sense of purpose, careful planning, and strict discipline (anyone known to speak English at any time during the summer session is expelled), have enabled Middlebury to make a distinctive contribution to education and scholarship.

In 1958 a pressing sense of national need led the college to create the Institute of Soviet Studies, which has supplemented the courses of the Russian School in language, literature, and civilization with eight additional courses in the Russian language on Soviet science, geography, economics, and other specialized subjects. Thirty students, including government officials, advanced graduate students preparing for study in the Soviet Union, teachers, and other professional people, were enrolled in these courses during the summer of 1959.

Financed by two \$10,000 grants in aid from The Rockefeller Foundation, the institute has so successfully met the need for which it was established that the college is now planning to incorporate the specialized courses of the institute into the normal summer program of the Russian School. A new Foundation grant of \$20,000 has been made to Middlebury College for use during the three-year transition period.

OTHER GRANTS

University of Hawaii, Honolulu: research on the diplomatic and military relations between Japan and the Soviet Union, 1931-1945, under the direction of Dr. Alvin D. Coox; \$18,900 through December, 1962;

University of Wisconsin, Madison: to appoint Dr. Jan Vansina, Belgian historian, as visiting associate professor of African history and anthropology; \$16,000 for a three-year period;

University of Chicago, Illinois: translation and editing of the Alcina manuscripts on the Philippines, under the sponsorship of the Philippine Studies Program; \$13,500 for a three-year period;

Honolulu Academy of Arts, Hawaii:

To prepare a record of the traditional culture of the Ryukyu Islands; \$14,800 through June, 1962;

To extend for an additional year the appointment of George H. Kerr as advisor on Far Eastern cultural history; \$7,200;

Research and writing on Japanese art, particularly Ukiyo-e, by Dr. Richard Lane, research associate; \$7,000;

American Library Association, Chicago, Illinois: a program of exchange visits by librarians from the Soviet Union and the United States; \$10,000;

University of Washington, Seattle:

Expenses of a Sino-American conference on intellectual cooperation; \$10,000;

Compilation of a bibliography on Sinkiang, by T. L. Yuan; \$5,000;

University of California:

Research on the history of Arab-Byzantine relations in the pre-Muslim period, by Irfan Kawar, assistant professor of Arabic, Los Angeles; \$9,950;

Research on the historical demography of native races in Central Mexico and California, by Professor Woodrow W. Borah, Department of Speech, and Professor Sherburne F. Cook, Department of Anatomy and Physiology, Berkeley; \$9,670;

Southern California School of Theology, Claremont: study in Japan of recent trends in Shinto, by Professor Floyd H. Ross, professor of world religions; \$9,920;

Asia Society, New York: development of a program on Asian art; \$9,500;

University of Toronto, Canada: study and consultation in connection with the development of a Slavic studies program; C\$8,500 (about \$8,850);

McGill University, Montreal, Canada: completion of a comparative study of Christian ethics, in the Faculty of Divinity, by Dr. Isma'il Faruqi, research associate, Institute of Islamic Studies; C\$8,000 (about \$8,320);

Harvard University, Cambridge, Massachusetts:

Research on East Asian intellectual history, principally in Japan, Hong Kong, and the National Republic of China, by Dr. Benjamin I. Schwartz, professor of history and government; \$8,300;

Harvard-Yenching Institute; translation of the Chinese treatise on literary theory, *Wen-hsin tiao-lung*, and related literary studies, by Dr. Achilles Fang; \$7,930 for a two-year period;

Center for Advanced Study in the Behavioral Sciences, Stanford, California: research on modern Russian history, by Professor Cyril Black, Princeton University, New Jersey; \$7,840;

University of Florida, Gainesville: to invite Dr. Herminio Portell Vilá, Cuban historian, to participate in its Caribbean studies program as a research professor; \$7,500;

Yale University, New Haven, Connecticut: translation of a study, by Shigetada Nishijima and Koichi Kishi, of the Japanese military administration of Indonesia; \$6,200;

Korea University, Seoul: to invite William E. Henthorn, American scholar, to assist in the work of the Asiatic Research Center; \$6,000;

Union Theological Seminary, New York: Dr. J. Alfred Martin, Jr., Danforth Professor of Religion in Higher Education, and Mrs. Martin; to observe university activities in religion in Asia; \$6,000;

American University at Cairo, United Arab Republic: studies in Islamic art and architecture, by Dr. Christel Kessler; \$5,600;

Tufts University, Medford, Massachusetts: study in India of contemporary Indian philosophy, by Professor George B. Burch, Department of Philosophy; \$5,000;

Duke University Press, Durham, North Carolina: Professor Donald D. Worcester, editor, *Hispanic American Historical Review*; to meet historians and scholars in other fields in Latin America; \$4,700;

Professor Tatsuro Yamamoto, chairman, Department of Oriental History, University of Tokyo, Japan: to visit centers of research on South Asia in the United States and Europe; \$4,660;

Dr. Robert F. Byrnes, director, Russian and East European Institute, Indiana University, Bloomington: to visit institutions in the Far East; \$3,700;

National Taiwan University, Taipei, National Republic of China: expenses of summer seminars in the social sciences and the humanities led by American scholars; \$3,000;

Bryn Mawr College, Pennsylvania: study of current philosophical thought in the Soviet Union and of current work on Marxist-Leninist doctrines in Europe, by Dr. George L. Kline, associate professor of philosophy and Russian; \$2,640;

Sir William Hayter, warden, New College, University of Oxford, England, and member, subcommittee on area studies programs, University Grants Committee, London: to observe area study programs in the United States and Canada; \$2,050;

The Honorable Mrs. E. Layton, secretary, subcommittee on area studies programs, University Grants Committee, London, England: to observe area study programs in the United States and Canada; \$2,000;

Sir Lionel Lamb, former Chargé d'Affaires, Peking, and Ambassador to Switzerland, and member, subcommittee on area studies programs, University Grants Committee, London, England: to observe area study programs in the United States and Canada; \$1,950;

Sir Stephen Gibson, former managing director, Iraq Petroleum

Company, and member, subcommittee on area studies programs, University Grants Committee, London, England: to observe area study programs in the United States and Canada; \$1,650;

The Honorable Sir Steven Runciman, chairman, Anglo-Hellenic League, and member, subcommittee on area studies programs, University Grants Committee, London, England: to observe area study programs in the United States and Canada; \$1,650;

Professor C. Norman Guice, Wayne State University, Detroit, Michigan: to conduct research in Peru on the origins of the War of the Pacific, 1879-1881, involving Chile, Peru, and Bolivia; \$1,200;

C. R. H. Taylor, chief librarian, Alexander Turnbull Library, Wellington, New Zealand: to visit the United States in connection with the preparation of a bibliography on the Pacific Islands; \$825;

Expenses of a conference on higher education in Ghana; \$650;

University of New Mexico, Albuquerque: study of the availability of source materials for research on the role of the military in Mexico between 1914 and 1940, by Professor Edwin Lieuwen, chairman, Department of History; \$600.

Humanistic Research

UNIVERSITY COLLEGE OF RHODESIA AND NYASALAND

CENTRAL AFRICAN HISTORY

Better to meet its responsibility as an African institution preparing all races for citizenship in the Federation, the University College of Rhodesia and Nyasaland, Salisbury, is developing its program in African history to give greater emphasis to African sources and the African point of view regarding European colonization. With written languages a fairly recent development for most African peoples, virtually

all documentary evidence dealing with the history of Central and East Africa is of European origin. Now the college will attempt to bridge this serious gap by appointing staff to collect and use the rich traditions that have been handed down orally in the tribes from generation to generation.

The new University College staff member will delineate areas of research on the history of the region, relying primarily on African sources. Systematic studies of various questions that promise to contribute historical perspective to the racial, political, social, and economic issues facing all races in Central Africa will be conducted as integral parts of the program. An African aide and undergraduates of the college will assist in both research and field work.

To help meet the expenses of the expanded African history program, The Rockefeller Foundation has appropriated £21,300 (about \$61,000) for use by the University College over a five-year period.

FREE UNIVERSITY OF BERLIN, INTERNATIONAL
INSTITUTE FOR SOCIAL HISTORY, NETHERLANDS,
AND THE UNIVERSITY OF FRIBOURG

RESEARCH ON THE DOCTRINES OF MARXISM-LENINISM

Three Western European institutions, the University of Fribourg, Switzerland, the International Institute for Social History, Amsterdam, the Netherlands, and the Free University of Berlin, Germany, are engaged in a joint effort to chart major currents of Communist ideology.

Researchers at the University of Fribourg have concentrated on the philosophical tradition of Marxism-Leninism. Among the 18 books they have already completed for publication are *Bibliography of Soviet Philosophy*; *The Dogmatic Bases of Soviet Philosophy*; *Einstein and Soviet Philosophy: Crisis of a Doctrine*; and *The Principle of Contradiction in Recent Soviet Philosophy*. In the next three years they hope

to complete a general introduction to the recent history and major elements of contemporary Soviet philosophy, as well as a number of monographs on prominent Communist philosophers and philosophical groups.

Research at the Free University of Berlin is focused on the interrelationship between philosophy and social institutions in the Soviet Union and East Germany. Works already published include *Scientific Life in the U.S.S.R.*; "Dialectical Philosophy" and *Social Organization in the Soviet Union*; and *Stages of Ideological Concepts* (in Marx, Lenin, and others). The Free University of Berlin arranges conferences, travel, and other administrative services needed to coordinate the work of researchers at the three institutions.

Scholars at the International Institute for Social History, primarily a research library, are editing and publishing some of its manuscripts and rare documents on twentieth-century Socialist and Communist movements in politics, labor, and international organization. Projects fully or nearly completed include an expanded edition of the works of Bakunin, the Russian social philosopher; a bibliography of the work of Karl Kautsky; a complete collection of the Bebel-Engels correspondence; and the editing of some unpublished works of Karl Marx. Among works to be prepared for publication in the next three years are materials on the Communist international conferences at Zimmerwald, Kienthal, and Stockholm; documents on Socialist and Communist movements in Southeast Asia during the 1920's; and manuscripts of Karl Marx.

A total of \$89,000 for use over a three-year period has been appropriated by The Rockefeller Foundation in support of the work: \$20,000 to the University of Fribourg, \$42,000 to the Free University of Berlin, and \$27,000 to the International Institute for Social History. Previous grants to the three institutions for their joint studies of Communist ideology have totaled \$76,200 since 1956.

YALE-IN-CHINA ASSOCIATION, INC.

NEW ASIA COLLEGE

New Asia College was founded in 1949 by refugees who had fled from Communist China to Hong Kong. Since then it has become a center for the continuation and advance of humanistic learning in the Chinese language. Its curriculum includes courses in history, philosophy, language and literature, economics, business administration, and fine arts, and most recently biology, mathematics, and physics. In the associated New Asia Research Institute, graduate studies and advanced research on various aspects of Chinese intellectual, literary, and institutional history are being conducted by faculty and students.

In preparation for its future role in advanced studies, New Asia College is now making particular efforts to strengthen and broaden advanced training and research in the humanities at the institute. Several of its faculty will be sent to the United States for further study, three young scholars in Hong Kong will be given research fellowships at the institute, and library resources will be expanded.

To help New Asia College meet these and related expenses, The Rockefeller Foundation has made a two-year grant of \$47,500 to the Yale-in-China Association, Inc., New Haven, Connecticut.

UNIVERSITY OF KANSAS CITY

HISTORY OF KANSAS CITY, 1870-1950

During the next three years a history of Kansas City from 1870 to 1950 is to be written which is expected not only to document the city's metropolitan growth but to illuminate the general nature of the urban situation as a generator of problems and a stage for decision-making.

To be undertaken at the research center for local

history at the University of Kansas City, Missouri, under the direction of Professor A. T. Brown, the work will trace the appearance of such factors as the role of voluntary organizations in the formation and mobilization of opinion, the extent to which cultural and intellectual institutions are regarded by the community as necessities, and the changing character of the local population. The history is expected also to throw light on a widely recognized phenomenon of the twentieth century, "the exploding metropolis," of which Kansas City is a notable example.

The study continues a history of pre-metropolitan Kansas City begun by the late Professor R. R. Wohl at the University of Chicago which has been completed by Professor Brown. The Rockefeller Foundation financed the earlier work in 1955 with an appropriation of \$64,500 to the University of Chicago, and has made an additional \$46,500 available to the University of Kansas City for the present study.

UNIVERSITY OF BUENOS AIRES

RESEARCH IN SOCIAL HISTORY

One of the first long-term studies of a contemporary situation within its social and historical context undertaken at a South American university has been initiated at the University of Buenos Aires, Argentina. An analysis of the development of the Río de la Plata region shared by Argentina and Uruguay, the project will be concerned primarily with the effects upon the values and structures of a basically Hispanic society of the massive, non-Spanish immigration into the region between 1870 and 1930.

The study is being carried on by a recently established research seminar comprised of two historians, a cultural geographer, and a sociologist at the University of Buenos Aires, a historian from the University of the Republic,

Montevideo, Uruguay, and a historian from the National University of the Litoral in Rosario, Argentina. They will combine recent social science techniques for collecting and analyzing data with the more traditional approaches of Argentine university courses in the field. Also working on the project will be some 20 graduate students, for whom it will provide the opportunity of undertaking from 6 to 18 months of directed research experience and of having their work evaluated by an interdisciplinary seminar.

A Rockefeller Foundation grant of \$35,000 will help support the work over a five-year period.

OTHER GRANTS

Indiana University, Bloomington: research on the history and logic of recent science; \$15,000 through August, 1961;

Hanazono College of Zen, Kyoto, Japan: studies of Zen and contemporary thought, under the direction of Dr. Hoseki Shin-ichi Hisamatsu; \$10,000;

Kyoto University, Japan:

Research in Europe and the United States in the field of religion, by Professor Yoshinori Takeuchi, professor of the science of religion, Faculty of Letters; \$10,000;

Continued research on the characteristics of the modernization of Japan, under the direction of Dr. Masaaki Kosaka, professor, Faculty of Education; 1,647,000 yen (about \$4,940);

Study in the United States of recent developments in psychology and related fields, by Professor Koji Sato, professor of psychology; \$1,500;

Juntendo University, Tokyo, Japan: historical research connected with a study of the Kuge nobility of Japan; 2,430,000 yen (about \$7,290);

Columbia University, New York: preparation of a biography of Booker T. Washington, by Mrs. Marquis James; \$5,000 for a three-year period;

New York University, New York:

Professor Abraham I. Katsh, chairman, Department of Hebrew Culture and Education, and curator, Library of Judaica and Hebraica; to microfilm Hebraic and Judaic manuscripts in the Soviet Union and Eastern Europe; \$5,000;

Expenses of a conference called to discuss current issues in philosophical theology and religious experience and directed by Professor Sidney Hook, head, Department of Philosophy; \$3,800;

University of Indonesia, Djakarta: books in the humanities; \$5,000;

Colegio de México, Mexico City: research and study in Europe in the field of recent historiography, by Professor José Miranda; \$4,000;

University of Oklahoma, Norman: research on Cheyenne religious beliefs and practices, by the Reverend Peter John Powell, St. Timothy's Church, Chicago, Illinois; \$3,000;

University of Oxford, St. Catherine's College, England: interpretative studies of European development from 1350 to 1450, by Dr. George A. Holmes; £800 (about \$2,280);

Swarthmore College, Pennsylvania: study in England of ethical theory, by Professor Richard Brandt, head, Department of Philosophy and Religion; \$2,050;

Professor José R. Echeverría, professor of philosophy, University of Puerto Rico, Río Piedras: to examine French sources in connection with the preparation of a critical edition of Maine de Biran's *Mémoire de Berlin*; \$800.

The Arts**MUSEUM OF MODERN ART****INTERNATIONAL STUDY CENTER**

Founded in 1929 to help people "enjoy, understand, and use the visual arts of our time," the Museum of Modern Art in New York has brought together the world's most repre-

sentative collection of contemporary art. Its holdings now include more than 1,500 paintings and 340 sculptures by some 600 artists from 39 countries; over 1,200 examples of the crafts and architectural styles of the age; 2,500 posters dealing with contemporary architectural and industrial design and the decorative arts; over 12,000,000 feet of film recording the history of film-making in all its forms; 5,500 photographs by nearly 1,000 photographers; and 7,000 prints in what is generally recognized as the world's finest collection of twentieth-century etchings, lithographs, and woodcuts.

From its establishment the museum has placed these impressive resources at the disposal of the general public through a wide variety of special programs as well as permanent exhibits. Over the years the museum has presented its holdings to about 12,000,000 visitors in New York, to many other interested persons in 900 communities in the United States and Canada, and overseas, where international showings have been arranged in more than 56 countries on every continent.

The museum maintains other programs under which it loans the collections in its film library, conducts art education classes for children, teachers, and adult amateurs, issues many types of publications, and makes a wide selection of works of art available for rental or purchase. Public response to these services is reflected in the striking and steady growth of both attendance and membership.

The progressive expansion of the museum's collections, exhibitions, and services has greatly taxed its present facilities. Only one-tenth of the museum's paintings can be placed on permanent view, and only a very few of the drawings, prints, photographs, and design materials. Although its library has an important collection of books, periodicals, photographs, and slides, additional staff and facilities are needed to link these with its visual materials and with another

major research asset, correspondence files covering over 30 years of concern with modern art.

Now the museum is embarking on a \$25,000,000 campaign for funds to construct a new building and to increase endowment for both maintenance and operating programs. As part of its development, the museum plans to create a center in which its resources can be coordinated and made easily accessible to the many American and foreign scholars and artists who come to the museum for study and research. For this aspect of the museum's expansion, The Rockefeller Foundation has appropriated \$1,500,000, two-thirds of which will be used for endowment.

AMERICAN CRAFTSMEN'S COUNCIL

REFERENCE SERVICE

The American Craftsmen's Council, New York, was founded in 1943 to provide education in the crafts and to further public interest in the work of craftsmen in the United States. It has established a school for craftsmen, now an integral part of the Rochester Institute of Technology, set up the Museum of Contemporary Crafts in New York, which it operates, and started publication of *Craft Horizons*, a magazine with more than 50,000 readers. Both the museum and the magazine attempt to demonstrate imaginative use of materials and to set standards of technical excellence. In addition, the council organizes summer conferences featuring exhibits, talks by leading craftsmen, and round-table discussions.

Growing out of these activities has been a reference service, a file of photographs and other materials representing the work of nearly 500 artist-craftsmen across the country. The reference service is consulted increasingly by those who have use for the craftsmen's products in their own work, such as architects, decorators, and designers, as well as by

collectors, scholars, and writers. No charge is made for the service, either to artists or users, and inclusion in the listing is not limited to members of the council.

In the next few years the council is planning to increase the coverage of its reference service to include the work of about 2,500 artist-craftsmen. To assist the council in this expansion and to support the council's general program, The Rockefeller Foundation has appropriated \$101,000 for use over a four-year period.

WASHINGTON DRAMA SOCIETY, INC.

ARENA STAGE

A permanent repertory theatre with a resident company, the Arena Stage in Washington, D.C., was established in 1950 to present both modern and classical plays drawn from the best of Western drama. Over the ten years of its existence, it has produced more than 80 works by such playwrights as Shakespeare, Anouilh, Shaw, O'Neill, Chekhov, Sheridan, and O'Casey. Under its present policy, the Arena Stage gives each of eight plays for four consecutive weeks during a 32-week season.

The consistently high quality of Arena Stage performances has won for the group both high critical acclaim and a loyal public following. Currently it has 4,500 season subscribers, and ticket sales have been so satisfactory that the company operated at near capacity during its last season. From the beginning, ticket prices have been kept at a level within the reach of the playgoer of average resources.

Now occupying rented space in what was formerly a recreation hall, the Arena Stage is planning its own theatre to which it will move when its present quarters are demolished in 1961. Its new location will be in the Southwest Redevelopment Area south of the Capitol along the waterfront in a section being rebuilt under the city's urban recla-

mation program. The present architectural plans call for a theatre-in-the-round seating from 600 to 800 persons that can also be used for modified proscenium productions.

To help meet construction costs of the new theatre, The Rockefeller Foundation has made an outright grant of \$100,000 to the Arena Stage's sponsor, the Washington Drama Society, Inc.

UNIVERSITY OF ARIZONA

WORKSHOPS FOR INDIAN ARTISTS

As a result of a conference on "The Directions of Indian Art," held at Tucson in March, 1959, and of a long series of consultations, some with Indians who have received professional art training, the University of Arizona is establishing a summer workshop program for talented young Indian artists. Designed to enable the artists to explore new forms of expression in such media as tapestry, fabric design, mural work, sculpture, and mosaics while drawing upon their unique tradition of aesthetic values, the workshops are expected at the same time to lead to enrichment of the mainstream of American visual art.

To be staffed by both Indian and non-Indian instructors, the special six-week sessions will include a course on the elements of design, lectures on the traditional cultures and archaeology of the Southwest, and studio work in painting, ceramics, metalwork, and weaving. A majority of the approximately 30 who participate are expected to return a second and possibly a third time for additional study, and provision will be made for selected students to attend classes in the Department of Fine Arts throughout the regular academic year. During the course of the workshop, an exhibit of traditional and contemporary Indian art will be shown at the university art gallery, followed by an exhibit of pieces selected from work produced at the summer session. Later

both exhibits will be merged and shown throughout Arizona and neighboring states.

A \$93,100 grant from The Rockefeller Foundation will support the workshops until June, 1964. The Foundation helped finance a previous exhibit of Indian art and the March, 1959, conference with a \$4,000 grant to the University of Arizona.

NEW YORK CITY CENTER OF MUSIC AND DRAMA, INC.

KABUKI DRAMA

In June, 1960, the first Kabuki drama troupe to come to the Western World arrived in the United States for six weeks of performances. The Kabukiza Theatre troupe of Tokyo brought with it selections from the standard Kabuki repertory, dramas that integrate music, dance, acting, and pantomime, and that date in some cases as far back as the seventeenth century. The troupe performed three weeks in New York under the auspices of the New York City Center of Music and Drama, and several more on the West Coast.

The advent of Kabuki in this country was unprecedented largely because such a tour has never appeared feasible as a commercial undertaking. The troupe is large, including not only the traditional all-male cast, but costumers, make-up artists, musicians, and stage technicians, and Kabuki production involves certain technical peculiarities, one of which entails the construction of an addition to the conventional Western stage.

Because of the importance of Kabuki as a dramatic form and the significance of 1960—the hundredth anniversary of the first Japanese-American treaty of amity and commerce—the New York and West Coast groups, the Japanese operating company, and the Government of Japan agreed to make the visit possible this year by sharing its cost. The Rockefeller Foundation decided that these circumstances

also warranted making an exception to its general rule of not providing funds for tours by performing groups. It therefore appropriated \$75,000 to the New York City Center of Music and Drama, Inc., to help defray expenses incurred by the center for the Kabuki tour in the United States.

UNIVERSITY OF CALIFORNIA

PROGRAM IN ORIENTAL MUSIC

At the University of California, Los Angeles, the music department conducts a program in Oriental music consisting of courses, seminars, and directed research on the ethnomusicology and folk music of Asia, in addition to the standard courses in theory and musicianship. Students in Oriental music are expected to participate in one of seven groups for the performance and study of Javanese, Balinese, Japanese, Indian, and Persian music. Organizers of the program hope that it will stimulate a greater public appreciation of Oriental music and acquaint Western composers with other approaches to the creation of music. Asians who are trained under the program may be better prepared to preserve and strengthen their own musical cultures.

In 1958 The Rockefeller Foundation appropriated \$39,000 to the university for the Oriental music program. Some of these funds were used for the purchase of Asian instruments, and the remainder enabled a Javanese and an Indian musician to spend two years studying both Western and Oriental musical traditions at Los Angeles and financed a period of study for an American in Thailand.

The Foundation has made a second grant of \$55,400, most of which will provide funds for additional periods of study for Asian and American musicians. In addition, it will be used to purchase research materials and to acquire the few Japanese and Indonesian instruments needed to complete the present orchestras.

YOUNG AUDIENCES, INC.**CHAMBER MUSIC CONCERTS**

The Young Audiences' program of chamber music concerts for school children, first organized in New York, has been in operation for the past five years on a national basis. The program has the objective of broadening the audience for good music and at the same time providing additional paid performing opportunities for musicians.

In the school concerts, professional musicians play selections from standard repertory, explain the music, and demonstrate the properties of their instruments. Pupils are encouraged to ask questions during the discussion periods.

During the 1959-1960 season, 69 trained and accredited performing groups were active in 187 communities, where they gave over 2,500 concerts attended by some 750,000 children. The participating musicians earned a total of \$250,000 from the concerts. Funds were raised by Young Audiences through local and national campaigns.

Toward the future activities of Young Audiences The Rockefeller Foundation has contributed \$50,000. This will enable the organization to explore new types of program material, develop new audiences through present high school and college programs, and extend its activities to new areas, especially rural and semirural districts.

**YOUNG MEN'S AND YOUNG WOMEN'S
HEBREW ASSOCIATION****NEW YORK POETRY CENTER**

Among the first to sponsor public readings by contemporary poets of their own works, the Poetry Center of the Young Men's and Young Women's Hebrew Association, New York, has for the past 20 years offered a variety of programs designed to stimulate both the creation and appre-

ciation of poetry. One of its newest and most successful endeavors is an "Introduction" series, in which established poets help to identify and introduce promising younger poets to the public.

Besides stimulating interest in poetry in the New York area, the center fosters poetry readings across the country by serving as a national booking agency for poets and by maintaining an information and advisory service for other centers. During the past few years requests for information have become so numerous that the center is now encouraging the creation of autonomous regional units whose programs will be based on local needs and interests. To further this effort, it has organized an advisory committee of poets and critics representing different sections of the country.

The center's own presentations as well as its nationwide activities will be continued for three more years with the help of a \$35,000 grant made by The Rockefeller Foundation during 1960, supplementing support begun in 1957.

YALE UNIVERSITY

SCHOOL OF DRAMA

The only laboratory in the United States dealing with the engineering problems of theatrical production is that directed by Professor George C. Izenour at the Yale University School of Drama, New Haven, Connecticut. Among the accomplishments of Professor Izenour and his associates are the development of an electronic synchronous winch system that constitutes the first innovation in stage rigging since the Renaissance and of an electronic control system for theatrical lighting.

Professor Izenour's primary concern has been the solution of technical problems that restrict the development of new forms of writing, acting, directing, and design in the contemporary theatre. His two electronic systems, which

permit the mounting of plays at a fraction of present cost and with fewer personnel than now required, are currently installed in or planned for a number of new educational and community theatres in the United States and Latin America.

To train several experts who can supply technical advice for the theatrical construction expected in the 1960's, the laboratory is instituting a new program under which six postgraduate internships will be awarded during the next six years with funds from a Rockefeller Foundation grant of \$14,400. To provide equipment required for further and more varied experimentation, the Foundation has made an additional \$23,000 available for a two-year period.

OTHER GRANTS

Congress for Cultural Freedom, Paris, France: to invite Western composers and musicologists to visit Asia in conjunction with the East-West Music Encounter held in Tokyo, Japan, in the spring of 1961 under the sponsorship of the Congress for Cultural Freedom; \$18,000;

American Symphony Orchestra League, Inc., Charleston, West Virginia: to develop a pilot program for the regional management of symphony orchestras and arts councils in the smaller cities; \$16,000;

Rhodesian Academy of Music, Bulawayo, Southern Rhodesia: development of a program in African music; £4,900 (about \$14,000) for a three-year period;

Japan Society, Inc., New York: Arthur Flory, lithographer and graphic arts teacher, Temple University, Philadelphia, Pennsylvania; to open a teaching studio in lithography in Japan and to meet Japanese printmakers; \$13,500;

Honolulu Academy of Arts, Hawaii: to prepare a documentary film on classical Hawaiian dance; \$10,000;

Modern Poetry Association, Chicago, Illinois: Henry Rago, editor,

Poetry magazine; to assess current literature and literary criticism in Europe; \$10,000;

New York City Housing Authority, New York: a program concerned with developing aesthetic components in city housing; \$10,000;

University of California, Los Angeles: a program of ensemble musical improvisation, under the direction of Lukas Foss, American composer; \$10,000;

University of Concepción, Chile: general support of a Writers' Workshop; \$10,000;

University of Utah, Salt Lake City: to invite choreographers of modern dance to participate in the dance program directed by Miss Virginia Tanner; \$10,000;

Arts Council of Ghana, Accra: support of the Ghana Experimental Theatre, under the direction of Mrs. Efua Sutherland; £3,235 (about \$9,280);

East Africa High Commission, Nairobi, Kenya: encouragement of creative writing in East Africa through a program of competitions and commissions carried on by the East African Literature Bureau; £3,000 (about \$8,550);

Department of Antiquities, Lagos, Nigeria: to establish an exhibition gallery in the Lagos Museum; £2,900 (about \$8,265);

Harvard University, Cambridge, Massachusetts: research on the book as a medium of original artistic expression in the United States; \$7,500;

Yoshinobu Ashihara, Japanese architect, Tokyo, Japan: to observe current problems in civic design and architecture in the United States and Europe; \$6,850;

Dr. Theodore Gusten, vice-president and director, International Graphic Arts Society, Inc., New York: to visit artists, curators, and art critics in Japan and Korea; \$6,390;

University of Minnesota, Minneapolis: to provide teaching aids

for the Departments of Music and of Fine Arts of Seoul National University, Korea; \$6,000;

H. U. Beier, tutor, Extra-Mural Department, University College, Ibadan, Nigeria: to study developments in contemporary African literature in sub-Saharan Africa; \$5,500;

American Educational Theatre Association, Latin American Theatre Committee, New Haven, Connecticut: to enable a Latin American theatrical director to participate in the productions of educational and community theatres in the United States; \$4,700;

Miss Peggy Glanville-Hicks, composer and musicologist, New York: to study the relationships among musical forms in the West, the Middle East, and Asia; \$4,000;

Cornell University, Ithaca, New York: study in Europe of current problems in civic design, by Dean Thomas W. Mackesey, College of Architecture; \$3,600;

Dr. J. Tilakasiri, lecturer in Sanskrit, University of Ceylon, Peradeniya: to study puppet drama in Japan and South Asia under the sponsorship of the Arts Council of Ceylon; \$3,600;

Eduardo Waddington, Brazilian actor and drama coach, São Paulo, Brazil: to observe the training of professional actors in the United States; \$3,350;

University of Oklahoma, Norman: Dr. W. Bernard Fleischmann, editor, *Books Abroad*; to visit writers, publishers, and literary critics in Europe; \$3,275;

University of Bahia, Salvador, Brazil:

Martim Gonçalves, director, Theatre School; to observe professional and educational theatre activities in the United States; \$3,325;

Altamiro Bullhões Carvalho, Theatre School; to study theatrical lighting techniques in the United States; \$2,800;

Purdue University, Lafayette, Indiana: study of cultural values affecting civic planning agencies in metropolitan New York, by

Professor Lawrence Haworth, Department of History, Government, and Philosophy; \$3,140;

New York Youth Concerts Association, Inc., New York: instruments needed in the development of the symphony orchestra of the Indonesian State Radio, Djakarta; \$2,500;

Drew University, Madison, New Jersey: study in Europe of the outstanding works of twentieth-century religious art, by Mrs. Jane Karlin, instructor in religious art; \$2,480;

Indonesian National Theatre Academy Foundation, Djakarta: equipment and supplies for use in the educational program; \$2,450;

Miss Juana de Laban, professor, Department of Drama, Baylor University, Waco, Texas: to participate in the program of the Theatre School, University of Bahia, Salvador, Brazil; \$1,725;

Dean F. Curtis Canfield, School of Drama, Yale University, New Haven, Connecticut: to consult British and European theatre directors in connection with a proposed book on stage direction and educational theatre; \$1,400;

University of the Ryukyus Foundation, Shuri, Okinawa: additional expenses of visits to art galleries and museums in the United States and Europe by Masayoshi Adaniya, assistant professor of art, University of the Ryukyus; \$900;

National Music Council, New York: expenses of three delegates from the United States attending two inter-American music conferences in Puerto Rico during December, 1960; \$675.

Special Projects

INTERNATIONAL CHRISTIAN UNIVERSITY, JAPAN

STUDY OF THE EFFECTS OF HIGHER EDUCATION ON STUDENT VALUES

The values to which a student is exposed in the course of a university education not only contribute to his personal development, but may also determine the humane use to

which he puts his intellectual achievements in later life. Yet relatively little is known about the effect of higher education on personal values, since research techniques in the comparatively new field of value measurement are still rough and imprecise.

One of the pioneers in the field, Dr. Maurice E. Troyer, is planning to investigate the growth of attitudes on value questions in one class of students at International Christian University, Tokyo, Japan, through their four-year course of study. In addition, Dr. Troyer, who is vice-president for education at the university, will compare their attitudes with those of the other classes in attendance during this period and of students at two other Japanese universities which attract young people similar in ability and social origins but which are non-Christian in orientation. It is hoped that the study will lead to further refinement of research techniques, as well as form the basis of a continuing values assessment program at the university. A knowledge of student values is of particular importance in Japan, where the gap between student thought and that of the older generation is even greater than in most other countries.

The Rockefeller Foundation has appropriated \$55,000 to International Christian University for support of the study over the period ending December 31, 1965.

NATIONAL ARCHIVES AND RECORDS SERVICE

INTER-AMERICAN ARCHIVAL SEMINAR

To help answer questions dealing with the problems of basic archival organization and training, the National Archives and Records Service is sponsoring an inter-American seminar, the first of its kind, to be held in Washington, D.C., in October, 1961. Arrangements have been made for the attendance of about 40 archivists from Latin America who will meet leading archival authorities from the United States

and Canada. The tentative agenda includes such topics as the status of the archival profession throughout the Americas, the definition of archival responsibilities, and the relationship between the archival profession and libraries and museums.

The seminar program will be supplemented by experiences in several operating archives, including the National Archives and the Maryland Hall of Records in Annapolis. Information reviewed in the meetings will be published in Spanish and Portuguese and should be especially useful in archival administration courses offered at Latin American training centers. Among the publications to be issued is a guide to arrangement and description practices for government archives and private manuscript collections with special reference to Latin America. The development of a common approach to the preparation of a usable guide to Latin American historical sources should help make more accessible to scholars the widely distributed records on colonial and contemporary Latin American history. The proposed meeting will have the support of a \$40,700 grant from The Rockefeller Foundation.

KOKUGAKUIN UNIVERSITY

UNIVERSITY LIBRARY

A privately supported university affiliated with Shrine Shinto, one of the two modern forms of the ancient ancestral religion of Japan, Kokugakuin University in Tokyo has long been an outstanding center for studies of Japanese culture. At its Institute for Japanese Culture and Classics, research is being conducted in literature, religion, and philosophy with a view to bringing international work in these fields to bear on the understanding of Japanese institutions.

To provide the best facilities for scholarly research, the university in 1956 built a new library which, although in use since then, recently underwent changes in interior design to

provide for new services. With the help of a Rockefeller Foundation grant of 10,372,500 yen (about \$31,120) the university plans to incorporate the many small libraries scattered throughout the university into the main library collection, install carrels for graduate students and faculty members, add to facilities for the use of microfilm, and improve the library's open stack and reference services.

NEW YORK UNIVERSITY

GRADUATE INSTITUTE OF BOOK PUBLISHING

The Graduate Institute of Book Publishing at New York University, New York, encourages high standards of performance in young men and women entering the book publishing field by helping them develop professional competence to deal with problems of editing, publishing, and distribution. Established in 1958 on a four-year experimental basis, the institute offers a one-year graduate course combining academic study with internship training in the publishing industry.

To match the virtually unlimited range of the industry, 30 students from a variety of academic backgrounds are enrolled at the institute each year. They attend classes three afternoons and three evenings a week in addition to performing their internship duties every morning. The institute also provides for the yearly training of four editors and publishers from Asia, Africa, and Latin America. In support of the institute's work in the publishing field, The Rockefeller Foundation has made a two-year appropriation of \$25,000.

OTHER GRANTS

Dean Farid S. Hanania, American University of Beirut, Lebanon, and Mrs. Hanania: to visit university centers in Asia, North America, and Europe; \$12,500 through June, 1962;

Miss E. J. A. Evans, director of library services, Ghana Library Board, Accra: to visit libraries and archives in several other countries in connection with plans for coordinating library resources in Ghana; \$8,550;

University of Tokyo, Japan:

Visits to the United States by three Japanese librarians, to be administered by David C. Weber, assistant director, Harvard University Library, Cambridge, Massachusetts; \$8,460;

Professor and Mrs. Hideo Kishimoto; to visit North America and Europe in connection with studies of library administration and of religion; \$7,410;

A survey of the university library system; 720,000 yen (about \$2,016);

Harvard University, Cambridge, Massachusetts: studies in the philosophy of morals and education, at the Harvard Graduate School of Education, by Dr. Richard S. Peters, reader in philosophy, Birkbeck College, University of London, England; \$8,000;

D. S. Reddi, vice-chancellor, Osmania University, Hyderabad, India: to observe general education programs and the organization of large urban universities in the United States and Great Britain; \$4,900;

New York Public Library, New York: to develop a program under which the official gazettes of foreign countries can be made readily available for scholarly and professional use; \$3,900;

Professor N. K. Sidhanta, vice-chancellor, University of Calcutta, India: to review the problems of large urban universities in the United States and Great Britain; \$3,825;

University of Michigan, Ann Arbor: additional funds for a training program in linguistics for Egyptian English teachers; \$3,000;

United Board for Christian Higher Education in Asia, New York: to invite Dr. Merton Munn to serve for an additional year as dean of instruction and dean of arts and sciences at Silliman University, Dumaguete, Philippines; \$2,000;

University of Hong Kong: visits to centers of linguistic research in the United States by A. W. T. Green, senior lecturer in linguistics; \$1,750;

Dean Teruji Ishizu, Faculty of Arts and Letters, Tohoku University, Sendai, Japan: to observe student counseling services in North America while en route from Europe to Japan; \$1,300;

University College of the West Indies, Mona, Jamaica: studies of Creole English; \$1,250;

Japan International Christian University Foundation, Inc., New York: to enable Yasuyuki Owada, graduate student, Teachers College, Columbia University, New York, to assist Dr. Maurice E. Troyer, vice-president, International Christian University, Tokyo, Japan, in planning a research program on educational values; \$1,175;

Miss Beatrice Sutherland, director, Testing Center, Materials Development Project, Ministry of Education, Djakarta, Indonesia: to visit the Philippine Center for Language Study, Manila; \$600;

Fund for grants of amounts not exceeding \$500, for allocation under the supervision of the Foundation's Director for Humanities; \$10,000.

Social Sciences

SOCIAL SCIENCES

Major Interests, 1960

The Social Sciences as Basic Disciplines	\$ 875,040
The Quest for Development.....	1,316,795
Fundamental Problems of Contemporary Society.....	478,000
Legal and Political Philosophy.....	399,775
Fellowship and Scholarship Fund.....	500,000

SOCIAL SCIENCES

THE ROCKEFELLER FOUNDATION's program in the social sciences in recent years has consistently stressed three long-term objectives. The first is to support research in the basic social science disciplines likely to extend the frontiers of knowledge. The second is to assist development in emerging societies through aid to promising centers of social science research and training, through support of Western centers conducting research on development problems, and through help to training programs for economists, central bankers, and diplomats destined to play a key role in the development process. The third objective is to encourage study of persistent problems on the near horizon that may dominate the thinking of contemporary societies in the coming years.

While careful attention has been given to each objective, the relative emphasis has shifted from one year to the next as opportunities and needs present themselves. The wind of change in developing societies has increasingly stimulated the efforts of this Foundation as well as other organizations devoted to the welfare of mankind. A growing proportion of funds and interest has been directed to programs contributing to the achievement of the second objective.

Support and encouragement of research in the basic fields of the social sciences is not a task for those who yearn for quick achievements or constant novelty in program. The research program in international economics of the National Bureau of Economic Research, for example, draws on a well-

established tradition of approaching economic problems by tracing their statistical history and charting alternative courses of action with their possible consequences. National Bureau economists engaged in this program will build on earlier studies of the structure of world trade and cyclical fluctuation in trade. Research on voting behavior in the 1960 presidential election at the University of Michigan Survey Research Center is the third in a series of national cross-section surveys which taken together are producing comparable data of considerable significance. Studies of the formulation of foreign policy in selected Western and non-Western countries by scholars at American University will, it is hoped, suggest both customary and unique elements in the foreign policy process. Taken together, these studies are aimed at the attainment of more generalized knowledge and understanding of important segments of social reality.

The quest for rapid political and economic development has become the dominant purpose of nearly two-thirds of the world's people. New governments are being called upon to erect over-all structures for policy-making and administration that can bear the weight of decisive action. The Foundation enjoys an opportunity to contribute to the fulfillment and enrichment of this historical movement. It may do so, for instance, by providing library resources for countries struggling to develop qualified leaders in important professional fields. The assistance may, in one case, take the form of a grant to enable the International Bank for Reconstruction and Development to furnish basic working libraries on economic development to ministries of finance or economic affairs, development corporations, or central banks in emergent nations. In another instance, foreign ministries of recently independent states have requested help toward the costs of their libraries, and 21 small grants have been made for this purpose. A yet more urgent need may be direct assistance in the training of responsible leaders. Harvard University's

Center for International Affairs, the Carnegie Endowment for International Peace, and the International Bank have pioneered in shaping programs for the training of young diplomats and economists from the new nations who will assume major responsibility in the years ahead. While direct help to such programs cannot be justified as a contribution to basic research, support of them is quite consistent with the Foundation's long-standing dedication to the pursuit of excellence expressed in its fellowship and scholarship awards. The Colegio de México is engaged in developing an advanced training program for young Mexican and South American specialists in international relations, and the Foundation is joining Mexican sponsors and the Organization of American States in lending support to this important new program.

Research on problems of economic, political, and social development continues to have importance within the social sciences program. Studies of economic growth, such as economists at Hitotsubashi University in Japan are conducting, contribute to economic theory and to a better understanding of the development process. Fiscal administration and the role of government corporations are important factors in economic development being studied by the Institute of Public Administration at the University of the Philippines. Research by four scholars at Michigan State University on development administration in Brazil, India, Pakistan, South Viet Nam, and southern Italy is intended to contribute to basic knowledge of this aspect of development. Programs of research and advanced training in economics at the University of Rio Grande do Sul, in Brazil, and at the University of the Andes, Bogotá, Colombia, are expected to add to understanding of economic development in Latin America. These examples suggest that the Foundation, while giving increased attention to the need for training leaders in developing countries, has not slackened its interest in the support of responsible and objective research.

The third aim in the social sciences program has been to encourage study of fundamental problems of contemporary society. In Europe the trend toward European unification with its implications for national economic policies has enlisted the attention of a group of outstanding economists at the Free University of Brussels. Armaments control, legal trends in contemporary China, the legal and political problems of outer space, Japanese-American relations, and the office of American Secretary of State are among the problems being surveyed by Western scholars with Foundation support. While study of complex and challenging problems does not assure their solution, responsible leaders attest to the value of careful analysis and evaluation by outstanding scholars.

The Social Sciences as Basic Disciplines

NATIONAL BUREAU OF ECONOMIC RESEARCH

RESEARCH IN INTERNATIONAL ECONOMICS

An autonomous research body serving both public and private groups, the National Bureau of Economic Research, New York, is distinctive in its approach in that it presents the statistical history of economic problems and traces alternative courses of action and their possible consequences without emphasizing explicit policy conclusions. During the 40 years since its founding, the bureau has investigated most of the major recurrent economic problems of the century with help totaling more than \$7,000,000 from The Rockefeller Foundation and associated boards.

One subject of special interest to economists, businessmen, and, increasingly, private citizens throughout the world—the international balance of trade—has been the topic of several studies conducted by the bureau's members.

Among related investigations nearly completed is one on the structure of world trade and payments and another on the cyclical fluctuation in foreign trade. A historical survey of the volume, price, and value of United States exports and imports is under way, and several years ago the bureau published the definitive *International Transactions and Business Cycles*.

The most recent grant of \$300,000 made by The Rockefeller Foundation during 1960 will assure continuity of research on international trade for a period of ten years.

UNIVERSITY OF MICHIGAN

STUDY OF VOTING BEHAVIOR

Beginning with the campaign and election of 1948, the Survey Research Center of the University of Michigan, Ann Arbor, has been examining national elections in an effort to throw light on the workings of a free democratic system. Under the leadership of Professor Angus Campbell, the center's staff has accumulated an impressive number of data on the ways the people of a democracy behave politically and on the processes of representative government. Two books, *The Voter Decides* and *The American Electorate*, have resulted from the work.

To find out more about the fundamental problems of political stability and change, the Survey Research Center investigators have embarked on a thorough examination of the 1960 presidential election, their third in a series of national cross-section surveys which are producing comparable data on three presidential elections and the intervening congressional elections. By interviewing again the same national population sample questioned in 1956 and 1958, they hope to gain valuable information on the strata of the electorate responsible for shifts of opinion in American elections; the meaning of the loss of congressional vote usually sustained

in non-presidential election years by the party of the President; the relative weight of group and party loyalties and of national and international events in the voter's choice; and the importance of membership in religious, racial, or economic groups.

In their current survey, as in the earlier ones, the center's staff are gathering answers to questions concerning issues, candidates, and parties from a panel of American households chosen by the most exacting sampling techniques. Among the issues to which they are giving attention are the extent to which the 1960 voter has been influenced by the events of the past four years, whether party structure is being altered by the dominance in politics today of "personalities," and whether individual party loyalties shift with changes in the voters' economic and social status.

To help finance the Survey Research Center's study of the 1960 election, The Rockefeller Foundation has appropriated \$206,800 for use over a four-year period. The center's voting behavior researches and other projects have been assisted by previous Rockefeller Foundation grants amounting to about \$750,000.

UNIVERSITY OF WASHINGTON

RESEARCH ON ECONOMIC HISTORY

To bridge the gap between studies of economic history and economic growth, Professors Douglass C. North and Morris D. Morris are doing cooperative research in the field of economic history, based on the conviction, a growing one in the profession, that the problem of economic development is the central theme of economic history, especially in the underdeveloped areas.

Supported through the Institute of Economic Research at the University of Washington, Seattle, both men have investigated different phases of economic history. Professor

North recently completed a study of United States economic growth from 1790 to 1860 and will now study developments from 1860 to World War I and the economic history of the colonial period. Professor Morris, who has done research on the history of the Indian labor force, will direct his attention to other aspects of the economic history of India. He hopes to uncover data that will help determine whether the Indian economy since 1860 has grown, remained static, or even declined in its economic capacity.

The two economic historians will work together on seminars and research activities with occasional assistance from other specialists in the related fields of economic history and economic development. The Rockefeller Foundation has made a three-year appropriation of \$37,650 to the university toward the costs of the research program.

AMERICAN UNIVERSITY

RESEARCH ON FOREIGN POLICY FORMULATION

Recently the American University in Washington, D.C., began sponsoring comparative studies of the process of foreign policy formulation in major Western and non-Western countries in an effort to close the gap between popular conceptions and actual practice. The studies were conceived as attempts to establish modes of analysis appropriate to the examination of foreign policy across national boundaries. Individual projects on Canadian, Swedish, Indian, and United States foreign policy have been initiated in which the scholars are examining foreign policy formulation in terms of each country's organization for decision-making, executive-legislative relations, internal and external political forces, locus of responsibility, and system of representation abroad.

In the next year, studies of four additional countries, to be selected from a list that includes Poland, Indonesia,

the Soviet Union, the United Kingdom, the United Arab Republic, and the German Federal Republic, are to be undertaken. The program is expected to culminate in separate books on each of the countries, and a general volume synthesizing the results of the individual studies.

To help finance the American University project, which is being carried on in the School of International Service, The Rockefeller Foundation has appropriated \$30,000, available during a three-year period. Earlier Foundation grants in aid are helping to finance the scholars working on Canadian and Swedish foreign policy.

COLUMBIA UNIVERSITY

STUDY OF AMERICAN FOREIGN AID

Dr. Herbert Feis, a former economic advisor and member of the Policy Planning Staff of the Department of State, is conducting an analytical study at Columbia University, New York, of United States foreign aid since World War II. He will examine the link between United States nonmilitary foreign aid in the postwar period and the success of the country's foreign policy in achieving its external political and economic objectives. Although the study will be focused on American foreign aid policies, Dr. Feis' intent is to mark out lines of analysis relevant to aid programs in other lands.

Dr. Feis will present a historical account of the role of United States foreign aid since 1945 and discuss how this aid may both have served and impeded foreign policy. Some attention will be given to the obstacles and problems existing in foreign countries where the aid and support were extended. Dr. Feis will consider assistance provided through national and international agencies by both government and private industry. His study will have the support of a two-year, \$30,000 Rockefeller Foundation grant.

HARVARD UNIVERSITY**CONFERENCE ON INPUT-OUTPUT TECHNIQUES**

Input-output analysis has been increasingly used in both theoretical and practical economic studies since the end of World War II. Economists in government bureaus, universities, and research institutes in a growing number of countries throughout the world are using input-output techniques to examine relationships in the economy as a whole and within its various sectors.

The increasing application of input-output analysis in both developed and underdeveloped countries has created a need for economists to meet together to discuss theoretical and empirical problems, newly developed methods of application and their results, and possibilities for international collaboration. In association with the United Nations Secretariat, Harvard University's Economic Research Project is developing plans for a conference to be held in 1961 in which researchers from many countries, including the Soviet Union, where input-output analysis is under way will participate. A Rockefeller Foundation grant of \$25,000 to Harvard University, Cambridge, Massachusetts, will help meet the costs of the conference.

OTHER GRANTS**Columbia University, New York:**

To complete the collection of the John Jay papers and to prepare two monographs on Jay's diplomacy; \$15,000 for a two-year period;

Research and training in Middle Eastern diplomacy, under the direction of Professor J. C. Hurewitz, Department of Public Law and Government; \$10,000;

Research on the economic history of modern Italy, by Professor Shepard B. Clough, Department of History; \$8,000;

University of Minnesota, Minneapolis: research on the political power structure in the United States, by Professor Arnold M. Rose; \$15,000 through October, 1961;

Geneva Graduate Institute of International Studies, Switzerland: to purchase a microfilm edition of *The New York Times* from 1898 through 1960; \$10,000;

Ohio State University, Columbus: study of English population history from 1690 to 1850, by Dr. John T. Krause, instructor in history; \$10,000;

Stanford University, Palo Alto, California:

Food Research Institute; to prepare for publication the findings in a research program on the functioning of "speculative" markets, by Dr. Holbrook Working; \$10,000;

Study of social and psychological factors contributing to delinquent behavior among adolescents, by Dr. Paul Wallin, professor of sociology; \$5,760;

University of London, England:

London School of Economics and Political Science; research on demographic changes in Great Britain during the seventeenth, eighteenth, and nineteenth centuries, by the Population Investigation Committee under the direction of Professor David V. Glass, chairman; \$10,000;

Completion of research on "The Anatomy of International Theory," by Martin Wight, reader in international relations, London School of Economics and Political Science; £2,965 (about \$8,450);

Research on the processes of social mobility and industrialization in Japan, by Ronald P. Dore, reader in sociology, London School of Economics and Political Science; \$6,700;

Michigan State University, East Lansing: continued analysis of Czechoslovakian national income and its determination in the period 1948-1958, by Dr. Boris P. Pesek, assistant professor of economics; \$9,945;

University College of Rhodesia and Nyasaland, Salisbury: research on the political ideas of English imperialism in the late nineteenth century, by Eric T. Stokes, professor of history; £3,360 (about \$9,575);

University of Oklahoma, Norman: research on the formation and change of social norms and values, under the direction of Professor Muzafer Sherif, director, Institute of Group Relations; \$9,500;

University of Rochester, New York: research on cyclical fluctuations in a centrally planned industrializing economy, by Professor Alexander Eckstein, Department of Economics; \$9,500;

American Statistical Association, Washington, D.C.: to convene a meeting of representatives of professional societies to explore ways of increasing coordination among groups interested in the use of statistical techniques; \$9,000;

Duke University, Durham, North Carolina: research on independent, third-party judgment of controversies in international law, by Dr. Hans W. Baade, visiting associate professor of law, School of Law; \$8,000;

University of Pennsylvania, Philadelphia: research on the structure of the American economy, under the direction of Professor Lawrence R. Klein, Wharton School of Finance and Commerce; \$8,000;

Royal Economic Society, Cambridge, England: to commission and publish in *The Economic Journal* six survey articles on recent developments in economic theory; £2,460 (about \$7,000);

Harvard University, Cambridge, Massachusetts:

A working seminar on the comparative law of land-use planning and controls, under the direction of Professor Charles M. Haar; \$6,000;

Study, in the United Kingdom, of the cultural and philosophic basis of Indian democracy, by Father Anthony J. Parel, S.J., graduate student; \$2,300;

Professor Yoichi Kodama, director, Economic Institute, Kagawa University, Takamatsu, Japan: to visit university centers in the United States in connection with studies in the general field of Japanese economic history; \$5,760;

Professor Zentaro Matsumura, professor of international finance, Department of Economics, Wakayama University, Takarazuka-shi, Japan: to observe research on problems of United States monetary policy at university and government centers in the United States; \$5,660;

University of California, Berkeley: research on the development of the process of industrialization in Western Europe, by Dr. David S. Landes, professor of history and economics; \$5,650;

National Council of the Churches of Christ in the United States of America, New York: preparation of a terminal volume in a study of the relation of ethics to economic life, by the Department of the Church and Economic Life; \$5,000;

University of Wisconsin, Madison: research concerned with developing statistical information on economic growth in the United States during the nineteenth century, under the direction of Professor Manuel Gottlieb, associate professor of economics, in cooperation with Professor Moses Abramovitz, professor of economics, Stanford University, Palo Alto, California; \$5,000;

Johann Wolfgang Goethe University, Frankfurt, Germany: to invite Dr. Egon Sohmen, assistant professor of economics on leave from Yale University, New Haven, Connecticut, to serve as visiting professor of economics for the 1960-1961 academic year; \$4,025;

Mills College, Oakland, California: study, in the United States and the United Kingdom, of the office of Prime Minister, by Robert L. Johnston, assistant professor of government; \$3,500;

Professor Takuma Yasui, Department of Economics, Tohoku University, Sendai, Japan: to visit university departments of economics in the United States in connection with research on economic theory; \$3,500;

Professor W. H. Morris-Jones, professor of political theory and institutions, University of Durham, England: to conduct research on parliamentary government in India; \$2,730;

Free University of Brussels, Department of Applied Economics, Belgium: expenses of economists attending a conference on national economic policies and the common market, held in Europe during the summer of 1960; \$2,500;

Tufts University, Fletcher School of Law and Diplomacy, Medford, Massachusetts: a preparatory conference on the future role of the International Court of Justice, held in Europe during the fall of 1960; \$2,500;

Educational Testing Service, Princeton, New Jersey: a conference held at the Villa Serbelloni, Bellagio, Italy, during August, 1960, on the measurement and comparison of values, under the direction of Dr. Harold Gulliksen, research advisor, Educational Testing Service, and professor of psychology, Princeton University, New Jersey; \$2,000;

Herbert G. Nicholas, fellow, New College, and reader in the comparative study of institutions, University of Oxford, England: to visit the United States to continue research on British foreign policy vis-à-vis the United States; \$2,000;

University of Florence, Italy: research on political representation and the circulation of elite groups of political leaders in Italy, under the direction of Professor Giovanni Sartori, Faculty of Social and Political Sciences; 930,000 Italian lire (about \$1,535) through June, 1961;

Long Beach State College, California: study of United States policy during the Spanish Civil War, by Dr. James F. Ragland, assistant professor of history; \$1,500;

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

The Quest for Development

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE

DIPLOMATIC TRAINING PROGRAM

Among the problems confronting the new nations of Africa and Asia as they assume responsibility for their own affairs, one of the most urgent is their need to create rapidly a machinery for the formulation and conduct of foreign policy. In few if any of these countries are there sufficient numbers of well-trained diplomats to develop and carry out foreign policy in ministries at home and effectively represent their nations' interests abroad.

Several years ago, in response to the interest expressed by representatives of these countries, the Carnegie Endowment for International Peace, New York, began to explore opportunities for assisting Asian and African nations in their efforts to build up a corps of diplomats thoroughly conversant with the practices and procedures of modern international relations. The advanced training program that has been devised by the endowment consists of two different activities.

The first training scheme provides fellowships that enable foreign service officers from recently independent countries to undertake advanced study in international affairs and diplomatic practice at universities and institutes in the United States and Europe. At present 16 Fellows are engaged in special studies at Columbia University's School of International Affairs in New York and at the Geneva Graduate Institute of International Studies, Switzerland.

For young diplomats serving in embassies in Washington and in delegations to the United Nations in New York, the endowment has organized a second program of part-time inservice seminars on foreign policy formation and the procedures of multilateral diplomacy. In Washington the Johns Hopkins University School of Advanced International Stud-

ies has initiated two series of seminars relating primarily to economic development and to international relations in Asia and Africa. The endowment, in New York, hopes to conduct seminars at the United Nations on United Nations issues and procedures.

Most of the participants in the program are diplomats 25 to 35 years old who are already in the service of their governments. Selections are made by the endowment, with the assistance of an international advisory committee, on the basis of nominations by the participating governments.

In the spring of 1959 The Rockefeller Foundation appropriated \$25,000 to the Carnegie Endowment to help finance the expenses of planning the diplomatic training activity. Through two grants totaling \$500,000, made in 1960, the Foundation is helping to finance the program through September, 1962. The funds made available by the Foundation will also permit the endowment to experiment with additional types of study plans for foreign service personnel who cannot be given extended leave and who are not in New York or Washington long enough to participate in the present seminar programs.

HARVARD UNIVERSITY

CENTER FOR INTERNATIONAL AFFAIRS

Harvard University's Center for International Affairs is a meeting place where studies of current issues can be co-operatively conducted by government officials and scholars from non-Western countries and American research scholars. An experiment in the advanced training of diplomats, the two-year-old center seeks to combine basic research on international affairs by both permanent and temporary faculty members with advanced study by diplomats responsible for policy decisions. The center was founded on the theory that

joint participation of productive scholars and mature officials is the best avenue for the deepening of mutual understanding.

The diplomats sent for advanced training by the foreign ministries of European and Asian countries have regularly been senior officers holding important posts. The environment of the center is such that these diplomats have had little difficulty in making the transition from their positions to a university setting.

The center's activities are carried on through three advanced seminars on economic development, military and defense problems, and political questions. The economic development seminar, especially, has become an all-university forum for discussion of the problem from the standpoints of economic theory and of economic policy.

Accommodations for the center have been provided in the Semitic Museum on the Harvard campus and include faculty offices, a working library, seminar rooms, and dining rooms. To finance visiting fellowships for non-Western diplomats, and the participation of at least one American research scholar, The Rockefeller Foundation made a three-year grant of \$120,000 to Harvard University, Cambridge, Massachusetts, during 1960.

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

LIBRARIES ON ECONOMIC DEVELOPMENT

Established to help finance the economic projects of its member countries, the International Bank for Reconstruction and Development, Washington, D.C., has operated an Economic Development Institute since 1955 to train officials charged with development responsibilities in their own nations. Personnel of ministries of finance or economic affairs, central banks, programming offices, and development corpo-

rations, whose work concerns the planning and execution of development policies, have been invited to Washington to participate in the institute program. Some 90 of these former Fellows are now attached to 75 different departments or institutions in 39 capitals and provincial centers of underdeveloped member countries.

To reinforce and extend the training it has provided through the Economic Development Institute, the International Bank now plans to supply selected institutions in the countries where former Fellows are working with basic libraries on problems of economic development. The collections, which will be available to other officials as well, will be sent to at least one institution in each major center.

The library consists of a total of 412 items, including books, journals, pamphlets, and miscellaneous documents, on such subjects as growth theory, planning and administration, statistical methods, land and agriculture, labor, industrial development, and international trade. Studies of individual countries and of special political, geographic, or cultural factors, as well as general reference works, are included.

To help the International Bank meet the expenses of purchasing and shipping the gift libraries, The Rockefeller Foundation has made \$100,000 available over a five-year period.

COLEGIO DE MÉXICO

CENTER FOR INTERNATIONAL STUDIES

The Center for International Studies of the Colegio de México, Mexico City, offers advanced training and research opportunities for scholars from Mexico and other Spanish-speaking countries in the Western Hemisphere. It is hoped that eventually students from the United States, Europe,

and Asia who are interested in Latin American studies will also use the center. Staffed by a distinguished group of Mexican scholars ably assisted by visiting professors from Europe and the United States, the center conducts courses in economic theory and analysis, political theory and government, public international law, and international organization.

A five-year curriculum leading to the Master of Arts degree and a seven-year program culminating in the doctoral degree have been formulated. The first full year's instruction began in January, 1961, with some 25 young Mexican and Latin American students enrolled. With the help of visiting professors, the college also plans to develop programs on the foreign relations of the United States, Western Europe, the Soviet Union, and Asia. The Rockefeller Foundation has appropriated \$75,000 for use by the center over a five-year period.

UNIVERSITY OF THE PHILIPPINES

INSTITUTE OF PUBLIC ADMINISTRATION

In the Philippines, chief responsibility for undertaking research in public administration as well as for training an efficient cadre of public servants is borne by the Institute of Public Administration at the University of the Philippines.

During the next two years members of the institute are planning to work on three related topics of research. Two of these are government corporations and fiscal administration, both of which will be examined in terms of their effectiveness in stimulating economic development. The third will be the life of the late Ramon Magsaysay, whose impact on the political life of the Philippines and influence on patterns of government and democratic institutions in the Philippines and throughout Asia will be analyzed and interpreted. In

addition, the institute is planning to send several of its members to foreign universities for advanced training.

The Rockefeller Foundation will support these research and training programs with an appropriation of \$87,700, available to the institute over the next two years.

HARVARD UNIVERSITY

INTERNATIONAL LEGAL STUDIES

The international legal studies program, an organic part of the curriculum of the Harvard University Law School, Cambridge, Massachusetts, offers a broad approach to research and training in the economic, political, and social aspects of international law. Scholars conduct research on such subjects as the law of international transactions, protection and promotion through law of private investments abroad, taxation and economic development, and regulation of international trade. This wide range of subject matter along with the school's interest in the interaction of differing legal systems and the creation of international law has attracted foreign scholars to the program.

Young professors and civil servants from Europe, Latin America, Asia, and the Middle East have enrolled at the school to receive both specialized and general training in international law. In recent years a few African scholars studied in the program. Now, in view of the need for political leaders with a knowledge of international law to govern the newly independent African countries, an extension of the program is planned to provide study opportunities annually for three or four additional African students. Their programs will be tailored to suit their previous training and current professional responsibilities. To help develop the expanded program, The Rockefeller Foundation has appropriated \$80,000 over a six-year period.

HITOTSUBASHI UNIVERSITY

STUDY OF ECONOMIC GROWTH IN JAPAN

In 1951 a group of economists at Hitotsubashi University in Tokyo undertook an empirical study of Japanese economic growth since the Meiji Restoration of 1868. The work emphasized capital formation as a critical correlate of economic development.

The study, which filled an urgent need of the Japanese Economic Planning Board, also involved exploration of complex new approaches to national income estimation. Thirty-eight volumes of statistics were compiled and issued as preliminary reports in the course of the research.

In undertaking these investigations the scholars had access to volumes of statistics, one for each prefecture, which have been compiled for the period 1868 to 1926. Since for each year during this time there are 46 such yearbooks, the statisticians have still to complete the task of systematically analyzing these materials. In addition to verifying or revising components of their aggregated national income series, the group will use the materials to disaggregate the series by prefecture. As in many other countries, economic development has not proceeded at the same pace within all regions of Japan.

The Rockefeller Foundation, which supported completion of the preliminary study with a grant of \$20,000 in 1957, has appropriated \$58,770 to provide up to 19,590,000 yen for continuation of the study of economic growth and capital formation in Japan.

COMMITTEE FOR ECONOMIC DEVELOPMENT

INTERNATIONAL ECONOMIC PROBLEMS AND POLICIES

The Committee for Economic Development, New York, initiates studies into economic problems of current

importance and, on the basis of research, formulates recommendations which are later publicized. Founded in 1942 by a group of businessmen, the committee in the past confined its studies almost wholly to the economy of the United States. Recently, however, its program has been expanded to include problems in international economics with major emphasis on the economy of Europe.

The committee has now turned its attention to studies of the economic development of Latin America, and is also initiating researches on the international economic position of the United States, the economic activity of the Soviet bloc in the free world, and commercial relations in the Atlantic region. This expanded international program is under the direction of William C. Foster, vice-president of the Olin Mathieson Chemical Corporation, who will head a distinguished group of businessmen and educators well acquainted with international economics.

To support research, policy analysis, and consultation with appropriate experts (especially from Latin America and other developing areas), The Rockefeller Foundation has appropriated \$50,000 for use by the committee over a three-year period.

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF POLITICAL SCIENCE

One of the most urgent problems facing the newly independent nations of the world is the development of a responsible government service to manage the economy and to conduct the nation's business. At times outside help is needed; yet Western public administrators are often ill-equipped to offer counsel since a corpus of knowledge on, and experience of, non-Western governmental forms and problems are lacking. Some universities, including Michigan State, have attempted to solve this dilemma by estab-

lishing operating programs abroad under which Western experts work for extended periods in foreign areas. Experience has shown that such efforts, while often useful, leave untouched the requirements of basic knowledge on the role of administrators in developing economies.

Four scholars at Michigan State who share a common interest in the patterns and problems of development administration in underdeveloped societies are planning an organized research effort designed to illuminate approaches to development administration in Brazil, India, Pakistan, South Viet Nam, and southern Italy. The researchers, Edward W. Weidner, Joseph LaPalombara, John T. Dorsey, and Robert Scigliano, bring to their new investigations considerable knowledge acquired from earlier studies of politics and administration in Europe and Asia. Some of the topics to be studied comparatively are the methods and standards employed in the education and recruitment of public administrators and the record of administrative performance at the village and central government levels. It is hoped that the research will provide a body of basic knowledge upon which new governments and future nations might draw when setting up their own administrative programs.

The Rockefeller Foundation during 1960 appropriated \$50,000 to Michigan State University, East Lansing, to be used during the next four years for the research program in economic development administration.

UNIVERSITY OF RIO GRANDE DO SUL

ADVANCED TRAINING IN ECONOMICS

Brazil, currently undergoing rapid economic growth, needs many more well-trained economists than are now available to staff public and private development agencies and to fill posts on the faculties of economics that must

play the major role in preparing these specialists. Partly with this need in mind, the University of Rio Grande do Sul, Pôrto Alegre, has been developing an exceptionally strong program in economics in its Faculty of Economic Sciences and related Institute of Economic Studies and Research. Full-time participation by both faculty and students is required, teaching and research are closely integrated, and library resources are ample. Postgraduate instruction is offered in agricultural economics, statistics and economic analysis, economic development, and economic theory, and the research activities of the institute focus primarily on the economic development of the State of Rio Grande do Sul.

The university is now initiating an experimental program under which some six promising young economists will undertake one year of closely supervised advanced study and research at Pôrto Alegre, and then go abroad for a second full year of training in a leading economics faculty. On their return, they will assume teaching and research posts either at Rio Grande do Sul or another university in Brazil.

To help the University of Rio Grande do Sul meet the expenses of the new training program, The Rockefeller Foundation has appropriated \$36,500, available during the five-year period that began October 1, 1960.

UNIVERSITY OF THE ANDES

CENTER FOR STUDIES IN ECONOMIC DEVELOPMENT

In 1958 the Center for Studies in Economic Development was founded at the University of the Andes, Bogotá, Colombia, to undertake research on the economic problems facing the developing countries of Latin America. The center also provides advanced instruction for young graduates of the university's Faculty of Economics. Among the studies

completed are an annotated bibliography of the literature of economic development, emphasizing that of Latin America; an analysis of the potato and rice markets in Bogotá; a work on legal barriers to domestic investment in Colombian industry; and a discussion of the teaching of economics in Colombia.

During the next few years members of the center are planning to investigate agricultural requirements of the Colombian economy; estimates of the national product generated by the rural sector of the economy; and public control of the private business sectors.

A 1958 Rockefeller Foundation grant of \$36,000 helped the center initiate its program by financing the services of a visiting director over a two-year period. A second \$36,000 grant, made in 1960, will provide the services of a visiting director over an additional two-year period.

INSTITUTE OF ADVANCED LEGAL STUDIES, ENGLAND

RESEARCH FELLOWSHIP PROGRAM

Since its founding in 1948, the Institute of Advanced Legal Studies, London, England, has encouraged advanced research on comparative law using the Commonwealth as a laboratory for its studies. Recently the institute has enlarged the focus of its comparative law program to include non-Commonwealth areas and African legal systems as a whole. In addition to its researches, the institute sponsors an advanced seminar on the future of African law for eminent jurists and scholars, and accommodates a large number of graduate students from both Asia and Africa.

In 1960 a new research fellowship program, under which two or three postdoctoral scholars from Asia or Africa will receive awards annually, was projected for the next three years with the support of a Rockefeller Foundation

grant of £11,000 (about \$31,350). The appropriation, available during a four-year period, will also be used to purchase materials on African law for the institute library.

OTHER GRANTS

American Universities Field Staff, New York: a comparative study of nationalism in non-European areas, under the direction of Dr. K. H. Silvert; \$10,000;

Brookings Institution, Washington, D.C.: a study of the political role of labor in underdeveloped areas, with special emphasis on the Near East and South Asia; \$10,000;

New York University, New York: expenses of legal scholars from underdeveloped countries participating in an International Seminar on Constitutional Review at the School of Law, and research expenses of the seminar; \$10,000;

University of California, Bureau of Business and Economic Research, Berkeley: completion of field research for a study of industry in Indonesia, 1950-1959, by Dr. Leonard A. Doyle, professor of business administration; \$10,000;

Michigan State University, East Lansing:

Research on democratic and nondemocratic patterns in Arab international relations and political thought, by Dr. Fauzi M. Najjar, assistant professor of social science; \$7,500;

Professor W. Paul Strassman, Department of Economics; to conduct research in Mexico on the appropriateness of factor proportions in selected industries; \$3,500;

University of Florida, School of Inter-American Studies, Gainesville: completion of a study of the plantation system in São Paulo, Brazil, by Dr. Harry W. Hutchinson; \$6,000;

Purchase and shipment of a collection of basic books in international relations to the Ministry of Foreign Affairs, Beirut, Lebanon; \$5,000;

Purchase and shipment of a collection of basic books in international relations to the Ministry of Foreign Affairs, Kuala Lumpur, Malaya; \$5,000;

National Planning Association, Washington, D.C.: to invite four Latin American economists to participate in a conference on inflation and growth in Latin America, held in Europe during July, 1960; \$5,000;

National University of Colombia, Bogotá:

Research on sociological problems encountered by a rural community in the process of economic development, under the direction of Professor Orlando Fals-Borda, chairman, Department of Sociology; 31,212 Colombian pesos (about \$4,715);

Books in the social sciences for the sociology and economics libraries; \$1,800;

University College of Rhodesia and Nyasaland, Salisbury: study of the economics of African agriculture, under the direction of R. W. M. Johnson, lecturer in agricultural economics; £1,530 (about \$4,360);

American Geographical Society of New York, New York: research on the historical background of institutions and values in Montserrat and Dominica, in the Lesser Antilles, by Dr. David Lowenthal, research associate; \$4,100;

University of Pavia, Italy: research in India on Asian nationalism and the impact of Western economic, cultural, and legal influences, by Professor Giorgio Borsa, Institute of Political Science; \$1,800;

University of Valle, Cali, Colombia: social science books for the library of the Faculty of Economic Sciences; \$1,700;

University of Virginia, Charlottesville: completion of advanced study in international relations in the Woodrow Wilson Department of Foreign Affairs, by Hasjim Djalal, Ministry of Foreign Affairs, Djakarta, Indonesia; \$1,000.

Fundamental Problems of Contemporary Society

HAUGE ACADEMY OF INTERNATIONAL LAW

CENTER FOR STUDIES AND RESEARCH IN INTERNATIONAL LAW AND INTERNATIONAL RELATIONS

Three years ago the Hague Academy of International Law, the Netherlands, initiated an annual seminar program for younger international lawyers at its Center for Studies and Research in International Law and International Relations. Held from late August to October, the program provides six weeks of intensive research in international law for about 30 outstanding specialists, teachers, and government officials in training, who apply from almost every part of the world. The student body is divided into two groups, one English-speaking and the other French-speaking, each with its own director of studies who guides and instructs the scholars. The directors assign research topics within the scope of subjects designated for study by the Curatorium, the governing body of the academy; normally two students, one from each language group, receive the same topic and exchange information whenever possible.

During the past three years participants have studied a variety of subjects including the decisions of the International Court of Justice, the law of treaties, and aspects of the 1958 Geneva Conference on the Law of the Sea. Although the academy does not publish student papers resulting from the research, the scholars may publish their own work independently.

The Center for Studies and Research in International Law and International Relations was established with the help of a Rockefeller Foundation grant made in 1955. The

center's seminar program for international lawyers will be continued for five more years with the aid of a new grant of \$150,000 made to the academy in 1960.

UNIVERSITY OF TOKYO

INTERNATIONAL RELATIONS

The University of Tokyo has long played a key role in training Japan's public servants and in setting educational standards in the country. Now, to broaden and strengthen its program in international studies, the university administration is supplementing traditional work in international law and diplomatic history as approaches to the problems of world affairs with a new emphasis on comparative and international politics.

As a first step in the development of the broader international relations program, the university will invite visiting scholars to Tokyo to help organize teaching and research programs in comparative politics, political ideologies and movements, and the formulation and execution of foreign policy. Study programs on the Americas, Europe and Africa, and the Soviet and Slavic regions will be begun later. Asian studies are already in progress at the university's Institute of Oriental Studies.

As integral parts of the program, the university will support researches on Japanese foreign policy and political theory by younger faculty members, and attempt to secure fellowship funds for study abroad by Japanese scholars who can, on their return home, contribute to the work in international relations.

To help meet the expenses of the visiting scholars and of the research activities, The Rockefeller Foundation has appropriated \$75,000 for use by the University of Tokyo over a four-year period.

FREE UNIVERSITY OF BRUSSELS

STUDY OF THE NATIONAL ECONOMIC POLICIES
OF THE WEST

With economic well-being a paramount objective of the governments of the North Atlantic community, a group of scholars drawn from the member nations are planning a systematic, comparative study of their countries' national economic policies. Among the questions they will attempt to answer are these: To what extent do the governments of the community pursue compatible goals? Do they select the most efficient instruments for accomplishing these goals? To what extent are the national economic policies of countries sharing common regional interests harmonious with one another? How aware are officials of the problems involved, and of alternative policies and instruments? How are decisions affecting national economic policy made and how can decision-making be improved? Answers to these questions should also be of interest to Latin American and African communities.

Participating in the parallel studies, to be reported in a joint volume, are scholars from the University of Poitiers, France; the University of Freiburg, Germany; the Michel-sens Institute, Norway; the University of Groningen, the Netherlands; the National Institute of Economic and Social Research, Great Britain; and Yale University. An Italian economist who is currently associated with the European Economic Community will also take part in the investigations.

The study is to be directed by Professor Etienne S. Kirschen, of the Free University of Brussels, Belgium, to which The Rockefeller Foundation has made an appropriation of \$60,000 for the purpose, available over a two-year period.

COLUMBIA UNIVERSITY

THE AMERICAN ASSEMBLY

Founded at Columbia University in 1950, the American Assembly is a national, nonpartisan program bringing together representatives of business, labor, agriculture, the professions, universities, and government for discussions of major problems confronting the United States. The meetings take place at Arden House in Harriman, New York. To provide a background for the conferences, the assembly asks recognized authorities in the field to contribute to a research volume prepared in advance.

The 18th American Assembly, held in October, 1960, was devoted to the changing and expanding character of the office of the American Secretary of State. Topics considered at the assembly included the Secretary's formulation and execution of policy and his relation to the President, to Congress, and to pressure groups and the public.

The research volume in which these problems have been analyzed at the same time filled an urgent need in the literature of international relations. Contributors to the work, who are scholars in government as well as experienced leaders in foreign policy, include former Secretary of State Dean Acheson, William Y. Elliott, Robert R. Bowie, Paul H. Nitze, John Sloan Dickey, and Henry Wriston. Professor Don K. Price of Harvard is the editor.

To support both the research work and the Arden House meetings, The Rockefeller Foundation appropriated \$42,500 as an outright grant.

UNIVERSITY OF CALIFORNIA

CONTEMPORARY CHINESE LAW

Chinese law no less than Soviet law is in the process of fundamental change, and understanding of its develop-

ment is of major importance for the Western world. No American specialists capable of analyzing and interpreting Chinese legal trends have yet appeared, however, to complement those who have investigated Soviet law.

To repair this deficiency, the School of Law of the University of California, Berkeley, plans to set up a program of research and training through which Jerome A. Cohen, a young law school professor, may devote the next four years to intensive work on Chinese history, traditional governmental and legal institutions, and contemporary legal trends. After this initial period Professor Cohen expects to resume his law school position, giving half his time to continued research and advanced study in Chinese Communist law and institutions and the other half to more traditional law school teaching. Cooperating with the School of Law in facilitating Professor Cohen's work will be the Chinese studies program at the university.

The Rockefeller Foundation is assisting with a \$40,000 grant, available to the university over a four-year period.

AMERICAN COUNCIL OF LEARNED SOCIETIES

CURRENT DIGEST OF THE SOVIET PRESS

Published weekly under the auspices of the Joint Committee on Slavic Studies of the American Council of Learned Societies and the Social Science Research Council, the *Current Digest of the Soviet Press* is a valuable resource for American understanding of the Soviet Union. The *Digest* presents a selection and condensation of the contents of the Soviet press, a weekly index to *Pravda* and *Izvestia*, and a quarterly index to other major Soviet publications. First read largely by specialists in Soviet affairs, the journal is now an important reference in an increasing number of libraries of liberal arts colleges and universities, and even those of a few large high schools.

To help meet the expenses of publishing the *Digest* over the next three years, The Rockefeller Foundation has appropriated \$36,000 to the American Council of Learned Societies, New York.

HARVARD UNIVERSITY AND THE MASSACHUSETTS
INSTITUTE OF TECHNOLOGY

ARMS CONTROL SEMINAR

Although no problem in this thermonuclear age is more urgent than the control and limitation of armaments, the complexity of the issues involved has made it extremely difficult to formulate constructive proposals. In an effort to devise new lines of approach, a group of natural and social scientists at Harvard University and the Massachusetts Institute of Technology recently formed an Arms Control Seminar to consider the subject from all aspects. They have first given attention to the problem of a stable deterrent to war in the face of a rapidly developing technology, and are now branching out to consider problems of inspection, detection of nuclear tests, and the balance of political and military advantages in any armaments agreement.

To strengthen their effort, the Harvard-MIT group now plan to appoint two rapporteurs to organize and coordinate the seminar's work, conduct some research, and bring together the findings of other scholars. The group will also sponsor intensive researches into specific problems of armaments control by specialists from their own or other institutions.

The Rockefeller Foundation is helping to finance the expanded program of the Arms Control Seminar through a three-year period with allocations of \$25,000 each to the two institutions.

INTERNATIONAL HOUSE OF JAPAN

JAPANESE-AMERICAN RELATIONS

The International House of Japan, Tokyo, is a cultural and intellectual center where scholars and educators can meet to exchange ideas in such fields as history, international law, philosophy, economics, and political science. In particular, it provides an opportunity for professional contact among Japanese scholars, whose association is sharply limited by the autonomy of institutions of higher learning in Japan. Currently the International House is sponsoring a group of Japanese scholars with varying backgrounds and diverse interests who are studying Japanese-American relations since World War II in terms of the underlying social and political attitudes that shape present-day thinking on foreign policy in both countries.

The group has been divided into two teams of researchers. One will study the historical aspects and changes in Japanese attitudes toward the United States, the Peace Treaty of 1951 and its effect on these attitudes, the influence of Japan's economic recovery, the ideological and cultural background, the country's foreign policy since the Peace Treaty, and Japan's political structure and policy-making processes. The other is concerned with the United States' relationship to Japan in basically the same areas. To help meet the expenses of the study, The Rockefeller Foundation has appropriated \$25,000 for use over a two-year period.

OTHER GRANTS

Columbia University, Institute of War and Peace Studies, New York: study of various forms of political accommodation between the great powers in the nuclear age, by Professor Reinhold Niebuhr; \$10,000;

Institute for Strategic Studies, London, England: travel expenses of scholars conducting research in Europe and the United States on international security; \$10,000;

Yale University, New Haven, Connecticut: completion and revision of a study of the public order of outer space, under the direction of Professor Myres S. McDougal; \$4,500.

Legal and Political Philosophy

SOCIAL SCIENCE RESEARCH COUNCIL

FELLOWSHIP PROGRAM IN LEGAL
AND POLITICAL PHILOSOPHY

Since 1954 the Social Science Research Council, New York, has administered a fellowship program in legal and political philosophy for candidates for the doctoral degree who wish to investigate problems of a more general and fundamental nature than are normally encompassed in specialized or purely descriptive studies. One of the program's original purposes was to create more research opportunities for students interested in the great traditions in political and legal thought, rather than to bind them to branches of political science or law with more immediate occupational opportunities.

Some of the subjects supported have included an inquiry into the role of obligations and rights within democratic states; the concept of causation in legal reasoning; early political writings on the relationships between constitutionalism and leadership; the theory of representation; and the use of mathematical and logical techniques in legal analysis.

A Rockefeller Foundation grant of \$86,250 to the council will finance six to ten predoctoral awards annually for the next three to five years. Two previous appropriations totaling \$172,500 have also been made to the council for fellowships in the field of political and legal philosophy.

HARVARD UNIVERSITY

RUSSIAN RESEARCH CENTER

In the 12 years that have elapsed since its founding, the Russian Research Center of Harvard University has concentrated on producing basic descriptive studies of the Soviet Union. During this time approximately 40 major works have been published, among them *How Russia Is Ruled*, *The Formation of the Soviet Union*, and *How the Soviet System Works*.

The center is now embarking on a phase of more intensive studies in Russian legal, political, and economic theory, and foreign policy. A number of scholars at the center have already begun work on Soviet aid programs in economically underdeveloped areas, cultural exchange as an instrument of Soviet foreign policy, Soviet activity in the United Nations, and Russian doctrines of international law. Others are working on authoritarianism and industrialization, the concept of socialist legality, the growth of Marxist socialism in the East and West, and the conservative tradition in Russian political thought.

The Russian Research Center studies, which are being undertaken by scholars from Harvard and elsewhere, will be assisted by a \$75,000 Rockefeller Foundation grant to Harvard University. The appropriation will provide funds over the four-year period that began in July, 1960, for travel and study in the United States and in the Soviet Union.

INSTITUTE OF ADVANCED LEGAL STUDIES, ENGLAND

COMMON LAW STUDIES

The Institute of Advanced Legal Studies, London, England, well known for its researches on comparative and common law, has recently expanded work in the common law with the appointment of Professor George O. Sayles of the University of Aberdeen as senior research fellow. Professor Sayles, winner of the Ames Prize from the Harvard Law School for the first five volumes of his work on the common law of the Middle Ages, will continue his study with the help of a five-year Rockefeller Foundation grant of £12,000 (about \$34,200).

During this time he hopes to complete four additional volumes on the King's Bench from 1340 to 1423 and to gather material on the High Court of Parliament and for a further volume entitled *Procedure by Bill in the Later Middle Ages*. Professor Sayles will do much of his research at the Public Records Office and the British Museum.

OTHER GRANTS

Princeton University, New Jersey: research on the origin of modern legal institutions, representative government, and social philosophy in the West, by Professor Robert R. Palmer; \$15,500 for a two-year period;

Indiana University, Bloomington: research on the history of freedom, by Dr. Herbert J. Muller, Distinguished Service Professor of Government; \$15,000;

Harvard University, Cambridge, Massachusetts: research on the forms of social order, by Professor Lon L. Fuller, Law School; \$11,325;

Hebrew University of Jerusalem, Israel: research in political theory, by Professor Jacob L. Talmon; \$11,000 through September, 1963;

Brandeis University, Waltham, Massachusetts: completion of a

study of the changing nature of American liberty, by Dr. John P. Roche, professor and chairman, Department of Politics; \$8,000;

University of Michigan, Ann Arbor:

Comparative study of political parties and interest groups in the United States, the Netherlands, and Belgium, by Professor Samuel J. Eldersveld, professor of political science; \$8,000;

Study of the relationship between the problems of political philosophy and sociological research, by Professor Morris Janowitz, professor of sociology; \$8,000;

University of Toronto, Canada: research on constitutional review in Western Europe, particularly in West Germany, by Professor Edward McWhinney, Faculty of Law; \$8,000;

University of Wisconsin, Madison: research on the legislative process, by Professor Ralph K. Huitt, professor of political science; \$8,000;

Wayne State University, Detroit, Michigan: study of the place of natural law and legal positivism in contemporary Germany, by Professor Samuel I. Shuman, Law School; \$8,000;

University of London, England:

Research in the United States on the history of American political thought, by Dr. Bernard R. Crick, lecturer in political science, London School of Economics and Political Science; \$7,300;

Completion of *The Utopian Mind*, by Dr. Aurel T. Kolnai, visiting lecturer in ethics, Bedford College; \$4,000;

Completion of research on the concept of political representation—a comparative study in Anglo-American history, by Jack R. Pole, lecturer in American history, University College; \$3,500;

University of Lille, France: research on ethics and politics by Professor Raymond Polin, Faculty of Letters; 33,333 French francs (about \$7,000);

Columbia University, New York:

Research on the concepts of common good and community in legal thought, by Dr. Martin P. Golding, Department of Philosophy; \$6,500;

Research on the theory of politics, by Dr. Hannah Arendt; \$5,000;

Completion of the second volume of a work on the political philosophy of Jeremy Bentham, by Dr. Mary Peter Mack, research associate, Department of History; \$4,500;

Ohio State University, Columbus: research on the political philosophy of Abraham Lincoln, by Professor Harry V. Jaffa, professor of political science; \$6,500;

Amherst College, Massachusetts: research on the historical and philosophical foundations of government, by Dr. Karl Loewenstein, William Nelson Cromwell Professor of Jurisprudence and Political Science; \$6,000;

McGill University, Montreal, Canada: research on the political theory of Abu-l-A'la Mawdudi and the organization he founded, the Jama 'at-i-Islami, by Charles J. Adams, assistant professor, Institute of Islamic Studies; \$6,000;

University of South Carolina, Columbia: research on decision-making in the democratic framework, by Assistant Professor Gordon Tullock, Department of International Studies; \$6,000;

University of Puerto Rico, San Juan: research on the political theory of economic development, principally at the University of London, England, by Professor José Arsenio Torres, chairman, Department of Social Sciences; \$5,350;

University of Colorado, Boulder: research on the place of interest groups in political theory, by Dr. Henry W. Ehrmann, professor of political science; \$5,000;

University of Notre Dame, Indiana: research and writing on the theology of the Hellenic city-state, by Father John S. Dunne, Department of Theology; \$5,000;

Bryn Mawr College, Pennsylvania: study of the political role of the German academician, by Professor Felix Gilbert, professor of history; \$4,000;

Smith College, Northampton, Massachusetts: research on the political and legal thought of Chief Justice John Marshall, by Professor Leo Weinstein, associate professor, Department of Government; \$4,000;

Wellesley College, Massachusetts: research in England on the nature and ends of political theory, by Dr. Dante L. Germino, assistant professor of political science; \$4,000;

St. Peter's College, Jersey City, New Jersey: research on the development of the concept of the consent of the governed in Western political thought, by the Reverend Francis P. Canavan, S.J.; \$3,500;

Swarthmore College, Pennsylvania: study of the relationship among large associations, such as corporations and labor unions, the public interest, and contemporary theories of democracy, by Dr. David G. Smith, assistant professor of political science; \$3,000;

University of Chicago, Illinois: research on the political philosophy of Abu Nasr al-Farabi, Muslim political theorist of the tenth century, by Dr. Muhsin S. Mahdi, assistant professor of Arabic and specialist in Islamic political philosophy; \$2,850;

Beloit College, Wisconsin: research in England on natural law in recent Anglican thought, by Professor Harry R. Davis, chairman, Department of Government; \$2,500;

Washington University, St. Louis, Missouri: completion of research in the United Kingdom on Renaissance political theory, by Professor J. H. Hexter, chairman, Department of History; \$2,000.

Agricultural Sciences

AGRICULTURAL SCIENCES

Major Interests, 1960

Aid to Research and Teaching.....	\$2,861,549
Grants with Long-Range Relation to the World's Food Supply	23,150
Operating Programs.....	2,922,414
Fellowship and Scholarship Fund.....	800,000

AGRICULTURAL SCIENCES

THE PROGRAM OF The Rockefeller Foundation in the agricultural sciences continues to be directed primarily toward improvement of food production in various parts of the world through advancement of research and education. The cooperative efforts in selected countries, where Foundation scientists furnish guidance to local personnel in research and teaching programs leading toward agricultural improvement, serve as the central core of activity.

Although the operating programs have been expanded moderately during the past year, a concerted effort is being made by the Foundation and the cooperating governments to transfer increasing responsibility for leadership to able, trained local personnel. The decree of President Adolfo López Mateos of Mexico on December 5, 1960, establishing the National Institute of Agricultural Research, marks the culmination of the joint endeavor in Mexico to center leadership of the agricultural research work in a truly Mexican organization. The research contributions made by the cooperative Mexican program since 1943 have made it possible for the country to achieve self-sufficiency in the production of the major food grains, corn and wheat. Most important, the cooperative program has trained a corps of scientists capable of guiding the further development of agricultural science and technology in Mexico. It will soon be possible to implement the same procedure for transfer of leadership for selected projects to local personnel in the cooperative program in Colombia.

Foundation assistance to research and educational activities at institutions in the United States has shifted somewhat as funds from other domestic sources have been increased for fundamental studies and for programs of national concern. The Foundation has, however, continued to support selected research projects of broad potential interest and growing concern internationally, such as the studies of the nitrogen cycle in soils at Iowa State University and the research in maize genetics at North Carolina State College. The North Carolina studies will be directly concerned with utilization of the abundant stocks of maize germ plasm available in Mexico, Colombia, and Brazil, and will also furnish training opportunities for Latin American students who are concentrating on maize improvement.

The need for increased attention to agricultural development in the emerging nations of Africa is widely recognized, and a growing number of Foundation grants have been made to research and educational institutions in African countries during the past year. The establishment of a sound basis for technological development in agriculture is essential to the economic and social advancement of these nations. Selected institutions in Africa are destined to play an increasingly important role in international agricultural progress. The cooperative support in Kenya for wheat disease investigations and in Uganda for sorghum improvement studies should help to bridge the gaps in present knowledge, and to produce new information and materials valuable in all the areas of the world where these two food grains are of major importance to the diets of the people.

Coordination of the Foundation's program in the agricultural sciences with the activities of selected international organizations is receiving increased attention, and the Foundation is assisting the programs of a number of these agencies. A grant to the Food and Agriculture Organization of the United Nations for the training in Mexico and Colombia of

wheat and small-grain breeders from Middle Eastern countries should encourage interchange of ideas and of basic breeding materials among important research centers in the Western Hemisphere and the Middle East.

The results of continuing cooperative efforts in complex agricultural environments have made it apparent that the barriers to increased food production can be eliminated only through research conducted within those environments and directed at the solution of specific localized problems. The growing reservoir of information and materials accumulated through research in an increasing number of cropping zones around the world will be helpful in accelerating food production in many regions where diets are still deficient.

Aid to Research and Teaching

MINISTRY OF AGRICULTURE OF PERU AND THE AGRARIAN UNIVERSITY

COOPERATIVE CROP IMPROVEMENT PROGRAMS

In the past few years agricultural research in Peru has developed considerably under a new program of cooperative studies conducted by the Agrarian University, formerly the National School of Agriculture, at La Molina and the Ministry of Agriculture. Working under the auspices of the Cooperative Program of Agricultural and Livestock Experimentation (PCEA), a government agency, the university has assumed responsibility for the country's corn improvement research program, and now plans to strengthen cooperative studies of forage crops, beans, barley, and soils. The research facilities of both the PCEA and the university are used in the investigations.

With more than 800 students and about 130 professors, many of whom hold full-time positions, the Agrarian Uni-

versity is one of the largest agricultural training centers in Latin America. Its new director, Ing. Javier Becerra, recently strengthened postgraduate instruction in several disciplines, and now is undertaking an expansion of the school's teaching and research facilities. With the help of a \$300,000 grant made by The Rockefeller Foundation in 1960, the university will establish several new staff positions, purchase needed research equipment, and increase the library collection.

Another grant of \$75,000 to the Ministry of Agriculture will be used to equip the PCEA's four regional research centers serving the different agricultural areas of Peru, and for the appointment of four additional agronomists who will collaborate with scientists at the Agrarian University. Both grants are available over four-year periods.

AGRICULTURE AND VETERINARY SCIENCE IN AFRICA

To help advance education and research in the agricultural and veterinary sciences at eight different institutions in Africa, The Rockefeller Foundation appropriated a total of \$405,350 during 1960. The institutions, located in seven countries, are conducting a wide variety of educational and research programs directed toward the solution of local problems.

The University College of Rhodesia and Nyasaland, affiliated with the University of London, has the major responsibility for training the professional agriculturists needed in the Federation. To reinforce the applied investigations conducted at government experiment stations, the staff of the college have developed a program of basic research concerned with pasture ecology, soil microbiology, improved use of grasslands in cattle and sheep production, and control measures for damaging diseases of a number of the Federation's major crops. To help support these investigations, the Foundation has appropriated \$75,000.

Opened in 1953, the School of Agriculture of the Kumasi College of Technology, Ghana, offers both a four-year diploma course of advanced training and a two-year practical course of a more general nature. At the request of the Minister of Food and Agriculture of Ghana, the college has recently begun to organize additional courses in agricultural engineering and rural extension methodology. In both teaching and research activities, the staff is concerned with the solution of problems in crop and livestock production that confront farmers of the region. For the purchase of teaching and research equipment needed by the School of Agriculture, the Foundation made £15,000 (about \$42,750) available during 1960.

Located in a country characterized by large numbers of cattle and wild animals and by an urgent need for greater crop diversification, the University of Khartoum, the Sudan, has an important role to play in training the agriculturists and veterinarians who will assume responsibility for developing the country's resources. In its Faculties of Agriculture and Veterinary Science, the university is currently offering instruction to some 85 young Sudanese, and plans to increase the enrollment to 100 or more in the next five to ten years. To help the university augment its teaching and research equipment and library collections, the Foundation has made a two-year grant of \$41,300.

Like the University of Khartoum and a number of other educational institutions in Africa, the University College in Ibadan, Nigeria, maintains academic standards matching those of the University of London. The country's principal center for higher learning, the college offers a complete curriculum in the plant and animal sciences. In the 11 years since its establishment it has built laboratory and classroom buildings for its Faculty of Agriculture and developed a 600-acre farm which is operated for experimental purposes as well as to produce income for the university. To help meet the

expenses of research programs on plant and animal production, forage crop improvement, and production economics, the Foundation has made \$40,000 available through January, 1963.

Lovanium University, Leopoldville, has continued to operate in spite of the disturbances following the Congo's attainment of independence in the summer of 1960. Its faculty has placed great emphasis on the establishment of a well-rounded agricultural curriculum, and on the initiation of research projects geared to the efforts that must be made to tap the country's rich but still underdeveloped agricultural potential. Essential equipment for investigations on dairy cattle breeding, forage crops, and soil improvement, currently under way in Lovanium's Institute of Agriculture, will be purchased with a two-year, \$26,300 grant from the Foundation.

For some years the staff of the Plant Breeding Station at Njoro, Kenya, a unit of the Ministry of Agriculture, Animal Husbandry, and Water Resources of Kenya, has worked on the selection and testing of improved small grain varieties, principally wheat, for disease resistance. Their work on black stem rust, a limitation on wheat production in Kenya as in other countries, has recently been given new impetus by the discovery that one of the most destructive races of the rust, previously found only in Peru and China, is prevalent in Kenya's wheat-producing areas. To help finance an expanded program in cereal pathology, which the station is conducting in cooperation with other cereal disease testing laboratories around the world, the Foundation has appropriated \$100,000 for use over a three-year period.

During 1960 the Foundation made two grants to the East Africa High Commission, Nairobi, Kenya, for research in agriculture and veterinary science. A four-year grant of \$60,000 will be used by the East African Agriculture and Forestry Research Organization, Soroti, Uganda, for an ex-

tensive research program on sorghum, a basic food for large numbers of African people. Believed to be indigenous to Africa, sorghum shows great variability in the different areas in which it is grown. In their search for improved varieties, staff members of the Soroti station plan to assemble a germ plasm bank containing as wide a range of types as possible, and to assess the value of different varieties for human consumption. They will study the relationship among wild and cultivated sorghums, and determine the availability in Africa of genetic sources of disease and pest resistance and other characteristics of practical value to sorghum breeders.

The second grant to the commission provides \$20,000 over a two-year period for research on the environmental physiology of cattle being conducted at the East African Veterinary Research Organization, Muguga, Kenya. To their long-standing projects on a variety of animal diseases, and basic studies of genetics, physiology, and nutrition, the staff are now adding a new investigation in which they will compare the heat tolerance of European and African cattle breeds, and assess the significance of this tolerance for animal health and the development of improved breeds. Important for the contribution it may make to the solution of one of Africa's serious problems—the inability of European and African livestock to maintain high levels of production in a tropical environment—the research will be facilitated by equipment to be purchased with the Foundation's grant.

UNITED NATIONS FOOD AND AGRICULTURE ORGANIZATION

TRAINING IN WHEAT AND SMALL GRAIN IMPROVEMENT

Since 1952 the Food and Agriculture Organization of the United Nations has sought to increase wheat and barley production for the Near East's 130 million people through various assistance projects. Currently the FAO is offering

training awards to agricultural scientists from the Near East who will study wheat and other small grain improvement methods at The Rockefeller Foundation's operating programs in Mexico and Colombia. The training will be chiefly of a practical nature.

The Rockefeller Foundation's agricultural programs have been notably successful in breeding, testing, and disseminating higher yielding, disease-resistant varieties adapted to local conditions. It is hoped that the scientists will be able to expand and improve wheat yields in the Near East through improvement of varieties and practices for crop production in that area of the world.

The trainees will be selected from 10 countries, including Afghanistan, Cyprus, Iran, Iraq, Jordan, Lebanon, Libya, Pakistan, Turkey, and the United Arab Republic. The Rockefeller Foundation has appropriated \$150,000 to provide for one year's training for about 25 scientists, five annually for five years. Support for the Near East Wheat and Barley Improvement Program is furnished also by the participating countries, the International Cooperation Administration, the Colombo Plan, other agencies concerned with technical co-operation programs in the Near East, and the FAO.

UNIVERSITY OF THE PHILIPPINES
AND JAPAN WOMEN'S UNIVERSITY

HOME ECONOMICS

In the effort to bring to their people a higher standard of living, both Japan and the Philippines are currently faced with the problem of finding a sufficient number of trained home economists.

As the Philippine Republic continues to expand industrially and to develop its governmental agencies to serve the people, there is an increasing need for home economics

extension workers, high school and college teachers of home economics, hospital and institutional dietitians, food technologists for industry, and research workers. The University of the Philippines, Quezon City, is assuming the major responsibility for training these specialists. The Department of Home Economics offers courses in nutrition and dietetics, clothing and related arts, family life and child development, home economics extension, food technology, and home arts. Two home economics courses are required of every woman student in the university, and approximately 400 students are majoring in the subject.

To build and equip additional classrooms and laboratories urgently needed by the department to carry on its present work, The Rockefeller Foundation has appropriated \$150,000 for use over a three-year period. With expanded facilities it will be possible for the department to undertake cooperative research with the International Rice Research Institute, founded in 1959 at Los Baños, near the campus of the university's College of Agriculture, and jointly supported by the Philippine government and the Rockefeller and Ford Foundations.

In Japan, where the Ministry of Agriculture and Forestry is making a major effort to encourage the production of diversified crops, especially on upland soils, a well-trained corps of research scientists, teachers, and extension workers in home economics is vitally needed to educate the people on the value of a balanced diet. To provide qualified home economists, Japan Women's University, Tokyo, offers thorough training in foods and nutrition, and nearly half of its 2,250 students are majoring in the field.

The university is now developing a graduate school in home economics, the second in Japan, and will purchase equipment and books for the school with a \$48,000 appropriation from The Rockefeller Foundation. The grant will be available over a three-year period.

NATIONAL UNIVERSITY OF MEXICO
SCHOOL OF VETERINARY MEDICINE

In 1958 the School of Veterinary Medicine of the National University of Mexico, Mexico City, together with the Foundation's Mexican Agricultural Program, initiated a co-operative research program on poultry diseases. So successful and popular an operation has the poultry program proved to be that the school is now using it as a pattern in the reorientation of other research and teaching activities.

As part of the reorganization, several subjects now taught as isolated disciplines will be consolidated into co-ordinated departments. Bacteriology, virology, and infectious diseases will constitute one unit, and biochemistry, forage utilization, and nutrition a second. These two and the new department of physiology have also been selected for initial implementation of reorganized teaching and research programs, to be conducted by seven full-time professors.

The new departmental organization will enable the school to take care of the current rapid increase in enrollment and to help meet Mexico's need for trained veterinarians, who are virtually the sole source of technical guidance for animal production in Mexico.

The Rockefeller Foundation has appropriated \$145,000 to the National University of Mexico for use in the period ending December 31, 1962, in support of the teaching and research programs of the School of Veterinary Medicine.

COIMBATORE AGRICULTURAL COLLEGE
AND RESEARCH INSTITUTE

RESEARCH EQUIPMENT

The development of facilities for modern graduate training is essential to the effective improvement of agriculture in India. One of the country's foremost institutions in agri-

cultural science and technology is the Coimbatore Agricultural College and Research Institute. A leader in numerous fields of crop improvement, the center has achieved international recognition for its varieties of sorghum and millets, rice, cotton, and oil seeds.

Recently the Indian government selected Coimbatore to be developed to provide postgraduate training in the agricultural sciences and to furnish research leadership on problems of food production on a regional basis, throughout southern India. In September, 1958, the cornerstone for a new graduate school building was laid, and additional classroom and laboratory buildings and dormitories are now being constructed by Madras State with assistance from the central government of India.

To provide laboratory and field equipment for the expanded graduate teaching and research programs, The Rockefeller Foundation has appropriated \$135,000 for use during a three-year period. Equipment for work in plant pathology and nematology will be purchased with most of these funds, and the balance will be available to the Departments of Genetics, Horticulture, Chemistry, Soil Science, and Animal Husbandry.

NORTH CAROLINA STATE COLLEGE

MAIZE GENETICS AND BREEDING

Long distinguished for its research in quantitative genetics and statistics, North Carolina State College, in Raleigh, is initiating a new program of graduate training and research focused on quantitative genetics and breeding methodology in maize. The new project will function in co-operation with the recently organized Inter-American Maize Improvement Project, a collaborative venture of The Rockefeller Foundation and the governments of the participating countries.

To the hemisphere-wide corn improvement effort, North Carolina College will contribute research on heterosis and other effects of various gene combinations in quantitative inheritance in maize, systematic evaluation of germ plasm reserves in maize, and efforts to develop improved techniques for incorporation of exotic germ plasm in maize improvement studies.

As part of the new collaborative arrangements, North Carolina will give training annually to five young Latin American corn breeders who have received Rockefeller Foundation fellowships. Thesis research programs for the Fellows will be planned, if necessary, to permit field trials in their own countries because much exotic germ plasm is unsuited to the temperate zone. Staff members of the several departments participating in the work will be available to assist with various aspects of the inter-American project, to help with the teaching program of the National School of Agriculture, Chapingo, Mexico, and to give guidance to other Latin American research and training centers.

The Rockefeller Foundation, which has supported related studies at North Carolina State College with grants amounting to about \$425,000, has made a new appropriation of \$125,000 to help finance the cooperative program over a five-year period.

TECHNOLOGICAL INSTITUTE AND SCHOOL OF
ADVANCED STUDIES OF MONTERREY

SCHOOL OF AGRICULTURE

In the 12 years since it was founded, the privately supported School of Agriculture of the Technological Institute and School of Advanced Studies of Monterrey, Mexico, has become one of Latin America's leading agricultural colleges. To date over 100 agronomists have been graduated and more than 20 per cent have taken advanced studies abroad.

A major facility for teaching and research at the college is an experimental farm created out of a tract of desert land typical of the region. Here members of the staff, 19 of whom are full-time professors, devote considerable time to applied research on the pressing problems facing farmers in north-eastern Mexico. Studies are conducted on the area's principal crops—corn, wheat, sorghum, beans, cotton, and forages—and on problems of soil science, entomology, pathology, and poultry husbandry. In addition, extension demonstrations are given on the farm for the local farmers.

The experimental tract also serves as a training ground in modern techniques for the more than 200 students at the college. Each student collaborates with a professor on a research project in his final year.

The Rockefeller Foundation has made an appropriation of \$112,000 to the School of Agriculture for use during the period ending in December, 1963. Previous Rockefeller Foundation appropriations to the school have totaled \$218,855.

UNIVERSITY OF SONORA

SCHOOL OF AGRICULTURE AND ANIMAL HUSBANDRY

Established in 1953 as a practical agricultural school, the School of Agriculture and Animal Husbandry at the University of Sonora, Hermosillo, Mexico, revised its curriculum in 1956 to provide a five-year program leading to the Ingeniero Agrónomo degree. In all, 64 subjects in three areas of study are now taught at the school. A Rockefeller Foundation appropriation of \$60,000 made two years ago helped to finance the installation of laboratories for research and teaching in soils, plant science, and water management. Programs were also established in animal husbandry, with special emphasis on animal nutrition.

The school is located in a diversified agricultural area in northwest Mexico where there is a growing demand for

agricultural technicians to serve the recently irrigated farming regions and the extensive range lands to the north of Hermosillo. The need for additional trained agriculturists is reflected in the growth of the school. Its student body has increased from 124 in 1958 to 232 in 1960 and its staff from 18 (8 full-time) to 22 (11 full-time) during the same period.

The farmers and cattle raisers of the State of Sonora, recognizing the importance of agricultural research and education, have agreed to a special tax to be assessed on wheat and other agricultural products which it is estimated will provide about one million pesos annually (about \$80,000) for support of the school. The Rockefeller Foundation has made a three-year grant of \$100,000 to the university for use in the school's accelerated program.

PAN AMERICAN SANITARY BUREAU

INSTITUTE OF NUTRITION OF CENTRAL AMERICA
AND PANAMA

Established in 1946 as a unit of the World Health Organization Pan American Sanitary Bureau, the Institute of Nutrition of Central America and Panama in Guatemala has focused its research primarily on the nutritional aspects of disease in the region. Its staff has attempted to find ways to combat the severe protein malnutrition prevalent among children in underdeveloped countries, and has developed an inexpensive food supplement for families of limited means.

Allied to the institute's projects bearing directly on human nutrition and health is a growing research interest in the chemical composition and nutritive value of some of the principal native food crops of Central America and Panama. This work is now being expanded to encompass nutritional and biochemical research on cereal grains other than corn, indigenous grasses and other forage plants, oil seeds, native beans and other legumes, and industrial by-

products of plant origin, such as coffee pulp and sugar cane bagasse.

To help finance the institute's extended research program, The Rockefeller Foundation has appropriated \$75,000 for use over a three-year period.

BOYCE THOMPSON INSTITUTE FOR PLANT RESEARCH, INC.

STUDY OF OBLIGATE PARASITISM

One of the great remaining biological mysteries is the inability of some fungi to exist apart from a living host. Throughout the years plant pathologists have successfully weaned one plant pathogenic fungus after another from its living host, and these fungi, formerly thought to be obligate parasites, have come to be classified as facultative parasites. Two economically important groups of fungi, the powdery mildews and the rusts, however, have defied all attempts at culture in artificial media.

In 1957 Dr. George L. McNew and his associates at the Boyce Thompson Institute for Plant Research, Inc., Yonkers, New York, decided to approach the problem by ascertaining what intrinsic biochemical differences in metabolism exist between obligate and facultative fungi. They have now detected deficiencies in the synthesis of certain types of amino acids by powdery mildews and rusts, and they have noticed that the synthesis of protein from these amino acids is retarded in comparison with the same process in those fungi that can be made to grow autogenously.

Dr. McNew and his co-workers will continue their efforts to define the phenomenon of obligate parasitism in biochemical terms with the assistance of a \$59,100 grant from The Rockefeller Foundation for use in the three-year period which began in June, 1960. A 1957 grant of \$45,000 helped support the studies during the preceding three-year period.

COLLEGE OF AGRICULTURE, CRACOW,
COLLEGE OF AGRICULTURE AND INSTITUTE
OF PLANT PROTECTION, POZNAN, AND
VETERINARY INSTITUTE OF PULAWY

PLANT AND ANIMAL SCIENCE

Continuing its interest in the development of research and teaching in the plant and animal sciences in Poland, The Rockefeller Foundation during 1960 appropriated funds to enable four Polish institutions to purchase needed equipment abroad. The grants, totaling \$141,000, were made to the College of Agriculture in Cracow, the College of Agriculture and the Institute of Plant Protection in Poznan, and the Veterinary Institute of Pulawy.

The Cracow College of Agriculture, affiliated with the Jagiellonian University, is one of Poland's oldest and most highly respected schools for training in the field. Its staff has developed research programs of international significance on the function of growth substances during vernalization of cereals, the influence of light on seedlings, and winter hardness of wheat, barley, and corn. In the animal sciences, distinguished work is in progress on problems concerning sex hormones, vitamin E and thyroid hormones, and disturbances of fertility in domestic animals. A \$35,000 grant will be used for equipment needed in these investigations.

Located in one of Poland's richest agricultural areas, the College of Agriculture at Poznan has grown rapidly since its establishment less than a decade ago. Among the projects under way at the school are studies of vitamin sources, feed analyses, dairy biochemistry, and protein production by plants and animals, as well as basic research on humus and organic materials in the soil as they affect plant nutrition and on the physiology of potato resistance to late blight. The college has received \$20,000 for the purchase of additional instruments for its Institute of Biochemistry and Department of Plant Physiology.

The Institute of Plant Protection, like the College of Agriculture, is part of a complex of institutions devoted to the plant and animal sciences located in or near Poznan. A unit of the Polish Ministry of Agriculture, it was established originally to combat the Colorado potato beetle, but has since broadened its program to include investigations of weed control, the biology and control of a number of fruit pests, and plant diseases. Special attention is being given to research on various virus diseases of crops. The equipment to be purchased with a \$56,000 Foundation grant will be used for these studies, and will also be made available to the other institutions in the area with which the institute cooperates.

Operated under the auspices of the Ministry of Agriculture, the Veterinary Institute of Pulawy produces vaccines, serums, and other biologicals, and conducts research on all aspects of the diseases of domestic and wild animals. Institute staff members have undertaken advanced investigations on such subjects as Newcastle disease of poultry, the effect of drugs on animal tissues in culture, blood and bone marrow of chickens under varying physiological and pathological conditions, and the different antigenic properties exhibited by certain strains of bacteria that cause diseases in fowl. A Foundation grant of \$30,000 will be used for equipment that will also be available to the Agricultural Research Institute in Pulawy.

UNIVERSITY OF TOKYO

FACULTY OF AGRICULTURE

One of Japan's leading centers for training and basic research in the agricultural sciences is the Faculty of Agriculture of the University of Tokyo. Founded in 1880, the faculty offers degrees in forestry, fisheries, and veterinary science, as well as in the usual agricultural fields. The faculty's teaching staff of nearly 300 professors is currently training

approximately 400 undergraduates and 200 graduate students. Its research on urgent problems in the development of Japan's agricultural technology is attracting increasing international recognition.

In support of the faculty's research program during the three-year period that began October 1, 1960, The Rockefeller Foundation has appropriated \$50,000.

**IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY
PLANT BREEDING FOR INSECT RESISTANCE**

Of the various methods of protecting plants against disease and insect attack, the breeding of plant varieties with genetic resistance is, over the long run, the safest and cheapest. The increasing public concern over use of chemical insecticides of possible danger to human health has highlighted the importance of better crop protection methods. One group conducting research in this field is located at Iowa State University of Science and Technology at Ames, where a number of significant observations have been made since the initiation of special fundamental studies in 1957.

By studying inbred lines of corn manifesting extremes of resistance and susceptibility to the attacks of the European corn borer, the interdepartmental team at Iowa has discovered a number of chemical compounds extracted from the corn plant which limit the growth of the insect larvae. Of the more than 100 chemical fractions tested, 8 have shown biological activity inhibiting larval growth by 50 per cent or more.

In the continuing studies, chemical characterization of extracts already tested will be made, and the number of inbred corn lines to be studied will be increased. The scientists' long-range aim is the development of a simple method for chemically checking plant varieties to determine their re-

sistance to insects, which would make possible more efficient and rapid breeding of crops for insect resistance.

The Rockefeller Foundation helped support the research begun three years ago in Iowa and is furnishing aid for three more years with a \$45,000 grant made in 1960.

UNIVERSITY OF INDONESIA

FACULTY OF VETERINARY SCIENCE

One of the major concerns of the Faculty of Veterinary Science at Bogor of the University of Indonesia since independence has been training qualified Indonesians for teaching, research, and government posts formerly held by foreign veterinarians. At present over 400 students are enrolled in the five-year course given by the faculty, and new admissions are expected at the rate of 150 a year, beginning in 1960. The faculty's staff consists of 74 professors and lecturers, 62 of whom are full-time members. A number of the younger staff members have already returned from study abroad in the United States, the Netherlands, and Germany, some under fellowships and travel grants from The Rockefeller Foundation.

A \$42,000 Rockefeller Foundation grant, available over the three-year period that began in June, 1960, will be used for the purchase of equipment, supplies, and library materials for the teaching and research programs of the faculty.

TEXAS AGRICULTURAL AND MECHANICAL COLLEGE SYSTEM AND LOUISIANA STATE UNIVERSITY

TRAINING IN RICE PRODUCTION

Of the four rice research centers in the United States that attract specialists from all over the world who come to

study for varying lengths of time, two, Louisiana State University's Rice Experiment Station in Crowley and the Beaumont Experiment Station of the Texas Agricultural and Mechanical College System, received continued support during 1960 for their training programs for foreign scientists.

Since the start of the rice research program in Louisiana five years ago, 386 visitors from 53 countries have taken part in studies of genetics, varietal improvement, disease and pest control, and quality that have brought world-wide recognition to the station. A 1960 Foundation grant of \$31,000 will extend support begun in 1955 for three more years, during which time even more trainees are expected to participate in the station's program than in the past.

Supplementing its rice research program with study tours to nearby rice mills, irrigation companies, and ranches, the Beaumont Experiment Station has so far trained 265 students from 50 countries in all phases of rice production, processing, and marketing. Its research and training activities can now be expanded through the addition of five laboratories housed in a new building completed during 1960.

Begun in 1957 with help from the Foundation, the foreign training program in Texas will be partially supported for three more years by a grant of \$28,500.

CONSERVATION FOUNDATION

USE OF CHEMICAL PESTICIDES

Because of the problems presented by the widespread aerial spraying of chemical pesticides in suburban and urban areas and its incidental harmful effects upon wildlife and, occasionally, people, the Conservation Foundation, New York, has undertaken studies to determine the compatibility of pest control methods with wildlife preservation. In November, 1959, the foundation organized a conference on the

use of chemical pesticides, at which 18 specialists reviewed the critical aspects of the problem and suggested specific projects designed to obtain additional data.

As a result of the conclusions reached at the conference, the Conservation Foundation is now planning to continue and expand its study programs. The factual information collected in the studies should serve as a guide in planning procedures for control of serious pests and pathogens without damage to other forms of life.

During 1960 The Rockefeller Foundation appropriated \$30,000, available over a three-year period, to the Conservation Foundation to help meet the costs of its study programs on the use of chemical pesticides.

RURAL UNIVERSITY OF THE STATE OF MINAS GERAIS

SCHOOL OF HOME ECONOMICS

The first institution in basically agricultural Latin America to offer instruction in domestic science at the university level, the School of Home Economics of the Rural University of the State of Minas Gerais, Viçosa, Brazil, was opened in 1952 and initiated advanced courses in 1954. Since 1952, a total of 429 students from 16 Brazilian states and 9 students from 6 foreign countries have received training in nutrition, clothing, interior decorating, child care, art and recreation, education, and psychology and sociology.

Fifteen agencies and institutions have provided a total of 244 scholarships in the past eight years, and Purdue University, Lafayette, Indiana, has given continuing technical assistance through a contract with the International Cooperation Administration. The Rockefeller Foundation has appropriated \$30,000, available over the two-year period that began November 1, 1960, to help equip a new building now under construction by the Brazilian government.

KANSAS STATE UNIVERSITY OF AGRICULTURE
AND APPLIED SCIENCE
RESEARCH ON STORED GRAIN

One of the world's greatest food problems is the deterioration of stored grain, of which ten per cent, or enough to supply the carbohydrate needs of 250 million people, is lost annually. In 1956 investigators at Kansas State University of Agriculture and Applied Science, Manhattan, initiated additional studies of the problem through analysis of the biochemical and physiological changes occurring in wheat during storage. These scientists, members of the Department of Flour and Feed Milling Industries, discovered an apparent relationship between the amount of gluten in wheat and its viability, which in turn has an important bearing on the storage of the seed grain as well as the quality of the bread that can be made from it.

The department is now embarking on a new phase of its work in which it will attempt to discover the critical moisture level of seeds below which little damage occurs even at elevated temperatures, and to ascertain why wheat dampened and then dried back to original moisture content shows greater susceptibility to damage and mold growth in subsequent storage than does undampened wheat. The studies will be designed also to determine what levels of bound and free water are necessary for the operation of various types of enzymes, and to throw light on many other factors affecting the preservation of grain.

The new investigations will be supported jointly by the university; by the United States Department of Agriculture, which has appointed a full-time agricultural engineer to the staff; and by The Rockefeller Foundation, which has appropriated \$26,000 to be available over a two-year period. The new grant will continue support begun in 1956 with a grant of \$36,000.

IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY

STUDIES OF THE NITROGEN CYCLE IN SOIL

An accurate knowledge of nitrogen transformations in soil is especially important in tropical regions where it is difficult to maintain satisfactory levels of available nitrogen for optimum plant growth and high crop yields. Among the most useful means of studying the nitrogen cycle developed in recent years are the tracer techniques involving the heavy isotope of nitrogen. These methods have been used to study such processes as denitrification and nonsymbiotic nitrogen fixation, but do not readily apply to determining isotope ratios in certain organic nitrogen compounds; moreover, some doubt exists concerning their reliability for determining total and inorganic nitrogen in soil.

Professor J. M. Bremner and his associates in the Department of Agronomy at Iowa State University of Science and Technology, Ames, are hoping to develop techniques for determining total nitrogen and the several forms of organic and inorganic nitrogen in soil which would permit isotope ratio analysis by the mass spectrometer. These improved methods will be applied also to study of processes leading to gains and losses of nitrogen in the soil and to investigations of the nitrogen metabolism of plants and microorganisms.

A two-year grant of \$21,200 from The Rockefeller Foundation will assist the research.

INTER-AMERICAN SOCIETY OF AGRICULTURAL SCIENTISTS

FIFTH MEETING IN BUENOS AIRES, ARGENTINA

The Inter-American Society of Agricultural Scientists, established in 1949 to develop international collaboration among research agriculturists in Latin America, began with only 15 members. At the fifth triennial meeting in 1961 in Buenos Aires, Argentina, more than 100 are expected to attend.

Through contacts established at the meetings scientists exchange information and materials and plan regional programs for cooperative international execution. Society members have actively supported such projects as the highly successful Central American Corn Improvement Program, and also helped to form the subsequent inter-American corn and wheat improvement projects.

Travel and other expenses of the meeting will be assisted by a \$25,000 Rockefeller Foundation grant, supplementing an appropriation of \$37,200 by the Argentine government for local costs.

OTHER GRANTS

United States

Middle Atlantic

American Institute of Biological Sciences, Washington, D.C.: to enable two Latin American biologists to participate in the Biological Sciences Curriculum Study Conference held in Atlanta, Georgia, during January, 1960; \$1,898;

Dr. Foster E. Mohrhardt, director, United States Department of Agriculture Library, Washington, D.C.: to attend a seminar on agricultural documentation being held in Germany at the invitation of the Organization for European Economic Cooperation, and to confer with agricultural librarians in Europe; \$1,430;

Funds for grants of amounts not exceeding \$500, for allocation under the supervision of the Foundation's Director for Agricultural Sciences; \$10,000;

South

Clemson Agricultural College, South Carolina: research equipment for the Department of Botany and Bacteriology; \$5,000;

Texas Research Foundation, Renner: to meet expenses connected with research on the genus *Solanum*; \$7,750;

Central West

Fund for the International Conference of Agricultural Economists, Inc., Chicago, Illinois: travel expenses of foreign scientists attending the XI International Conference of Agricultural Economists to be held in Mexico during August, 1961; \$20,000 for a two-year period;

Iowa State University of Science and Technology, Ames: research on the role of accessory (B) chromosomes in maize; \$10,000;

Ohio Agricultural Experiment Station, Wooster:

Laboratory equipment and supplies and research expenses; \$9,500;

Dr. Leonard J. Alexander, professor of plant pathology; to visit centers of research in plant pathology in Europe; \$6,000;

Purdue University, Lafayette, Indiana: a symposium on the growth process in living matter, held during the summer of 1960; \$10,000;

University of Wisconsin, Madison:

Study of the residues of fungicides on crop plants, under the direction of Dr. J. E. Mitchell, College of Agriculture; \$10,000;

Dr. K. P. Buchholtz, professor of agronomy, College of Agriculture; to visit centers of botanical and agricultural research in Europe; \$1,705;

West

Dr. Nicholas T. Mirov, physiologist, Pacific Southwest Forest and Range Experiment Station, Institute of Forest Genetics, and lecturer, University of California, Berkeley: to observe pine forests and work in herbaria in Southeast Asia; \$4,400;

University of California, Davis:

To plan a program of international service in agriculture; \$10,000;

Dr. Dewey J. Raski, associate nematologist, College of Agriculture; to confer with plant pathologists in the United States and Europe; \$1,405;

Washington State University, Pullman: development of equipment for use in field crop experiments, by the Department of Agronomy; \$1,000;

West Indies

University College of the West Indies, Mona, Jamaica: equipment for the Regional Research Center of the Faculty of Agriculture; \$3,700;

Latin America

Institute of Biology, São Paulo State Secretariat of Agriculture, São Paulo, Brazil:

Books and journals for the library; \$10,000;

Temperature control equipment for a greenhouse; \$5,000;

Dr. Waldemar Ferreira de Almeida; to visit libraries and museums in New York and Washington, D.C.; \$2,950;

Miss Victoria Rosetti; to visit citrus research centers in the United States; \$2,750;

Dr. Antonio Vieira Machado, director, School of Veterinary Medicine, Rural University of the State of Minas Gerais, Belo Horizonte, Brazil: to visit schools of veterinary medicine in Canada, the United States, and Latin America; \$2,900;

University of Rio Grande do Sul, Pôrto Alegre, Brazil:

Dr. Jose Grossman, head, Institute of Forage Crops Studies, Faculty of Agronomy and Veterinary Medicine; to visit scientific research centers and to participate in scientific meetings in Europe; \$3,900;

Dr. Edgardo Jose Trein, professor of veterinary pathology; to visit veterinary colleges in Latin America, the United States, and Canada; \$2,950;

Dr. Ruben Markus, assistant professor of genetics; to accompany the rector, Dr. Elyseu Paglioli, to the United States to observe

the organization and operation of agricultural colleges and research institutions; \$1,890;

Ministry of Agriculture, Santiago, Chile:

Equipment and accessories for the Nutrition Laboratory, Institute of Veterinary Investigations; \$10,000;

Dr. Alfredo Mathieu, director, Southern Experimental Station, Temuco; to visit agricultural experiment centers in Colombia, Costa Rica, Mexico, and California; \$2,470;

Dr. Mario Vallejo, director, Central Experimental Station, Santiago; to visit agricultural experiment centers in Colombia, Costa Rica, Mexico, and California; \$2,470;

Dr. Claudio Vergara, head, Department of Agricultural Research; to visit agricultural experiment centers in Colombia, Costa Rica, Mexico, and California; \$2,470;

Ministry of Agriculture, Department of Agricultural Investigations, Bogotá, Colombia:

Dr. Gustavos Riveros, head, Laboratory of Artificial Insemination; to visit agricultural centers conducting artificial insemination programs in the United States; \$2,500;

Dr. Bernardino Rodriguez U., Animal Science Section; to visit agricultural centers conducting artificial insemination programs in the United States; \$2,500;

Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica: revision, adaptation, and translation of his textbook, *Elements of Farm Management*, by Dr. John A. Hopkins; \$3,525;

Ministry of Agriculture, Guatemala City, Guatemala: books and journals for the library of the National Agricultural Institute; \$2,500;

Ing. Angel Vergara Castillo, manager, El Palmar Experiment Station, and in charge of the Hevea Rubber Program in the States of Veracruz and Oaxaca, Ministry of Agriculture, Cosolapa, Mexico: to visit the Federated Malay States and Indonesia to observe

research methods and propagation systems for basic tropical crops and plantations of interest to tropical Mexico; \$2,510;

Ing. Hugo Alejo Velasco, professor and head, Department of Soils, Antonio Narro College of Agriculture, University of Coahuila, Saltillo, Mexico: to visit the United States Salinity Laboratory, Riverside, California; \$2,985;

Dr. Jose Dula Navarrete, subdirector, School of Agriculture and Animal Husbandry, University of Sonora, Hermosillo, Mexico: to participate in the training program given by the United States Department of Agriculture Agricultural Research Service at the United States Salinity Laboratory, Riverside, California; \$1,000;

University of San Marcos, Lima, Peru:

Dr. Carlos E. Chavez, professor and head of parasitological research, School of Veterinary Medicine; to review experimental techniques for determining the effect of parasites and parasitic diseases on ruminants at laboratories in the United States; \$2,975;

Dr. Teodoro Ramos Saco, dean, School of Veterinary Medicine; to serve as consultant and advisor to the University of the South, Valdivia, Chile, and to the University of San Carlos, Guatemala City, Guatemala; \$2,695;

Europe

Catholic University of the Sacred Heart, Milan, Italy: research on maize at the Institute of Plant Genetics, Piacenza; \$13,000 for a three-year period;

Albertus Rozendaal, scientific officer, Agricultural University, Wageningen, Netherlands: to visit centers of research in plant pathology in the United States; \$1,440;

Central College of Rural Economics, Warsaw, Poland: scientific instruments for the laboratories concerned with agricultural and food industries; \$10,000;

College of Agriculture, Lublin, Poland:

Equipment for the Veterinary Faculty; \$5,000;

Dr. Stefan Ziemnicki, professor of soil science; to visit centers of soil conservation research in the United States; \$3,590;

Dr. Czeslaw Tarkowski, adjunct, chair of plant breeding; to visit centers of research on plant polyploidy in Sweden; \$3,065;

Kazimierz Odo Rouppert, Department of Meadows and Pastures, College of Agriculture, Olsztyn, Poland: to visit soil science centers in Europe; \$2,400;

College of Agriculture, Poznan, Poland:

Dr. Karol Mańka, chair of forest pathology; to visit plant pathology centers in Europe, Canada, and the United States; \$3,525;

Equipment for the Institute of Biochemistry and the Department of Plant Physiology; \$1,600;

Dr. Aleksander Rejman, assistant professor, College of Agriculture, Warsaw, Poland: to visit centers of research on fruit breeding in the United Kingdom; \$1,780;

Dr. Jadwiga Ziemięcka, head, Department of Agricultural Microbiology, Institute of Soil Management and Plant Cultivation, Puławy, Poland: to attend the Seventh International Soil Science Congress in Madison, Wisconsin, and to visit centers of research in soil science in the United States; \$2,800;

Polish Academy of Sciences, Warsaw: to invite two animal scientists from the United States to participate in a seminar on animal breeding held in Poland during 1960; \$4,075;

Research Institute of Pomology, Skierniewice, Poland:

Dr. Waldemar Ostrowski, head, Storage and Transport of Fruit Department; to visit centers of research on fruit physiology in the United States; \$2,615;

Dr. Zygmunt Soczek, head, Orchard Cultivation Department; to visit horticultural research centers while in the United States; \$750;

Dr. Henryk Janowski, head, Department of Swine Diseases, Vet-

erinary Institute of Pulawy, Poland: to visit centers of research on swine pathology in the United States; \$3,540;

Dr. J. E. Crosse, bacteriologist, East Malling Research Station, Maidstone, England: to visit centers of research in plant pathology in the United States and Canada; \$2,920;

Rowett Research Institute, Bucksburn, Scotland: studies in animal nutrition and animal physiology; \$14,750;

Scottish Horticultural Research Institute, Invergowrie:

Equipment for research in plant pathology; \$10,000;

R. M. Lister, plant scientist; to confer with plant scientists in the United States; \$2,500;

Dr. E. A. FitzPatrick, lecturer, Department of Soil Science, University of Aberdeen, Scotland: to confer with soil scientists in the United States; \$2,690;

University of London, England: equipment for the Department of Biological Sciences, Wye College; \$7,200;

Africa

Dr. Arthur Ringoet, head, Division of Plant Physiology, National Institute for Agronomic Study of the Congo, Yangambi: to undertake studies in the field of plant science in the United States; \$3,810;

East Africa High Commission, Nairobi, Kenya:

Equipment for the East African Agriculture and Forestry Research Organization, Kikuyu; \$9,000;

Equipment for the Sorghum Breeding Research Unit, Serere, Uganda, of the East African Agriculture and Forestry Research Organization; \$4,270;

Miss Jane B. Walker, research officer and entomologist, East African Veterinary Research Organization, Muguga, Kenya: to confer with entomologists in the United States and Canada; \$1,900;

Ministry of Agriculture, Animal Husbandry, and Water Resources, Nairobi, Kenya:

Books and periodicals for the regional agricultural research stations of the Department of Agriculture; \$10,000;

Expenses of the educational program of the farm institutes of the Department of Agriculture; \$5,000;

Giles E. Dixon, plant scientist, Plant Breeding Station, Njoro; to observe the wheat improvement activities of The Rockefeller Foundation Mexican Agricultural Program while in North America; \$810;

Dr. R. G. Poultney, Grassland Research Station, Kitale; to visit The Rockefeller Foundation Colombian Agricultural Program and to study experimental techniques used in plant nutrient and soil fertility studies while in the United States; \$735;

Cuttington College, Suacoco, Liberia: support of the agricultural teaching and research program; \$10,000;

Dr. Fields Caveness, nematologist, International Development Services Section, Moor Plantation, Ibadan, Nigeria: to attend a conference on plant parasitic nematodes held in Kikuyu, Kenya; \$606;

D. E. Baker, senior young farmers' club organizer, Federal Department of Conservation and Extension, Salisbury, Southern Rhodesia: to observe youth clubs, extension methods, and farm practices in the United States; \$6,180;

Dr. J. H. Topps, lecturer in animal nutrition, University College of Rhodesia and Nyasaland, Salisbury: to visit centers of research in animal science in the United States; \$1,450;

Ministry of Finance and Economics, Dar es Salaam, Tanganyika: development of the research station libraries of the Department of Agriculture; \$10,000;

A. K. Auckland, plant breeder, Department of Agriculture, Ministry of Natural Resources, Dar es Salaam, Tanganyika: to visit centers of research on sesame and soya breeding in the United States; \$3,180;

Treasury of the Tanganyika Government, Dar es Salaam: expenses

of rural surveys to be conducted by the Statistical Department, Economic Division; \$10,000;

Makerere College, Kampala, Uganda: to invite William Banage, graduate student, University of Durham, England, to serve as junior research fellow-demonstrator in the Faculty of Agriculture; \$10,000;

Peter H. LeMare, soil chemist, Cotton Research Station, Namulonge, Uganda: to confer with soil scientists in the United States and Canada while in North America; \$900;

Middle East

American University of Beirut, Lebanon: graduate studies in the United States in the field of irrigation, by Professor Salim Mack-soud, associate professor of agriculture, School of Agriculture; \$5,000;

South Asia

Dr. F. N. Ponnamperuma, head, Division of Chemistry, Department of Agriculture, Peradeniya, Ceylon: to participate in the Seventh International Soil Science Congress in Madison, Wisconsin, and to visit research centers in the United States, England, and South Asia; \$1,500;

Dr. Mohammad Qadiruddin Khan, joint director of agriculture for Andhra Pradesh, Hyderabad, India: to visit centers of agricultural research, extension, and education in Japan, the Philippines, and the United States; \$5,400;

Dr. Kapil Deo Singh, librarian, Balwant Rajput College, Agra, India: supplement to a previous grant in aid for additional expenses of visits to centers of library science in the United States and Canada; \$250;

S. D. Sinha, soil survey officer for Bihar State, Sabour, Bhagalpur, India: supplement to a previous grant in aid for additional expenses of visits to soil survey programs at institutions in the United States; \$1,170;

Indian Council of Agricultural Research, New Delhi: to purchase abroad offshoots of date palms adapted to Indian climatic and soil conditions; \$6,000;

L. Venkataratnam, horticultural specialist, Extension Wing, Department of Agriculture, Ministry of Food and Agriculture, New Delhi, India: to visit centers of horticultural research in Asia, the Middle East, Europe, and the United States; \$5,800;

Harish Chandra Saxena, lecturer in animal husbandry and dairy-ing, Rajasthan College of Agriculture, Udaipur, India: to accept a research assistantship to study for the doctoral degree at Washington State University, Pullman; \$1,200;

Dr. H. K. Nandi, director of agriculture for West Bengal, Calcutta, India, and Mrs. Nandi: to visit centers of agricultural education and research in Southeast Asia, the United States, and Europe; \$7,450;

University of Indonesia, Bogor:

Dr. Bachtiar Rifai, professor of farm management, Faculty of Agriculture; to visit farm management centers in the Philippines, Japan, the United States, and Italy; \$6,600;

Dr. Didi Atmadilaga, lecturer in animal husbandry, Faculty of Veterinary Science; to visit animal husbandry centers in the United States, Mexico, the Philippines, and Japan; \$4,300;

Far East

Dr. Albert T. Pugsley, director, Agricultural Research Institute, Wagga, Australia: to visit centers of research on wheat breeding in Latin America; \$5,060;

University of Adelaide, Waite Agricultural Research Institute, Australia:

Dr. D. C. Swan, head, Department of Entomology; to visit centers of research in entomology in the United States and Canada; \$3,160;

W. G. Allden, Department of Agronomy; to observe methods

and techniques of research on the growth and nutrition of ruminants at centers in the United States; \$2,700;

Dr. Olli Vaartaja and Mrs. Vaartaja; to attend the International Bioclimatological Conference in London, and to visit forest research institutes in Europe en route from Canada to Australia; \$1,615;

Dr. Gordon L. McClymont, professor of rural science, Faculty of Rural Science, University of New England, Armidale, Australia: to visit agricultural research centers while in the United States attending the Fifth International Congress on Nutrition; \$1,250;

Nagoya National University, Japan:

Books for the library of the Faculty of Agriculture; \$10,000;

Dr. Seiichi Nakajo, professor of animal breeding, Faculty of Agriculture; to visit poultry and animal science centers in the United States and Europe; \$4,500;

National Institute of Agricultural Sciences, Tokyo, Japan:

Toyokazu Yamada, head, Forage Crop Division, Chiba; to visit forage crop research centers in the United States and Europe; \$5,400;

Dr. Yoshiaki Mihara, head, Division of Meteorology; to visit meteorological research centers in the United States; \$3,950;

National Institute of Animal Health, Tokyo, Japan:

Library materials; \$5,000;

Dr. Osamu Itikawa, head, Third Research Division; to visit centers of veterinary research in Europe and the United States; \$4,500;

Dr. Shoichi Tanaka, director, Horticultural Station, National Tokai-Kinki Agricultural Experiment Station, Shizuoka, Japan: to visit citrus centers in the United States and Europe; \$1,500;

Obihiro Zootechnical University, Japan: research on forage crop management and animal nutrition; \$19,000 for a three-year period;

"

Dr. Jun Kobayashi, professor, Ohara Institute for Agricultural Biology, Okayama University, Japan: to visit agricultural education and research centers in the United States; \$4,050;

University of Tokyo, Japan:

Dr. Saburo Tamura, assistant professor, Department of Agricultural Chemistry; to visit biochemistry centers in the United States; \$4,000;

Professor Itizo Mine, Department of Forestry; to visit forestry management centers in the United States; \$3,925;

Professor Shutaro Yamamoto, head, Department of Veterinary Pathology; to visit centers of veterinary education and research in the United States; \$3,900;

Bureau of Soils, Department of Agriculture and Natural Resources, Manila, Philippines: laboratory equipment and supplies; \$2,000;

University of the Philippines, Quezon City:

To establish a rotating fund for the publication of the researches of the College of Agriculture; \$5,000;

Professor Nicolas L. Galvez, head, Department of Soils, College of Agriculture, Los Baños; to attend the Seventh International Soil Science Congress and to visit state universities in the United States; \$3,410.

Operating Programs

During 1960 The Rockefeller Foundation appropriated a total of \$2,693,414 for the support of its agricultural operating programs in Chile, Colombia, Mexico, and India, for the Inter-American Food Crop Improvement Program, and for scholarships to its Latin American programs. To meet the operating expenses of the recently established International

Rice Research Institute in the Philippines an additional \$229,000 was appropriated. For descriptions of the institute and the other agricultural operating activities, see pages 43 and 45.

Grants with Long-Range Relation to the World's Food Supply

SMALL GRANTS

Conservation Foundation, New York: an ecological survey of the Mara-Mau area of Kenya; \$7,500;

Nai Jinda Thiemmedh, vice-dean, College of Fisheries, Kasetsart University, Bangkok, Thailand: to visit centers of fish biology and culture in Japan, the United States, and Great Britain; \$6,000;

Dr. H. S. Swingle, fish culturist and professor of fisheries management, Auburn University, Alabama: to assess research on fish culture and fisheries management for the Ministry of Food and Agriculture, New Delhi, India; \$5,450;

National Academy of Sciences—National Research Council, Washington, D.C.: an ecological study of the plains wildlife of East Africa; \$3,000;

Ministry of Agriculture, Bogotá, Colombia: equipment for the Fisheries Center Laboratory, Buenaventura, Valle del Cauca; \$1,200.

Other Appropriations

OTHER APPROPRIATIONS

GRANTS WHICH FALL somewhat outside the specific programs, or which include elements relating to more than one aspect of the Foundation's work, are taken from general funds. In 1960 ten appropriations and 18 smaller grants were of this character.

THE ROCKEFELLER INSTITUTE

DEPARTMENTS OF MATHEMATICS AND PHILOSOPHY

Created over 50 years ago by John D. Rockefeller to carry on research in medicine and allied sciences, The Rockefeller Institute, New York, has through the years successively widened the scope of its activities in response to the advance of human knowledge and the development of higher education.

In the early years the institute added most of the biological fields to its research program. Later an extensive re-evaluation of its purpose and program by the Trustees culminated, in 1954-1955, in the establishment of a graduate school, empowered to grant the degrees of Doctor of Medicine and Doctor of Philosophy. In the graduate school an effort has been made to provide students with broad training in all scientific fields related to the life sciences as well as to encourage their interest in the humanities and the arts.

During the next ten years a further expansion of the curriculum is to take place through the addition of departments of philosophy, mathematics, and physics. Philosophy,

which seeks unity and relationship among the sciences and attempts to determine their place in the development of society, is thought by the institute's directors to be increasingly important in the curriculum as science tends to become ever more fragmented and specialized. Mathematics has often been cited as "the mortar which binds together the building stones of science," and, the institute's administration believes, can be a powerful tool in the hands of a biologist. With an increasing amount of research being devoted to the physical properties of biological complexes, a grounding in physics also assumes great importance in the training of a biologist.

The Rockefeller Foundation has appropriated \$750,000 to The Rockefeller Institute for the development of the departments of philosophy and mathematics over a ten-year period. Plans for the physics department have not yet been completed.

FOUNDATION LIBRARY CENTER

To collect, organize, and make available to the public reports and information about foundations is the primary task of the Foundation Library Center, incorporated in 1956 as an independent, educational institution with a permanent charter and tax-exempt status.

In performing these services the center maintains a library of reports issued by foundations; materials such as descriptive pamphlets, financial statements, and articles of incorporation; and a number of general volumes on philanthropy. Many items in its extensive collection were received as gifts or depository loans from the Russell Sage Foundation, which had been accumulating them since 1915, and the Hanover Bank recently donated to the center its library of philanthropic information.

The center also actively gathers information about

foundations through newspaper clippings, direct inquiry, and the operations of a field staff; compiles an index of foundation grants; and keeps files on Treasury rulings and court decisions affecting tax-exempt organizations. From time to time the center undertakes special studies, which have included a report on the legal instruments required in the formation and operation of a foundation and a directory of all such organizations in the United States. In addition, it has currently been assisting the Midwest Inter-Library Center in Chicago in setting up and maintaining a collection of foundation data open to public use, and it is exploring possibilities for the development of such facilities in several other cities.

A sustaining fund to enable the Foundation Library Center, New York, to continue its operations during the next ten years is being provided by a number of foundations. The Rockefeller Foundation's contribution is an outright grant of \$400,000.

LOVANIUM UNIVERSITY

In spite of turbulent conditions in the Congo since the country achieved independence in 1960, Lovanium University in Leopoldville, its only institution for higher education, has thus far continued to function. Established in 1949 and recognized as a full university by the Congolese government in 1956, the university has from the beginning been operated on a nonsectarian, multiracial basis. During the 1959-1960 academic year, the university had about 500 students, of whom some 60 were of European origin, and a faculty numbering about 100.

The Congolese government, with funds provided by the Belgian Parliament, and private industry and foundations have helped the university make rapid progress in developing its program and facilities. Under the guidance of the Uni-

versity of Louvain, in Belgium, Lovanium has created nine faculties in which all the major disciplines are represented, with principal emphasis placed on medicine, the political and social sciences, philosophy and letters, and the natural sciences. Academic standards have been maintained at a high level, and the degrees granted by Lovanium are comparable to those awarded by Belgian universities.

To help Lovanium University meet its basic operating expenses during the 1960-1961 academic year, The Rockefeller Foundation appropriated \$250,000. Previous Foundation grants to the university have provided over \$430,000 for the development of its Medical School, School of Nursing, and Institute of Agriculture.

HUNGARIAN REFUGEE AID PROGRAM

In 1960 The Rockefeller Foundation appropriated an additional \$215,000 for its program of emergency aid in the arts and sciences for Hungarian refugees, and for aid to the educational institutions at which they are studying. As has been the case since 1956, when the Foundation's Hungarian aid program was begun, the grants are used chiefly for the support of refugee students and scholars at 13 Austrian institutions of higher learning. The present appropriation provides funds to meet the stipends of more than 450 students, and the related administrative expenses of the institutions, through the end of the 1960-1961 academic year.

The 1960 grant brings to over \$2,465,000 the amount appropriated since December, 1956, for various types of assistance to Hungarian refugee scholars, students, artists, and members of the professions.

Listed below are the allocations made with funds provided by the 1960 grant and with those remaining in earlier appropriations for the same purpose:

University of Vienna, Austria: 1,320,000 Austrian schillings (about \$52,800);

Technical Institute, Vienna, Austria: 1,460,000 Austrian schillings (about \$58,400);

Academy for Music and Dramatic Arts, Vienna, Austria: 365,000 Austrian schillings (about \$14,600);

Academy of Plastic Arts, Vienna, Austria: 378,000 Austrian schillings (about \$15,120);

Academy for Applied Art, Vienna, Austria: 193,000 Austrian schillings (about \$7,720);

Institute for World Trade, Vienna, Austria: 365,000 Austrian schillings (about \$14,600);

Institute for Agriculture, Vienna, Austria: 171,000 Austrian schillings (about \$6,840);

Institute of Veterinary Science, Vienna, Austria: 122,000 Austrian schillings (about \$4,880);

University of Innsbruck, Austria: 1,060,000 Austrian schillings (about \$42,400);

University of Graz, Austria: 670,000 Austrian schillings (about \$26,800);

Technical Institute, Graz, Austria: 586,000 Austrian schillings (about \$23,440);

Mining Institute, Leoben, Austria: 168,000 Austrian schillings (about \$6,720);

Mozart Academy for Music and Dramatic Arts, Salzburg, Austria: 223,000 Austrian schillings (about \$8,920).

UNIVERSITY OF THE SOUTH AND THE
UNIVERSITY OF CONCEPCIÓN, CHILE

Late in May, 1960, a series of earthquakes struck the southern part of Chile and caused tremendous losses of life

and property. Two of Chile's universities, the University of Concepción and the University of the South at Valdivia, were among the institutions severely damaged. At Valdivia, where approximately half the city was destroyed, three university buildings collapsed completely, and laboratory equipment and glassware worth about \$500,000 was smashed. The University of Concepción was even more extensively damaged—seven university buildings were either leveled or so shaken that they are beyond reconstruction, other buildings require repair, and equipment valued at about \$1,500,000 must be replaced.

To supplement funds made available by the Chilean government and private agencies for the rehabilitation of the two institutions, The Rockefeller Foundation during 1960 allocated \$60,000 to the University of Concepción and \$40,000 to the University of the South.

COLUMBIA UNIVERSITY, THE AMERICAN ASSEMBLY
PRESIDENT'S COMMISSION ON NATIONAL GOALS

The President's Commission on National Goals, formed in 1960, has published a final report delineating the nation's objectives in the areas of foreign and defense policy, science, economic growth, labor, management, education, cultural values, human needs, the democratic process, and individual rights.

The American Assembly at Columbia University, New York, administered the program of the commission. Headed by Assembly President Henry M. Wriston, it was composed of Vice Chairman Frank Pace, Jr., Erwin D. Canham, James B. Conant, Colgate W. Darden, Jr., Crawford H. Greenewalt, General Alfred M. Gruenthal, Judge Learned Hand, Clark Kerr, James R. Killian, Jr., and George Meany.

Outstanding authorities were selected to analyze 15 separate topics in essay form which were submitted to the commission for study before the final report was made.

To help defray the expense of preparing the essays that provided the basis for the final report, The Rockefeller Foundation in 1960 made an outright grant of \$50,000. The Carnegie Corporation, the Alfred P. Sloan Foundation, and the Ford Foundation were among the other organizations supporting the work of the commission.

HOKKAIDO UNIVERSITY

CLARK MEMORIAL STUDENT CENTER

The Clark Memorial Student Center at Hokkaido University, Sapporo, Japan, is named for Dr. William S. Clark who helped introduce modern agricultural methods in Japan and guided the founding of the university in 1876, when it was established as the Sapporo Agricultural College. Dr. Clark, then President of the Massachusetts Agricultural College, is still fondly remembered at Hokkaido.

On the 80th anniversary of the university's founding, a renewed affiliation was established with Dr. Clark's college (now the University of Massachusetts). It was during this occasion that plans were developed for the Clark Memorial Student Center which will provide an auditorium and other student and residence facilities at the university.

In support of the undertaking, The Rockefeller Foundation has made two outright grants totaling \$50,000.

NATIONAL ACADEMY OF SCIENCES

TRANSPORTATION PROBLEMS

Current transportation problems and those that may arise in the future as a result of the country's continued population growth and technological development are of concern to the National Academy of Sciences, Washington, D.C. It is becoming more apparent that maintenance and develop-

ment of transportation facilities depend in large part upon scientific advancements, and that new patterns of transportation will certainly affect many aspects of modern life.

Last summer the academy held a series of conferences at which consideration was given to the possible establishment of a Transportation Research Board for study of all the increasingly complex aspects of travel, including the transportation of goods by rail, road, water, and air. These conferences were partially financed by a \$25,000 Rockefeller Foundation grant.

SPECIAL PURPOSE APPROPRIATIONS

During 1960 the Foundation made a number of appropriations to meet certain special expenses. A total of \$192,300 was made available for operating, maintenance, and capital development expenses at the Villa Serbelloni. To fund annuity and termination allowance obligations connected with the retirement of staff members, the Foundation appropriated \$287,846. A total of \$750,000 was set aside to meet costs connected with insuring and shipping overseas materials, equipment, and supplies purchased for the Foundation's own program operations or for grantees. Finally, an appropriation of \$191,653 was made to cover the salary, travel, and other expenses of Foundation staff members seconded to other organizations.

OTHER GRANTS

Cuban-American Cultural Institute, Havana: to meet certain expenses arising from its cultural activities; \$23,000;

Institute of International Education, New York:

To help meet the expenses of establishing a briefing service for prospective visitors to the Soviet Union; \$10,000;

To help meet the expenses of administering a conference on United States-Soviet Union cultural relations, held at Harvard University during April, 1960, under the sponsorship of the United States Department of State; \$2,201;

National Academy of Sciences—National Research Council, Washington, D.C.:

Expenses of selected Chilean scientists who attended the meetings of three international earth sciences organizations in Europe during the summer, 1960; \$10,000;

To invite marine scientists to participate in the meetings of the International Indian Ocean Expedition held in Copenhagen, Denmark, and Helsinki, Finland, during the summer, 1960; \$5,500;

National Catholic Welfare Conference, New York: to help meet the expenses of its program for Cuban refugees; \$10,000;

National Conference of State Legislative Leaders, Albany, New York: general support; \$10,000;

United Negro College Fund, New York: preliminary studies in connection with the possible establishment of a scholarship program for Africans; \$10,000;

University of Michigan, Ann Arbor: research on the immunizing effect of irradiated larval parasites, with particular reference to schistosomes, at the Phoenix Memorial Laboratory; \$10,000;

Weizmann Institute of Science, Rehovoth, Israel: expenses of participants in the International Conference on Science in the Advancement of New States, held in Rehovoth during August, 1960; \$10,000;

United Nations, New York: expenses of participants in a seminar on the use of vital and health statistics in genetic and radiation studies, held in Geneva, Switzerland, during September, 1960; \$8,000;

Dr. Herbert E. Longenecker, president, Tulane University of Louisiana, New Orleans, and Mrs. Longenecker: to visit educational and research institutions in Latin America; \$4,700;

World Health Organization, Geneva, Switzerland: expenses of a meeting of the International Commission on Radiological Units and Measurements, held in Geneva during April, 1960; \$4,200;

National Information Bureau, New York: general support; \$3,750;

Tojib Hadiwidjaja, dean, Faculty of Agriculture, University of Indonesia, Djakarta: to attend the meeting of the International Association of Universities held in Mexico City, Mexico, during September, 1960; \$3,000;

President Vicente G. Sinco, University of the Philippines, Quezon City: to attend the meeting of the International Association of Universities held in Mexico City, Mexico, during September, 1960, and to visit New York to consult with officers of The Rockefeller Foundation; \$2,650;

Dr. Laurence H. Snyder, president, University of Hawaii, Honolulu: to visit educational institutions in Asia; \$2,400;

American Association for the Advancement of Science, Washington, D.C.: to help meet the expenses of its annual meeting, held in New York during December, 1960; \$1,000.

Fellowships

FELLOWSHIPS AND OTHER STUDY AWARDS

THE FOUNDATION's fellowship appointments are integrated with the interests of its several programs.

Through fellowships, chiefly for postdoctoral study, the Foundation seeks to advance knowledge in a wide variety of fields in the medical and natural sciences, the agricultural sciences, the social sciences, and the humanities. Fellowships are awarded on an international basis to outstanding men and women who have completed their specialized training, and who have shown promise of making important contributions to their fields of study in their native countries.

During 1960 a total of 579 persons held Foundation fellowships; 345 fellowships that began in previous years continued active into 1960, and 234 new awards became active during the year. Their distribution by program is as follows:

	Fellowships from previous years continued into 1960	New awards in 1960	Number of fellows active in 1960
Agricultural Sciences	80	48	128
Humanities	32	27	59
Hungarian Refugee Program	1	—	1
Medical and Natural Sciences	159	123	282
Polish Science Program	36	2	38
Social Sciences	37	34	71
	—	—	—
	345	234	579

The fellows during 1960 came from 46 different countries and three international organizations. Countries represented by three or more fellows were:

Argentina	5	Italy	9
Australia	9	Jamaica	3
Austria	3	Japan	91
Belgium	5	Mexico	40
Brazil	54	Nigeria	3
Ceylon	3	Norway	5
Chile	23	Peru	3
Colombia	32	Philippines	27
Denmark	6	Poland	87
El Salvador	3	Sweden	5
France	4	Switzerland	3
Germany	9	Thailand	8
Great Britain	15	Turkey	21
India	41	United Arab Republic	3
Indonesia	8	United States	8
Iran	3		

Fellowships were also held during 1960 by individuals from the following countries: Canada, 2; Costa Rica, 2; Finland, 2; Ghana, 1; Hungary, 1; Korea, 2; National Republic of China, 1; Netherlands, 2; New Zealand, 2; Pakistan, 2; Portugal, 1; Trinidad, 1; Union of South Africa, 2; Uruguay, 2; and Yugoslavia, 2. Twelve fellows during 1960 were appointed from the World Health Organization, 2 from the United Nations Relief and Works Agency, and 1 from the International Cooperation Administration.

The Rockefeller Foundation made available a total of \$1,525,000 for its regular fellowship activities during 1960, allocated for use by the various programs. To support the fellowship program during 1961 the Foundation has appropriated \$1,500,000.

For use during 1960 the Foundation also appropriated \$1,375,000 for its special expanded program of fellowships,

scholarships, and training awards for men and women from Asia, Latin America, the Middle East, and Africa. With these funds additional awards were made to candidates from the four geographical areas mentioned above, of whom 70 received fellowships, 49, scholarships, and 5, training awards. To support the supplementary program during 1961, the Foundation has appropriated \$1,450,000.

Through its program in the Agricultural Sciences, the Foundation has for many years awarded scholarships in agriculture to Latin American students. A total of 26 Latin Americans held this type of award during 1960.

Under a Polish Science Program initiated in 1957, 38 Polish fellows and 3 Polish scholars held appointments during 1960, 17 in the agricultural sciences and 24 in the medical and natural sciences. Awards to Polish scientists are now being made through the regular programs in the medical and natural sciences and the agricultural sciences. Under a program made possible by grants for emergency aid in the arts and sciences for refugee Hungarians, one fellow held an award during 1960. No further new awards are contemplated since funds currently available for Hungarian refugee students are now intended only for continuation of aid to Austrian educational institutions which have been hosts to Hungarian refugee students since 1956.

The Foundation in 1960 continued to appropriate funds for allocation to institutions where Foundation fellows 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 advanced level of fellowship study, the Foundation made available \$500,000, 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 unrestricted, and are in addition to tuition and other fees also paid by the Foundation through its fellowship awards. Under this program in 1960, the Foundation sent funds

amounting to \$331,000 to 109 institutions in the United States and foreign countries.

In addition to the fellowships awarded and administered directly by The Rockefeller Foundation, national agencies have awarded fellowships with funds contributed in 1960 and previous years by the Foundation. These agencies administered a total of 96 fellowships during 1960:

Association for Asian Studies	7
British Medical Research Council	11
Social Science Research Council	
Predoctoral and Postdoctoral	65
Political Theory and Legal Philosophy	13
	—
	96

Below is a listing of individuals whose fellowships, awarded under the regular and special programs of The Rockefeller Foundation, became active in 1960, and five fellows appointed in the same year by the Medical Research Council of Great Britain. The fellowships awarded by the British Council have been included in this listing because the fellows received guidance and supervisory assistance from Foundation fellowship advisors.

The following information is included for each individual: name; country of origin; date of birth; highest degree; major field of interest; fellowship-awarding agency or program; institution with which fellow was affiliated when appointed; principal countries of fellowship study; and date of fellowship.

- ABBAS ACUP, NJA** (*Indonesia*) b. 1927. Univ. of Indonesia, Bandung, 1960. Drama (H). Appointed from Perfini Films, Djakarta. *Place of Study:* U.S.A., 1960-.
- ABE, MIHOKO** (*Japan*) b. 1924. Ph.D., Teikoku Med. and Pharm. Coll., Toho, 1959. Biochemistry (MNS). Appointed from Natl. Inst. of Health, Tokyo. *Place of Study:* U.S.A., 1960-.
- ACEVEDO, MARIA ADELA** (*Colombia*) b. 1920. Univ. of Antioquia, Medellin. Pediatric Nursing (MNS). Appointed from Univ. of Valle, Cali. *Place of Study:* Mexico, 1960-.
- ACEVES RUIZ, JORGE** (*Mexico*) b. 1929. M.D., Natl. Univ. of Mexico, Mexico City, 1957. Neuropharmacology (MNS). Appointed from Natl. Univ. of Mexico. *Place of Study:* U.S.A., 1960-.
- ACHEBE, ALBERT CHINUA** (*Nigeria*) b. 1930. B.A., Univ. Coll., Ibadan, 1953. Literature (H). Appointed from Nigerian Broadcasting Corp., Enugu. *Place of Study:* Africa, 1960-.
- ADACHI, SUSUMU** (*Japan*) b. 1925. B.S., Univ. of Tokyo 1948. Animal Science — Dairy Manufacturing (A). Appointed from Tohoku Univ., Sendai. *Place of Study:* U.S.A., 1960-.
- AGAH, TALIEH** (*Iran*) b. 1924. R.N., Royal Berkshire Hosp., Reading, England, 1951. Nursing Education (MNS). Appointed while a student at Wayne State Univ. *Place of Study:* U.S.A., 1960-.
- AKAGI, HIROAKI** (*Japan*) b. 1922. M.D., Kyoto Univ. 1956. Biophysics — Radiation Effects (MNS). Appointed from Osaka Med. School. *Place of Study:* U.S.A., 1960-.
- ALTUG, YILMAZ MUAMMER** (*Turkey*) b. 1925. M.C.L., Columbia Univ. 1960. Comparative Law and Diplomatic History (SS). Appointed while a Ford Foundation Fellow at Columbia Univ. *Place of Study:* U.S.A., 1960-.
- ALVAREZ, MARIO HECTOR** (*Argentina*) b. 1929. M.D., Univ. of Buenos Aires 1955. Basic Medical Sciences (MNS). Appointed from Natl. Univ. of Cuyo, Mendoza. *Place of Study:* U.S.A., 1960-.
- ANGIELSKI, STEFAN** (*Poland*) b. 1929. M.D., Med. Acad., Gdansk, 1958. Biochemical Pathology (MNS). Appointed from Med. Acad. *Place of Study:* U.S.A., 1960-.
- AOKI, TSUYOSHI** (*Japan*) b. 1920. M.D., Tohoku Univ., Sendai, 1943. Biology — Physiology (MNS). Appointed from Tohoku Univ. *Place of Study:* U.S.A., 1960-.
- BALAGURA ZICHELBOIM, SULAMITA** (*Colombia*) b. 1936. M.D., Univ. of Valle, Cali, 1959. Physiology (MNS). Appointed from Univ. of Valle. *Place of Study:* U.S.A., 1960-.
- BANERJEE, SOURENDRA NATH** (*India*) b. 1921. Ph.D., Univ. of London 1948. Entomology (A). Appointed from Govt. of West Bengal, Calcutta. *Place of Study:* U.S.A., 1960-.
- BARNARD, ERIC ALBERT** (*United Kingdom*) b. 1927. Ph.D., Univ. of London 1956. Biochemistry — Enzymes (MNS). Appointed

- from Univ. of London. *Place of Study:* U.S.A., 1960-.
- BARON, DENIS NEVILLE** (*United Kingdom*) b. 1924. M.D., Royal Free Hosp., Univ. of London, 1950. Chemical Pathology (BMRC). Appointed from Univ. of London. *Place of Study:* U.S.A., 1960-.
- BASAURI, LUCIANO** (*Chile*) b. 1931. M.D., Univ. of Chile, Santiago, 1956. Neurosurgery (MNS). Appointed from Univ. of Chile. *Place of Study:* U.S.A., 1960-.
- BAUTISTA, ERNESTO** (*Colombia*) b. 1924. Chem., Natl. Univ. of Colombia, Bogotá, 1950. Biochemistry (MNS). Appointed while an Internat'l. Coop. Admin. Fellow at Tulane Univ. of Louisiana. *Place of Study:* U.S.A., 1960-.
- BEZUBIK, BERNARD** (*Poland*) b. 1919. D.V.M., Univ. of Warsaw 1956. Animal Science (A). Appointed from Coll. of Agric., Lublin. *Place of Study:* U.S.A., 1960-.
- BOKIEWICZ, JANUSZ SLAWOMIR** (*Poland*) b. 1928. Physician, Med. Acad., Gdansk, 1952. Radiology — Angiocardiography (MNS). Appointed from Med. Acad., Warsaw. *Place of Study:* U.S.A., 1960-.
- BRAUER HERRERA, OSCAR** (*Mexico*) b. 1922. M.S., Univ. of California 1956. Plant Science — Vegetable Crops (A); Plant Science — Genetics and Plant Breeding (A). Appointed from 1) Office of Special Studies, Mexico City; 2) Natl. School of Agric., Chapingo. *Places of Study:* U.S.A., 1954-1955; Germany, 1960-.
- BURANAKARL, CHOTE** (*Thailand*) b. 1923. M.D., Univ. of Med. Sciences, Bangkok, 1949. Public Health Administration (MNS). Appointed from Univ. of Med. Sciences. *Place of Study:* U.S.A., 1960-.
- BUSTRILLOS, NENA ROLA** (*Philippines*) b. 1923. M.S., Iowa State Univ. of Science and Tech. 1957. Home Economics (A). Appointed twice from Univ. of the Philippines. *Place of Study:* U.S.A., 1956-1957; 1960-.
- BYCZKOWSKA-SMYK, WANDA** (*Poland*) b. 1929. Ph.D., Jagiellonian Univ. of Cracow 1958. Biology — Cytology (MNS). Appointed from Jagiellonian Univ. of Cracow. *Place of Study:* France, 1960-.
- CARLINI, ELISALDO LUIZ DE ARAUJO** (*Brazil*) b. 1930. M.D., Paulista School of Med., São Paulo, 1957. Basic Medical Sciences (MNS). Appointed from Paulista School of Med. *Place of Study:* U.S.A., 1960-.
- CARVALHAL, SILVIO DOS SANTOS** (*Brazil*) b. 1917. M.D., Paulista School of Med., São Paulo, 1940. Pathology (MNS). Appointed from São Paulo Hosp. *Place of Study:* U.S.A., 1960-.
- CARVALHO FILHO, EURICO DE** (*Brazil*) b. 1926. Ph.D., Univ. of São Paulo 1959. Experimental Biology — Physical Chemistry (MNS). Appointed from Univ. of São Paulo. *Place of Study:* U.S.A., 1960-.
- CASANOVA GÓMEZ, NELLY** (*Colombia*) b. 1936. R.N., Univ. of Valle,

- CALI, 1956. Pediatric Nursing (MNS). Appointed from Univ. of Valle. *Place of Study:* Mexico, 1960-.
- CELORIO BLASCO, MIGUEL (*Mexico*) b. 1926. Degree in Archit., Natl. Univ. of Mexico, Mexico City, 1953. Visual Art — Art History (H). Appointed from Natl. Inst. of Anthropology and History, Mexico City. *Place of Study:* U.S.A., 1960-.
- CHANDRABHA, VUNVILAI (*Thailand*) b. 1930. Dipl., School of Nursing, Bangkok, 1950. Nursing Education (MNS). Appointed from Women's Hosp., Bangkok. *Place of Study:* U.S.A., 1960-.
- CHENA GONZALEZ, RODOLFO (*Mexico*) b. 1928. M.S., Univ. of California 1958. Soil Science — Irrigation (LAS); Agricultural Extension (A). Appointed from 1) Ministry of Agric. and Livestock, Mexico; 2) State of Mexico, Toluca. *Place of Study:* U.S.A., 1956-1958; 1960-.
- CHIESA, ARGENTINA (*Argentina*) b. 1919. Dipl., Red Cross School of Nursing, Buenos Aires, 1953. Pediatric Nursing (MNS). Appointed from Univ. of the Litoral, Rosario. *Place of Study:* U.S.A., 1960-.
- CORONADO URRUTIA, ALFONSO (*Chile*) b. 1924. M.D., Univ. of Chile, Santiago, 1956. Basic Medical Sciences — Biochemistry (MNS). Appointed from Univ. of Chile. *Place of Study:* U.S.A., 1960-.
- COSTA, JUDITH (*Brazil*) b. 1919. Dipl., Univ. of São Paulo 1949. Nursing Education (MNS). Appointed from Univ. of São Paulo,
- Ribeirão Preto. *Place of Study:* U.S.A., 1960-.
- CROFTS, FRANK CLEMENT (*Australia*) b. 1925. B.Sc. (Agr.), Univ. of Sydney 1951. Plant Science — Agronomy (A). Appointed from Univ. of Sydney. *Place of Study:* U.S.A., 1960-.
- DAALDER, HANS (*Netherlands*) b. 1928. Dr., Univ. of Amsterdam 1955. Political Science (SS). Appointed from Inst. of Social Studies, the Hague. *Place of Study:* U.S.A., 1960-.
- DALAL, PRAFULCHANDRA MAGAN-LAL (*India*) b. 1932. M.D., Topiwala Natl. Med. Coll., Bombay, 1958. Neurology (MNS). Appointed from Topiwala Natl. Med. Coll. *Place of Study:* U.S.A., 1960-.
- DENNIS, NORMAN (*United Kingdom*) b. 1929. B.Sc., London School of Econ. and Polit. Science 1952. Sociology (SS). Appointed from Univ. of Birmingham. *Place of Study:* U.S.A., 1960-.
- DHAR, MANOJIT MOHAN (*India*) b. 1927. Ph.D., Victoria Univ. of Manchester, England, 1952. Medicinal Chemistry (MNS). Appointed from Central Drug Research Inst., Lucknow. *Place of Study:* U.S.A., 1960-.
- DIAZ, RONY V. (*Philippines*) b. 1932. B.A., Univ. of the Philippines, Quezon City, 1953. Literature (H). Appointed from Univ. of the Philippines. *Place of Study:* U.S.A., 1960-.
- DIAZ BORDENAVE, JUAN ENRIQUE (*Costa Rica*) b. 1926. M.S., Univ. of Wisconsin 1955. Agricultural

- Journalism (A). Appointed from Inter-American Inst. of Agric. Sciences, Turrialba. *Place of Study:* U.S.A., 1960-.
- DICKINSON, CHRISTOPHER JOHN (*United Kingdom*) b. 1927. M.R.C.P., Univ. of Oxford 1955. Medicine (BMRC). Appointed from Middlesex Hosp. Med. School. *Place of Study:* U.S.A., 1960-.
- DI DIO, LIBERATO JOAO AFFONSO (*Brazil*) b. 1920. M.D., Univ. of São Paulo 1949. Anatomy (MNS). Appointed from Univ. of Minas Gerais, Belo Horizonte. *Place of Study:* U.S.A., 1960-.
- DREPPE, ANNE-MARIE (*Belgium*) b. 1916. Grad., Edith Cavell — Marie Depage Inst., Brussels, 1946. Nursing Education (MNS). Appointed from Edith Cavell — Marie Depage Inst. *Place of Study:* U.S.A., 1960-.
- DROZ, BERNARD MARCEL (*France*) b. 1930. M.D., Univ. of Paris 1956. Histology (MNS). Appointed from Univ. of Paris. *Place of Study:* Canada, 1960-.
- DURANA, INES (*Colombia*) b. 1931. B.S. (Nursing), Catholic Univ., Bogotá, 1956. Nursing Education (MNS). Appointed from Natl. Univ. of Colombia, Bogotá. *Place of Study:* U.S.A., 1960-.
- DUVILLARD, MARJORIE (*Switzerland*) b. 1911. Dipl., Le Bon Secours School of Nursing, Geneva, 1939. Nursing Education (MNS). Appointed from Le Bon Secours School of Nursing. *Place of Study:* U.S.A., 1960-.
- ENCEL, SOLOMON (*Australia*) b. 1925. M.A., Univ. of Melbourne 1952. Political Science (SS). Appointed from Canberra Univ. Coll. *Place of Study:* England, 1960-.
- FARACO, EDUARDO ZACARO (*Brazil*) b. 1916. M.D., Univ. of Rio Grande do Sul, Pôrto Alegre, 1939. Cardiology — Hemodynamics (MNS). Appointed from Univ. of Rio Grande do Sul. *Place of Study:* U.S.A., 1960-.
- FIERS, WALTER (*Belgium*) b. 1931. Chem. Eng., Agric. High School, Ghent, 1954. Biochemistry (MNS). Appointed from Agric. High School. *Place of Study:* U.S.A., 1960-.
- FUENTE VILLARREAL, JESUS MARIO DE LA (*Mexico*) b. 1930. M.S., Cornell Univ. 1958. Plant Science — Economic Entomology (A); Agriculture — Entomology (A). Appointed twice from Tech. Inst. and School of Advanced Studies of Monterrey. *Place of Study:* U.S.A., 1956-1958; 1960-.
- FUJIWARA, KIKUO (*Japan*) b. 1922. D.Med.Sc., Chiba Univ. 1950. Staphylococcus Food Poisoning (MNS). Appointed from Chiba Univ. *Place of Study:* U.S.A., 1960-.
- GABARRA, MARIA ORLIZ (*Brazil*) b. 1928. Midwifery Dipl., Univ. of São Paulo 1950. Nursing Education (MNS). Appointed from Univ. of São Paulo, Ribeirão Preto. *Place of Study:* U.S.A., 1960-.
- GABRIEL, BERNARDO PANUNCIALMAN (*Philippines*) b. 1935. M.S., Univ. of California 1958. Plant Science — Economic Entomol-

- ogy (A). Appointed from Univ. of the Philippines. *Place of Study:* U.S.A., 1960-.
- GAERTNER, HENRYK (Poland)** b. 1922. M.D., School of Med., Cracow, 1951. Hematology (MNS). Appointed from Med. Acad., Cracow. *Place of Study:* U.S.A., 1960-.
- GALINDO ALONSO, JORGE (Mexico)** b. 1931. M.S., West Virginia Univ. 1958. Plant Science—Pathology (LAS); Plant Pathology (A). Appointed twice from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1957-1958; 1960-.
- GALINOVIC, VERA (Yugoslavia)** b. 1928. Dipl., Univ. of Zagreb 1954. Virology (MNS). Appointed while an Internatl. Coop. Admin. Fellow at the Natl. Insts. of Health, Maryland. *Place of Study:* U.S.A., 1960-.
- GALLEGO CORREA, HECTOR JOSÉ (Colombia)** b. 1935. M.D., Univ. of Valle, Cali, 1960. Dermatological Histopathology (MNS). Appointed from Univ. of Valle. *Place of Study:* U.S.A., 1960-.
- GARCIA PONCE, JUAN (Mexico)** b. 1932. Drama critic and playwright, Natl. Univ. of Mexico, Mexico City, 1955-1957. Drama (H). Appointed from *Revista Universidad de México*. *Place of Study:* U.S.A., 1960-.
- GAZZINELLI, GIOVANNI (Brazil)** b. 1927. M.D., Univ. of Minas Gerais, Belo Horizonte, 1955. Biochemistry (MNS). Appointed from Univ. of Minas Gerais. *Place of Study:* U.S.A., 1960-.
- GEBERT OISEL, RONALD (Chile)** b. 1936. M.D., Catholic Univ. of Chile, Santiago, 1960. Biochemistry (MNS). Appointed from Catholic Univ. of Chile. *Place of Study:* U.S.A., 1960-.
- GILL, PRITAM KAUR (India)** b. 1930. M.Sc., All-India Inst. of Med. Sciences, New Delhi, 1959. Respiratory Physiology (MNS). Appointed from All-India Inst. of Med. Sciences. *Place of Study:* U.S.A., 1960-.
- GLASER, TADEUSZ (Poland)** b. 1922. Dr., Poznan Univ. 1959. Plant Science—Horticulture (A). Appointed from Coll. of Agric., Poznan. *Place of Study:* Germany, 1960-.
- GOMEZ GOMEZ, JUVENAL (Colombia)** b. 1934. M.D., Univ. of Caldas, Manizales, 1959. Basic Medical Sciences (MNS). Appointed from Univ. of Caldas. *Place of Study:* U.S.A., 1960-.
- GONGORA DEL CAMPO, MARIO (Chile)** b. 1915. Lic., Univ. of Chile, Santiago, 1944. History (H). Appointed from Univ. of Chile. *Place of Study:* Spain, 1960-.
- GONZALEZ ALANIS, MARTIN H. (Mexico)** b. 1930. M.S., Texas Agric. and Mech. Coll. 1957. Plant Science—Range Management—Animal Science—Dairy Husbandry (A); Plant Science—Range Management (A). Appointed twice from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1955-1957; 1960-.
- GONZALEZ SALAZAR, ROQUE (Mexico)** b. 1931. LL.B., Univ. of Nuevo León, Monterrey, 1954. Foreign Policy of the Soviet Union (SS). Appointed from

- Colegio de México, Mexico City.
Place of Study: France, 1960-.
- GOULD, SAMUEL JULIUS** (*United Kingdom*) *b.* 1924. M.A., Univ. of Oxford 1949. Sociology (SS). Appointed from London School of Econ. and Polit. Science. *Place of Study:* U.S.A., 1960-.
- GROBMAN, ALEXANDER** (*Peru*) *b.* 1927. B.S., Ohio State Univ. 1948. Plant Science—Genetics (A). Appointed from Natl. School of Agric., Lima. *Place of Study:* U.S.A., 1960-.
- GUHA, NARESH** (*India*) *b.* 1924. M.A., Univ. of Calcutta 1945. Literature (H). Appointed from Jadavpur Univ., Calcutta. *Place of Study:* U.S.A., 1960-.
- GUILLERY, RAINER WALTER** (*United Kingdom*) *b.* 1929. Ph.D., Univ. of London 1954. Neuro-anatomy (BMRC). Appointed from Univ. of London. *Place of Study:* U.S.A., 1960-.
- GURROLA ITURRIAGA, JUAN JOSÉ** (*Mexico*) *b.* 1935. B.A., Natl. Univ. of Mexico, Mexico City, 1953. Drama (H). Appointed from Natl. Univ. of Mexico. *Place of Study:* U.S.A., 1960-.
- GUTIÉRREZ HERAS, JOAQUÍN** (*Mexico*) *b.* 1927. Paris Conservatory of Music 1953. Music (H). *Place of Study:* U.S.A., 1960-.
- GUTOWSKI, ARMIN** (*Germany*) *b.* 1930. Ph.D., Univ. of Mainz 1957. Economics (SS). Appointed from Univ. of Mainz. *Place of Study:* U.S.A., 1960-.
- HACHINOHE, YOSHIO** (*Japan*) *b.* 1922. D.Agr., Hokkaido Univ., Sapporo, 1956. Agriculture—Entomology (A). Appointed from Natl. Inst. of Agric. Sciences, Chiba. *Place of Study:* U.S.A., 1960-.
- HAGGER, ALFRED JAMES** (*Australia*) *b.* 1922. Ph.D., London School of Econ. and Polit. Science 1952. Economics (SS). Appointed from Univ. of Tasmania, Hobart. *Place of Study:* England, 1960-.
- HAMASHIMA, YOSHIHIRO** (*Japan*) *b.* 1923. D.Med.Sc., Kyoto Univ. 1955. Pathology (MNS). Appointed from Kyoto Univ. *Place of Study:* U.S.A., 1960-.
- HARRISON, MARTIN** (*United Kingdom*) *b.* 1930. Ph.D., Univ. of Oxford 1958. Political Science (SS). Appointed from Univ. of Oxford. *Place of Study:* U.S.A., 1960-.
- HAYASHI, SHIGEO** (*Japan*) *b.* 1922. D.Med.Sc., Univ. of Tokyo 1954. Parasitology—Public Health (MNS). Appointed from Univ. of Tokyo. *Place of Study:* U.S.A., 1960-.
- HEATH, JOHN BALDWIN** (*United Kingdom*) *b.* 1924. M.A., St. Andrews Univ. 1953. Economics (SS). Appointed from Victoria Univ. of Manchester. *Place of Study:* U.S.A., 1960-.
- HIGASHI, TOKUHIKO** (*Japan*) *b.* 1925. D.Med.Sc., Univ. of Tokyo 1959. Biochemistry (MNS). Appointed from Univ. of Tokyo. *Place of Study:* U.S.A., 1960-.
- HIMMELSTRAND, JOHN ULF INGMAR** (*Sweden*) *b.* 1924. Fil.lic., Univ. of Uppsala 1955. Sociology (SS). Appointed from Univ. of Uppsala. *Place of Study:* U.S.A., 1960-.
- HIURA, UNJI** (*Japan*) *b.* 1919. D.Agr., Kyushu Univ., Fukuoka,

1959. Plant Science — Pathology (A). Appointed from Okayama Univ. *Place of Study:* U.S.A., 1960-.
- HOFFMANN, ERNESTO OTTO (*Colombia*) b. 1927. M.D., Univ. of San Simón, Cochabamba, Bolivia, 1955. Pathology (MNS). Appointed from Univ. of Valle, Cali. *Place of Study:* U.S.A., 1960-.
- HURTADO HURTADO, MARIO (*Colombia*) b. 1935. Cand. M.D., Xavier Univ., Bogotá, 1959. Basic Sciences — Internal Medicine (MNS). Appointed while a medical student at Xavier Univ. *Place of Study:* Colombia, 1960-.
- IHROMI (*Indonesia*) b. 1928. B.Th., Djakarta Theological Coll. 1955. Intercultural Understanding (H). Appointed while at Harvard Univ. *Place of Study:* U.S.A., 1960-.
- ISHII, TOSHITAKE (*Japan*) b. 1922. D.Med.Sc., Kyushu Univ., Fukuoka, 1952. Experimental Pathology — Biological Chemistry (MNS). Appointed from Kyushu Univ. *Place of Study:* Canada, 1960-.
- ISHIKAWA, YOSHINORI (*Japan*) b. 1928. M.S., Hokkaido Univ., Sapporo, 1954. Agriculture — Biochemistry (A). Appointed from Hokkaido Univ. *Place of Study:* U.S.A., 1960-.
- ITO, MASAKICHI (*Japan*) b. 1922. Shogakushi Degree, Tokyo Univ. of Commerce 1948. Economics (SS). Appointed from Hitotsubashi Univ., Tokyo. *Place of Study:* U.S.A., 1960-.
- IWAHASHI, BUNKICHI (*Japan*) b. 1916. B.A., Hiroshima Univ. 1944. Intercultural Understand- ing (H). Appointed from Kyushu Univ., Fukuoka. *Place of Study:* England, 1960-.
- IZZO, LUCIO (*Italy*) b. 1932. Law Degree, Univ. of Rome 1954. Economics (SS). Appointed from Bank of Italy, Rome. *Place of Study:* U.S.A., 1960-.
- JANSEN, JAN KRISTIAN SCHÖNING, JR. (*Norway*) b. 1931. M.D., Univ. of Oslo 1955. Neurophysiology (MNS). Appointed from Univ. of Oslo. *Place of Study:* England, 1960-.
- JARA HANTKE, ALVARO (*Chile*) b. 1923. M.A., Univ. of Chile, Santiago, 1957. History (H). Appointed from Univ. of Chile. *Place of Study:* Europe, 1960-.
- JAYAWEERA, DON MARTIN ARTHUR (*Ceylon*) b. 1912. M.S., Univ. of London 1949. Plant Science — Botany and Ecology (A). Appointed from Dept. of Agric., Peradeniya. *Place of Study:* U.S.A., 1960-.
- JENSEN, ERNEST LYKKE (*Denmark*) b. 1927. Degree in Polit. Science, Univ. of Copenhagen 1952. Statistics (SS). Appointed from Univ. of Copenhagen. *Place of Study:* U.S.A., 1960-.
- JØRGENSEN, KNUD HARALD (*Denmark*) b. 1927. Cand.Mag., Univ. of Copenhagen 1959. Political Science (SS). Appointed from Univ. of Copenhagen. *Place of Study:* U.S.A., 1960-.
- KACSER, PAMELA HADDY (*United Kingdom*) b. 1928. M.S., Cornell Univ. 1955. Economics (SS). Appointed from Univ. of Oxford. *Place of Study:* U.S.A., 1960-.

- KAMEL, WADIE WANIES (*Lebanon*)
b. 1929. M.B., B.Ch., Ein Shams Univ., Cairo, 1955. Public Health (MNS). Appointed from United Nations Relief and Works Agency, Beirut. *Place of Study:* U.S.A., 1960-.
- KATZ CUADRA, EDUARDO (*Chile*)
b. 1931. M.D., Univ. of Chile, Santiago, 1954. Renal Diseases (MNS). Appointed from Univ. of Chile. *Place of Study:* U.S.A., 1960-.
- KAUL, AJODHIA NATH (*India*) *b.* 1930. B.Litt., Univ. of Oxford 1955. Literature (H). Appointed from Univ. of Delhi. *Place of Study:* U.S.A., 1960-.
- KAWAGUCHI, KEIZABURO (*Japan*)
b. 1914. D.Agr., Kyoto Univ. 1945. Soil Science (A). Appointed from Kyoto Univ. *Place of Study:* U.S.A., 1960-.
- KAWAMURA, YOJIRO (*Japan*) *b.* 1921. M.D., Osaka Univ. 1946. Neurophysiology (MNS). Appointed from Osaka Univ. *Place of Study:* U.S.A., 1960-.
- KAYAALP, SÜLEYMAN OGUZ (*Turkey*) *b.* 1931. M.D., Univ. of Ankara 1955. Pharmacology (MNS). Appointed from Univ. of Ankara. *Place of Study:* U.S.A., 1960-.
- KITAMURA, HARUO (*Japan*) *b.* 1923. LL.B., Kyoto Univ. 1947. Economics (SS). Appointed from Econ. Planning Agency, Tokyo. *Place of Study:* U.S.A., 1960-.
- KOIZUMI, TAKASHI (*Japan*) *b.* 1927. B.A., Keio Univ., Tokyo, 1950. Philosophy (H). Appointed from Keio Univ. *Place of Study:* U.S.A., 1960-.
- KOLSEN, HELMUT MAX (*Australia*)
b. 1926. B.Econ., Univ. of Syd-ney 1955. Economics (SS). Appointed from Univ. of Sydney. *Place of Study:* U.S.A., 1960-.
- KOSAKA, MASATAKA (*Japan*) *b.* 1934. B.A., Kyoto Univ. 1957. Political Science — International Relations (SS). Appointed from Kyoto Univ. *Place of Study:* U.S.A., 1960-.
- KOSKINEN, EILA HELENA (*Finland*)
b. 1928. R.N., Coll. of Nursing, Helsinki, 1955. Nursing Education (MNS). Appointed from Univ. of Helsinki. *Place of Study:* U.S.A., 1960-.
- KRISHNA, DAYA (*India*) *b.* 1924. Ph.D., Univ. of Delhi 1952. Philosophy (H). Appointed from Univ. of Saugar. *Place of Study:* U.S.A., 1960-.
- KROL, WŁADYSŁAW WOJCIECH (*Poland*) *b.* 1915. M.D., Med. Acad., Cracow, 1948. Cardiovascular Disease (MNS). Appointed from Med. Acad. *Place of Study:* France, 1960-.
- KRUMDIECK BOIT, CARLOS (*Peru*)
b. 1932. M.D., Univ. of San Marcos, Lima, 1958. Biochemistry (MNS). Appointed from Univ. of San Marcos. *Place of Study:* U.S.A., 1960-.
- KRUSZEWSKA, KAZIMIERA (*Poland*)
b. 1936. School of Nursing, Olsztyn, 1954. Nursing Education (MNS). Appointed from School of Nursing. *Place of Study:* U.S.A., 1960-.
- KUNO, SIGERU (*Japan*) *b.* 1925. Ph.D., Kyoto Univ. 1952. Biochemistry (MNS). Appointed from Kyoto Univ. *Place of Study:* U.S.A., 1960-.
- KUYAMA, SHIMPEI (*Japan*) *b.* 1924. D.Agr., Univ. of Tokyo 1960.

- Agriculture — Microbiology (A). Appointed from Nagoya Natl. Univ. *Place of Study:* U.S.A., 1960-.
- LAGERKVIST, ULF GUDMUND (Sweden)** b. 1926. M.D., Karolinska Inst., Stockholm, 1959. Biochemistry (MNS). Appointed from Univ. of Göteborg. *Place of Study:* U.S.A., 1960-.
- LANTICAN, DOMINGO M. (Philippines)** b. 1925. M.S., Syracuse Univ. 1959. Forestry (A). Appointed from Univ. of the Philippines, Los Baños. *Place of Study:* U.S.A., 1960-.
- LEAL DIAZ, JAIME (Mexico)** b. 1933. M.S., Univ. of California 1957. Plant Science — Horticulture (A); Agriculture — Soil Science (A). Appointed twice from Tech. Inst. and School of Advanced Studies of Monterrey. *Place of Study:* U.S.A., 1956-1957; 1960-.
- LELONO, DJOKO (Indonesia)** b. 1922. Tech. Coll., Bandung, 1942-1943. Drama (H). Appointed while a free-lance film director and scenarist, Djakarta. *Place of Study:* U.S.A., 1960-.
- LIBREA, ARTURO A. (Philippines)** b. 1914. M.D., Univ. of the Philippines, Manila, 1942. Biostatistics (MNS). Appointed from Univ. of the Philippines. *Place of Study:* U.S.A., 1960-.
- LICO, MARIA CARMELA (Argentina)** b. 1927. M.D., Univ. of Buenos Aires 1955. Physiology (MNS). Appointed from Inst. of Biology and Exper. Med., Buenos Aires. *Place of Study:* Brazil, 1960-.
- LINARES IBARGUREN, RAMON (Colombia)** b. 1934. School of Industrial Engineering, Madrid, 1955-1957. Hospital Administration (MNS). Appointed from Univ. of Valle, Cali. *Place of Study:* U.S.A., 1960-.
- LITTMAN, KARL KONRAD (Germany)** b. 1923. Ph.D., Univ. of Münster 1952. Economics (SS). Appointed from Univ. of Münster. *Place of Study:* U.S.A., 1960-.
- LLANOS BEJARANO, GUILLERMO (Colombia)** b. 1933. M.D., Univ. of Valle, Cali, 1960. Preventive Medicine and Public Health (MNS). Appointed from Univ. of Valle. *Place of Study:* U.S.A., 1960-.
- LOMBARDI LOMBARDI, MAX (Peru)** b. 1932. D.V.M., Univ. of San Marcos, Lima, 1957. Veterinary Science (A). Appointed from Univ. of San Marcos. *Place of Study:* U.S.A., 1960-.
- LOZINSKI, B. PHILIP (United States)** b. 1915. Ph.D., Yale Univ. 1957. History (H). Appointed while a research assistant at Yale Univ. *Place of Study:* U.S.A., 1960-.
- LYCKE, NILS ERIK OSKAR (Sweden)** b. 1926. M.D., Univ. of Göteborg 1958. Biology — Virology (MNS). Appointed from Diagnostic Virus Lab. of Göteborg. *Place of Study:* U.S.A., 1960-.
- LYRA, CARLOS BENJAMIN DE (Brazil)** b. 1927. D.Sc., Univ. of São Paulo 1958. Algebraic Topology (MNS). Appointed from Univ. of São Paulo. *Place of Study:* U.S.A., 1960-.
- MACKENZIE, MARGARET JANE GRACE (W.H.O.)** b. 1911. R.N., Toronto Western Hosp., Canada, 1937. Nursing Education (MNS).

- Appointed from World Health Organization. *Place of Study:* U.S.A., 1960-.
- MADEJSKA, DANUTA TEVESA (Poland)** b. 1935. R.N., School of Nursing, Warsaw, 1955. Nursing Education (MNS). Appointed from School of Nursing. *Place of Study:* U.S.A., 1960-.
- MANCILLA CABANAS, RAFAEL (Chile)** b. 1929. Dr. Vet., Univ. of Chile, Santiago, 1954. Veterinary Science (A). Appointed from Univ. of Chile. *Place of Study:* U.S.A., 1960-.
- MANCUSO, PEDRO CARLOS (Brazil)** b. 1925. Indust. Chem., Engineering School, Univ. of Rio Grande do Sul, Pôrto Alegre, 1947. Veterinary Science (A). Appointed from Desiderio Finamor Inst. of Veterinary Research, Guaiba. *Place of Study:* U.S.A., 1960-.
- MANO, YOSHITAKE (Japan)** b. 1925. D.Med.Sc., Univ. of Tokyo 1960. Biochemistry (MNS). Appointed from Univ. of Tokyo. *Place of Study:* U.S.A., 1960-.
- MARECHAL, GEORGES RAOUL JOSEPH R. (Belgium)** b. 1931. M.D., Univ. of Louvain 1957. Physiology (MNS). Appointed from Univ. of Louvain. *Place of Study:* U.S.A., 1960-.
- MARES GUIA, MARCOS LUIZ DOS (Brazil)** b. 1935. M.D., Univ. of Minas Gerais, Belo Horizonte, 1958. Biochemistry (MNS). Appointed from Univ. of Minas Gerais. *Place of Study:* U.S.A., 1960-.
- MARTINEZ SALAZAR, EUGENIO (Mexico)** b. 1930. M.S., Michigan State Univ. 1957. Plant Science (LAS); Plant Science — Plant Pathology (A). Appointed twice from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1960-.
- MATSUMOTO, MAKOTO (Japan)** b. 1923. M.Pharm., Univ. of Tokyo 1947. Biochemistry (MNS). Appointed from Inst. for Infectious Diseases, Tokyo. *Place of Study:* U.S.A., 1960-.
- MATSUMOTO, SEIICHI (Japan)** b. 1924. D.Med. Sc., Kyoto Univ. 1958. Virology (MNS). Appointed from Kyoto Univ. *Place of Study:* U.S.A., 1960-.
- MELLAFE ROJAS, ROLANDO BERNARDO (Chile)** b. 1929. M.A., Univ. of Chile, Santiago, 1958. History (H). Appointed from Univ. of Chile. *Places of Study:* U.S.A., Mexico, 1960-.
- MILLER, COLIN GEORGE (Jamaica)** b. 1931. M.B.B.S., Univ. Coll. of the West Indies, Mona, 1956. Pediatrics (MNS). Appointed from Univ. Coll. of the West Indies. *Place of Study:* England, 1960-.
- MITSUI, HIROMI (Japan)** b. 1927. B.S., Nagoya Natl. Univ. 1952. Biochemistry (MNS). Appointed from Univ. of Tokyo. *Place of Study:* England, 1960-.
- MIURA, TEIJI (Japan)** b. 1921. D.Med.Sc., Univ. of Tokyo 1951. Virology (MNS). Appointed from Univ. of Tokyo. *Place of Study:* U.S.A., 1960-.
- MIURA, YUSHO (Japan)** b. 1921. M.D., Hokkaido Univ., Sapporo, 1944. Dermatology (MNS). Appointed from Hokkaido Univ. *Place of Study:* U.S.A., 1960-.
- MIZUNO, SEIICHI (Japan)** b. 1923. M.D., Kyoto Prefectural Univ.

- of Med. 1947. Neurophysiology (MNS). Appointed from Kyoto Prefectural Univ. of Med. *Place of Study: U.S.A., 1960-*.
- MOGHADASSY, MAHIN (Iran)** b. 1934. Lic., Nemazee School of Nursing, Shiraz Med. Center, 1957. Nursing Education (MNS). Appointed while at Duke Univ. *Place of Study: U.S.A., 1960-*.
- MORI, RYOICHI (Japan)** b. 1930. D.Med.Sc., Kyushu Univ., Fukuoka, 1959. Virology (MNS). Appointed from Kyushu Univ. *Place of Study: U.S.A., 1960-*.
- MORI, TOM (Japan)** b. 1921. M.D., Tohoku Univ., Sendai, 1952. Embryology — Histochemistry (MNS). Appointed from Tohoku Univ. *Place of Study: U.S.A., 1960-*.
- MORSA, JEAN A. J. V. (Belgium)** b. 1925. D.Soc.Sc., Free Univ. of Brussels 1959. Sociology of Demographic Behavior and Methodology (SS). Appointed from Free Univ. of Brussels. *Place of Study: England, 1960-*.
- MUGHIR, YASIN TAHIA (United Arab Republic)** b. 1921. M.A., American Univ. of Beirut, Lebanon, 1946. Political Science (SS). Appointed from American Univ. of Beirut. *Place of Study: U.S.A., 1960-*.
- MUNOZ GARZA, JUAN MANUEL (Mexico)** b. 1931. M.S., Univ. of Nebraska 1959. Plant Science — Genetics and Plant Breeding (LAS); Plant Science—Agronomy (A). Appointed twice from Office of Special Studies, Mexico City. *Place of Study: U.S.A., 1957-1959; 1960-*.
- MUNOZ LALINDE, EDGAR (Colombia)** b. 1932. M.D., Univ. of Valle, Cali, 1959. Public Health — Clinical Epidemiology (MNS). Appointed from Univ. of Valle. *Place of Study: England, 1960-*.
- NAGATA, IKUYA (Japan)** b. 1923. D.Med.Sc., Nagoya Natl. Univ. 1952. Virology (MNS). Appointed from Nagoya Natl. Univ. *Place of Study: U.S.A., 1960-*.
- NEI, MASATOSHI (Japan)** b. 1931. Ph.D., Kyoto Univ. 1959. Agriculture — Genetics and Plant Breeding (A). Appointed from Kyoto Univ. *Place of Study: U.S.A., 1960-*.
- NEVILLE, JOHN WARWICK (Australia)** b. 1932. Ph.D., Univ. of California 1960. Mathematical Economics and Econometrics (SS). Appointed from Univ. of New England, Armidale. *Place of Study: U.S.A., 1960-*.
- NIETO HATEM, JORGE (Mexico)** b. 1930. M.S., Iowa State Univ. of Science and Tech. 1957. Plant Science: Agronomy — Physiology (LAS); Plant Physiology (A). Appointed twice from Office of Special Studies, Mexico City. *Place of Study: U.S.A., 1956-1957; 1960-*.
- NOBREGA, MARIA DO ROSARIO SOUTO (Brazil)** b. 1934. R.N., School of Nursing of Recife 1954. Nursing Education (MNS). Appointed from School of Nursing of Recife. *Place of Study: U.S.A., 1960-*.
- NOWOSŁAWSKI, ADAM MARIA (Poland)** b. 1925. Physician, Med. Acad., Warsaw, 1952. Experimental Pathology (MNS). Ap-

- pointed from Med. Acad. *Place of Study: U.S.A., 1960-*.
- OJEDA GOMEZ, MARIO (*Mexico*) b. 1927. M.A., Natl. Univ. of Mexico, Mexico City, 1958. American Foreign Policy (SS). Appointed from Natl. Univ. of Mexico. *Place of Study: U.S.A., 1960-*.
- OKABE, SHIRO (*Japan*) b. 1921. M.S., Hokkaido Univ., Sapporo, 1947. Plant Science — Genetics (A). Appointed from Hokkaido Natl. Agric. Exper. Station, Sapporo. *Place of Study: U.S.A., 1960-*.
- OKAZAWA, YOZO (*Japan*) b. 1923. M.S., Hokkaido Univ., Sapporo, 1948. Plant Science — Physiology (A). Appointed from Hokkaido Univ. *Place of Study: U.S.A., 1960-*.
- OKONSKI, JERZY (*Poland*) b. 1923. Dr., Ukrainian Agric. Acad., Kijow, 1955. Animal Science — Physiology (A). Appointed from Exper. Farm for Animal Breeding, Grodziec. *Place of Study: U.S.A., 1960-*.
- ØLGAARD, ANDERS LEBECK (*Denmark*) b. 1926. Cand. Polit., Univ. of Copenhagen 1953. Economics (SS). Appointed from Univ. of Copenhagen. *Place of Study: U.S.A., 1960-*.
- OPOKU, ALBERT MAWERE (*Ghana*) b. 1915. Dipl. (Art), Teacher Training School, Achimota, 1939. Dance (H). Appointed from Coll. of Tech., Kumasi. *Place of Study: U.S.A., 1960-*.
- ORAL, SEVİNÇ NEJAT (*Turkey*) b. 1925. M.D., Univ. of Istanbul 1948. Basic Medical Sciences (MNS). Appointed from Univ. of Ankara. *Place of Study: U.S.A., 1960-*.
- OSPINA, OSCAR (*Colombia*) b. 1930. M.S., Michigan State Univ. 1957. Soil Science (A). Appointed from Natl. Univ. of Colombia, Medellín. *Place of Study: U.S.A., 1960-*.
- OTERO G., LASCARIO (*Colombia*) b. 1929. M.D., Univ. of Cauca, Popayán, 1958. Physiology (MNS). Appointed from Univ. of Cauca. *Place of Study: Colombia, 1960-*.
- OZSOYLU, SINASI NASIH (*Turkey*) b. 1927. M.D., Univ. of Istanbul 1951. Biochemistry (MNS). Appointed while a resident at St. Louis Children's Hosp., Missouri. *Place of Study: U.S.A., 1960-*.
- PABIS, STANISLAW (*Poland*) b. 1925. Dr., Inst. of the Mechanization and Electrification of Agric., Warsaw, 1959. Agricultural Engineering (A). Appointed from Inst. of the Mechanization and Electrification of Agric. *Place of Study: U.S.A., 1960-*.
- PARENTINI, MARIA ROSA (*Uruguay*) b. 1930. Cert., Univ. of Toronto, Canada, 1954. Nursing Education (DMPH); Curriculum Construction (MNS). Appointed twice from Univ. School of Nursing, Montevideo. *Places of Study: Canada, 1953-1954; U.S.A., 1960-*.
- PASEGGI D'YORIO, ANA CATALINA (*Uruguay*) b. 1934. R.N., Univ. School of Nursing, Montevideo, 1955. Pediatric Nursing (MNS). Appointed from Univ. School of Nursing. *Place of Study: U.S.A., 1960-*.

- PATEL, KANUBHAI ARVINDBHAI (*India*) b. 1927. Ph.D., Indian Agric. Research Inst., New Delhi, 1960. Plant Science—Genetics (A). Appointed from Bansilal Amritlal Coll. of Agric., Anand. *Place of Study:* U.S.A., 1960-.
- PATEL, RAMJIBHAI MADHAVBHAI (*India*) b. 1930. M.S., Bansilal Amritlal Coll. of Agric., Anand, 1953. Biometry (A). Appointed while at North Carolina State Coll. *Place of Study:* U.S.A., 1960-.
- PATINO MENDEZ, GRACIANO (*Mexico*) b. 1932. M.S., Univ. of Maryland 1958. Plant Science—Agronomy (LAS); Plant Pathology (A). Appointed from 1) Office of Special Studies, Mexico City; 2) Ministry of Agric. and Livestock. *Place of Study:* U.S.A., 1956-1958; 1960-.
- PATNAIK, SATCHIDANAND (*India*) b. 1930. M.S., Ravenshaw Coll., Cuttack, 1952. Soil Science (A). Appointed from Central Rice Research Inst., Orissa. *Place of Study:* U.S.A., 1960-.
- PETERS, FRANCIS EDWARD (*U.S.A.*) b. 1927. Ph.Lic., St. Louis Univ. 1952. Philosophy (H). Appointed while a Ph.D. candidate at Princeton Univ. *Place of Study:* U.S.A., 1960-.
- PINHEIRO, PAULO BURLE NETO (*Brazil*) b. 1933. M.D., Univ. of Recife 1958. Basic Medical Sciences (MNS). Appointed from Univ. of Recife. *Place of Study:* U.S.A., 1960-.
- PLESNER, PAUL ERIK (*Denmark*) b. 1924. M.D., Univ. of Copenhagen 1952. Biochemistry (MNS). Appointed from Carlsberg Founda-
- tion, Copenhagen. *Place of Study:* U.S.A., 1960-.
- POOLE, ELMAN WILLIAMS (*United Kingdom*) b. 1925. M.B., Univ. of Otago, Dunedin, New Zealand, 1949. Clinical Neurophysiology (BMRC). Appointed from Inst. of Psychiatry, Univ. of London. *Place of Study:* U.S.A., 1960-.
- RAJKOVIC, ALEXANDER D. (*Yugoslavia*) b. 1920. M.D., Med. School, Zagreb, 1949. Microbiology (MNS). Appointed from Inst. for Microbiol., Sarajevo. *Place of Study:* U.S.A., 1960-.
- RAMAKRISHNAN, C. V. (*India*) b. 1926. Ph.D., Indian Inst. of Science, Bangalore, 1949. Plant Biochemistry—Tissue Culture (MNS). Appointed from Maharaja Sayajirao Univ. of Baroda. *Place of Study:* Australia, 1960-.
- RANZANI, GUIDO (*Brazil*) b. 1915. Prof., Luiz de Queiroz Coll. of Agric., Piracicaba, 1957. Agriculture—Soil Science (A). Appointed from Luiz de Queiroz Coll. of Agric. *Place of Study:* U.S.A., 1960-.
- RAY, PUNYA SLOKA (*India*) b. 1932. Ph.D., Eberhard-Karls Univ., Tübingen, Germany, 1956. Philosophy (H). Appointed from Utkal Univ., Cuttack. *Place of Study:* U.S.A., 1960-.
- RENDÄ, YAVUZ AVDIN (*Turkey*) b. 1932. M.D., Univ. of Ankara 1955. Pediatric Neurology (MNS). Appointed while an asst. resident at St. Louis Children's Hosp., Missouri. *Place of Study:* Canada, 1960-.
- REYES, SOLEDAD A. (*W.H.O.*) b. 1912. R.N., Zamboanga General

- Hosp., Philippines, 1933. Nursing Education Administration (MNS). Appointed from World Health Organization. *Place of Study:* U.S.A., 1960-.
- RIEDL, HUGO (*Austria*) b. 1932. LL.D., Univ. of Vienna 1955. Economics (SS). Appointed from Austrian Inst. for Econ. Research, Vienna. *Place of Study:* U.S.A., 1960-.
- RITCHIE, JAMES ERNEST (*New Zealand*) b. 1929. M.A., Victoria Univ., Wellington, 1955. Social Psychology (SS). Appointed from Victoria Univ. *Place of Study:* U.S.A., 1960-.
- RODRIGUEZ, MANUEL ANTONIO (*Philippines*) b. 1915. Univ. of the Philippines 1939. Visual Arts (H). Appointed from Art Assn. of the Philippines. *Place of Study:* U.S.A., 1960-.
- Rossi GUERRERO, ALEJANDRO (*Mexico*) b. 1932. M.A., Natl. Univ. of Mexico, Mexico City, 1955. Philosophy (H). Appointed from Natl. Univ. of Mexico. *Place of Study:* England, 1960-.
- RUDOMIN ZEVNOVATY, PEDRO NAUM (*Mexico*) b. 1934. M.S., Natl. School of Biol. Sciences, Mexico City, 1956. Neurophysiology (MNS). Appointed while on a Guggenheim Fellowship. *Place of Study:* Italy, 1960-.
- RUSCHEMEYER, DIETRICH (*Germany*) b. 1930. Dr.rer.pol., Univ. of Cologne 1958. Sociology (SS). Appointed from Univ. of Cologne. *Place of Study:* U.S.A., 1960-.
- SAKAMOTO, TETSURO (*Japan*) b. 1932. B.Econ., Kagawa Univ. 1955. Library Science (MNS). Appointed from Osaka Univ. *Place of Study:* U.S.A., 1960-.
- SALAZAR NAVARRO, HERNANDO (*Colombia*) b. 1931. M.D., Natl. Univ. of Colombia, Bogotá, 1958. Histochemistry (MNS). Appointed from Natl. Univ. of Colombia. *Place of Study:* Colombia, 1960-.
- SALDANHA, PEDRO HENRIQUE (*Brazil*) b. 1929. D.Sc., Univ. of São Paulo 1959. Human Genetics (MNS). Appointed from Univ. of São Paulo. *Place of Study:* U.S.A., 1960-.
- SAMOTUS, BOGUSLAW (*Poland*) b. 1925. D.Sc., Coll. of Agric., Cracow, 1959. Biochemistry (A). Appointed from Coll. of Agric. *Place of Study:* U.S.A., 1960-.
- SANCHEZ QUINTANAR, ESTELA (*Mexico*) b. 1933. Q.F.B., Natl. Univ. of Mexico, Mexico City, 1954. Biochemistry (MNS). Appointed from Natl. Inst. of Nutrition, Mexico City. *Place of Study:* U.S.A., 1960-.
- SASAKAWA, TAIJI (*Japan*) b. 1921. Ph.D., Osaka Univ. 1955. Biochemistry (MNS). Appointed from St. Paul's Univ., Tokyo. *Place of Study:* U.S.A., 1960-.
- SAXENA, PREM NARAIN (*India*) b. 1925. M.D., Univ. of Lucknow 1952. Pharmacology (MNS). Appointed from Univ. of Lucknow. *Place of Study:* U.S.A., 1960-.
- SCHINZEL, ANDRZEJ (*Poland*) b. 1937. M.S., Univ. of Warsaw 1958. Mathematics (MNS). Appointed from Polish Acad. of Sciences, Warsaw. *Place of Study:* England, 1960-.
- SCHMIDT, KURT (*Germany*) b. 1924. Ph.D. (Econ.), Univ. of Bonn 1952. Economics (SS). Appointed

- from Univ. of Bonn. *Place of Study*: U.S.A., 1960-.
- SCHUMANN, JOACHIM ERICH WILHELM** (*Germany*) b. 1930. Ph.D., Univ. of Frankfurt 1959. Economics (SS). Appointed from Univ. of Frankfurt. *Place of Study*: U.S.A., 1960-.
- SEDENSKY, JAMES ANDREW** (*Colombia*) b. 1936. B.S., Fairfield Univ., Connecticut, 1958. Medical Physiology (MNS). Appointed from Univ. of Tennessee. *Place of Study*: Colombia, 1960-.
- SEGOVIA CANOSA, RAFAEL** (*Mexico*) b. 1928. M.A., Natl. Univ. of Mexico, Mexico City, 1959. International Relations (SS). Appointed from Colegio de México, Mexico City. *Place of Study*: France, 1960-.
- SELVAPANDIAN, AMBROSE JAMES** (*India*) b. 1923. M.S., Christian Med. Coll., Vellore, 1956. Orthopedic Surgery (MNS). Appointed from Christian Med. Coll. *Place of Study*: U.S.A., 1960-.
- SETTE, PAULO EUGENIO** (*Brazil*) b. 1932. M.D., Univ. of Recife 1956. Psychiatry (MNS). Appointed from Univ. of Recife. *Place of Study*: U.S.A., 1960-.
- SEZER, VEDAT** (*Turkey*) b. 1931. M.D., Univ. of Ankara 1955. Basic Medical Sciences (MNS). Appointed from Univ. of Ankara. *Place of Study*: U.S.A., 1960-.
- SOBRAL, DEJANO TAVARES** (*Brazil*) b. 1933. M.D., Univ. of Brazil, Rio de Janeiro, 1957. Basic Medical Sciences (MNS). Appointed from Univ. of Brazil. *Place of Study*: U.S.A., 1960-.
- SOHN, POW-KEY** (*Korea*) b. 1922. M.A., Seoul Natl. Univ. 1949.
- History (H). Appointed from Yunse Univ., Seoul. *Place of Study*: U.S.A., 1960-.
- SOWANDE, FELA** (*Nigeria*) b. 1905. B.Mus., Univ. of London 1950. Music (H). Appointed from Nigerian Broadcasting Corp., Lagos. *Place of Study*: U.S.A., 1960-.
- SZYMANSKI, STEFAN** (*Poland*) b. 1926. Dr., Coll. of Agric., Poznan, 1959. Plant Science — Physiology (A). Appointed from Coll. of Agric. *Place of Study*: Germany, 1960-.
- TAN, KIM HONG** (*Indonesia*) b. 1926. Ph.D., Univ. of Indonesia, Bogor, 1958. Soil Science (A). Appointed from Univ. of Indonesia. *Place of Study*: U.S.A., 1960-.
- TANESE, SHIGERU** (*Japan*) b. 1925. M.Com., Tokyo Univ. of Commerce 1948. Economics (SS). Appointed from Hitotsubashi Univ., Tokyo. *Place of Study*: U.S.A., 1960-.
- TANIGUCHI, SHIGEHICO** (*Japan*) b. 1930. B.S., Nagoya Natl. Univ. 1951. Biochemistry — Enzymes (MNS). Appointed from Nagoya Natl. Univ. *Place of Study*: U.S.A., 1960-.
- TARKOWSKI, ANDRZEJ KRZYSZTOF** (*Poland*) b. 1933. Ph.D., Polish Acad. of Sciences, Białowieża, 1959. Biology (MNS). Appointed from Univ. of Warsaw. *Place of Study*: Wales, 1960-.
- TELÄ, MARJA TERTTU** (*W.H.O.*) b. 1910. Dipl., Univ. of Toronto, Canada, 1948. Public Health Nursing (IHD); Nursing Research (MNS). Appointed from i) State School of Public Health

- Nursing, Pori, Finland; 2) World Health Organization. *Places of Study:* Canada, U.S.A., 1947-1948; U.S.A., 1960-.
- TIKASINGH, ELISHA SEUJIT (*Trinidad*) b. 1927. Ph.D., Oregon State Coll. 1960. Parasitology — Invertebrate Zoology (MNS). Appointed while studying for the doctorate at Oregon State Coll. *Place of Study:* Trinidad, 1960-.
- TOCZEK, STANISLAW (*Poland*) b. 1923. Med. Acad., Warsaw. Neurosurgery — Neurophysiology (MNS). Appointed from Med. Acad. *Place of Study:* U.S.A., 1960-.
- TOGAWA, TSUGUO (*Japan*) b. 1934. M.A., Hokkaido Univ., Sapporo, 1959. History (H). Appointed while a grad. student at the Slavic Inst., Hokkaido Univ. *Place of Study:* U.S.A., 1960-.
- TORVIK, ANSGAR (*Norway*) b. 1925. M.D., Univ. of Oslo 1951. Neuropathology (MNS). Appointed from Univ. of Oslo. *Place of Study:* U.S.A., 1960-.
- TROSS, FRIEDRICH (*W.H.O.*) b. 1919. M.D., Univ. of Innsbruck, Austria, 1947. Public Health (MNS). Appointed from World Health Organization. *Place of Study:* England, 1960-.
- TRUSZCZYNSKI, MARIAN (*Poland*) b. 1929. D.V.S., Coll. of Agric., Lublin, 1959. Veterinary Science — Microbiology (A). Appointed from Veterinary Inst. of Pulawy. *Place of Study:* U.S.A., 1960-.
- UCHIDA, TAKAHIRO (*Japan*) b. 1929. M.D., Sapporo Med. Coll. 1954. Microbiology (MNS). Appointed from Sapporo Med. Coll. *Place of Study:* U.S.A., 1960-.
- USUI, KAZUYA (*Japan*) b. 1922. D.V.M., Univ. of Tokyo 1944. Animal Science — Nutrition (A). Appointed from Univ. of Tokyo. *Place of Study:* U.S.A., 1960-.
- VACIAGO, ALESSANDRO (*Italy*) b. 1931. Ph.D., Univ. of Milan 1953. Chemical Crystallography (MNS). Appointed from Univ. of Rome. *Place of Study:* England, 1960-.
- VARGAS FIGUEROA, FERNANDO (*Chile*) b. 1926. Dentist, Univ. of Concepción 1951. Physiology (MNS). Appointed from Univ. of Chile, Santiago. *Place of Study:* U.S.A., 1960-.
- VEGA, MARCOS R. (*Philippines*) b. 1933. M.S., Cornell Univ. 1957. Plant Science — Physiology (A). Appointed from Univ. of the Philippines, Los Baños. *Place of Study:* U.S.A., 1960-.
- VERISSIMO, JOSE MOACIR TABOSA (*Brazil*) b. 1925. M.D., Univ. of Bahia, Salvador, 1951. Endocrinology (MNS). Appointed from Univ. of São Paulo, Ribeirão Preto. *Place of Study:* U.S.A., 1960-.
- VIEGAS DE MEDEIROS, MARIA AUXILIADORA (*Brazil*) b. 1926. M.D., Univ. of Recife 1951. Basic Medical Sciences (MNS). Appointed from Univ. of Recife. *Place of Study:* U.S.A., 1960-.
- VILLARREAL, RAMON (*W.H.O.*) b. 1939. M.D., Natl. Univ. of Mexico, Mexico City, 1944. Public Health (MNS). Appointed from World Health Organization. *Place of Study:* U.S.A., 1960-.

- VILLAS BÖAS, FRANCISCO Jose (*Brazil*) b. 1929. M.D., Paulista School of Med., São Paulo, 1956. Basic Medical Sciences (MNS). Appointed from Paulista School of Med. *Place of Study:* U.S.A., 1960-.
- WADA, KOJI (*Japan*) b. 1928. D.Agr., Kyushu Univ., Fukuoka, 1960. Agriculture — Soil Science (A). Appointed from Kyushu Univ. *Place of Study:* U.S.A., 1960-.
- WATANABE, YONOSUKE (*Japan*) b. 1924. D.Med.Sc., Keio Univ., Tokyo, 1955. Pathology (MNS). Appointed from Keio Univ. *Place of Study:* U.S.A., 1960-.
- WATT, DONALD CAMERON (*United Kingdom*) b. 1928. M.A., Univ. of Oxford 1954. International Relations (SS). Appointed from London School of Econ. and Polit. Science. *Place of Study:* U.S.A., 1960-.
- WEBB, MARY VIRGINIA (*I.C.A.*) b. 1913. M.A., Columbia Univ. 1949. Nursing Education (MNS). Appointed from Internat. Coop. Admin. *Place of Study:* U.S.A., 1960-.
- WEILL, JACQUES DAVID (*France*) b. 1929. Ph.D., Univ. of Strasbourg 1958. Biochemistry (MNS). Appointed from Univ. of Strasbourg. *Place of Study:* U.S.A., 1960-.
- WISNIEWSKA, MARIANNA (*Poland*) b. 1920. Nursing Dipl., School of Nursing, Warsaw, 1947. Nursing Education and Administration (MNS). Appointed from Dept. of Health, Warsaw. *Place of Study:* U.S.A., 1960-.
- WRIGHT, PETER HEDLEY (*United Kingdom*) b. 1921. M.B.B.Ch., Univ. of Liverpool 1952. Chemical Pathology (BMRC). Appointed from Guy's Hosp. Med. School, Univ. of London. *Place of Study:* U.S.A., 1960-.
- YAMADA MASA-ATSU (*Japan*) b. 1925. M.D., Univ. of Tokyo 1948. Biology — Cytology (MNS). Appointed from Natl. Inst. of Health, Tokyo. *Place of Study:* U.S.A., 1960-.
- YAMADA, YOSHIO (*Japan*) b. 1923. M.S., Univ. of Tokyo 1945. Soil Science (A). Appointed from Kyushu Univ., Fukuoka. *Place of Study:* England, 1960-.
- YASUOKA, SHOTARO (*Japan*) b. 1920. B.A., Keio Univ., Tokyo, 1948. Literature (H). Appointed while a freelance writer. *Place of Study:* U.S.A., 1960-.
- YNIGUEZ, AMADOR D'BAYAN (*Philippines*) b. 1933. M.S., North Carolina State Coll. 1957. Agriculture — Biometry (A). Appointed from Univ. of the Philippines, Los Baños. *Place of Study:* U.S.A., 1960-.
- YOKOYAMA, MAKOTO (*Japan*) b. 1926. LL.B., Univ. of Tokyo 1950. International Politics (SS). Appointed from Univ. of Tokyo. *Places of Study:* U.S.A., France, 1960-.

OTHER STUDY AWARDS

In addition to its fellowship appointments in 1960, the Foundation made 80 special awards to persons from 21 countries.

ALALUF, DAVID (*Chile*) b. 1933. Lic., School of Econ., Santiago, 1958. Agricultural Economics (SS). Appointed from Univ. of Chile, Santiago. *Place of Study:* Germany, 1960-.

ALBORNOZ P., GUILLERMO (*Ecuador*) b. 1923. Mag.Agr., Inter-American Inst. of Agric. Sciences, Turrialba, Costa Rica. Plant Science — Genetics (A). Appointed from Central Univ., Quito. *Place of Study:* Colombia, 1960-.

ALUJA, ALINE SCHUNEMAN-HOFER DE (*Mexico*) b. 1920. Med.Vet. Zootech., Natl. Univ. of Mexico, Mexico City, 1949. Animal Science — Veterinary Pathology (A). Appointed from Natl. Univ. of Mexico. *Place of Study:* U.S.A., 1960-.

ALVAREZ RICO, JOSÉ MANUEL DE BERNARDO (*Colombia*) b. 1931. D.V.M., Natl. Univ. of Colombia, Bogotá, 1958. Animal Science — Physiology (A). Appointed from Ministry of Agric., Bogotá. *Place of Study:* U.S.A., 1960-.

AVANZADO, NORMA ARLAC ABIGANIA (*Philippines*) b. 1935. B.S., Mapua Inst. of Tech., Manila, 1957. Agriculture — Forestry (A). Appointed from Forest Products Research Inst., Los Baños. *Place of Study:* U.S.A., 1960-.

BANERJEE, AJIT MOY (*India*) b. 1935. M.P.A., Syracuse Univ. 1955. Public Administration (SS). Appointed from Indian Inst. of Public Admin., New Delhi. *Place of Study:* U.S.A., 1960-.

BERNIS, WALTER OCTAVIANO (*Brazil*) b. 1929. D.V.M., Rural Univ. of the State of Minas Gerais, Belo Horizonte, 1954. Veterinary Science (A). Appointed from Rural Univ. of the State of Minas Gerais. *Place of Study:* U.S.A., 1960-.

BIXLER, EDS EL GEORGE (*Mexico*) b. 1936. Agron., Private School of Agric., Ciudad Juárez, 1958. Animal Science — Poultry (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1960-.

BRAUN, WALTER AUGUSTO GROSS (*Brazil*) b. 1932. B.S., Rural Univ., Rio de Janeiro, 1956. Soil Science — Fertility (A). Appointed from Inst. of Agric. and Ecology, Rio de Janeiro. *Place of Study:* U.S.A., 1960-.

CARRILLO SANCHEZ, JOSE LUIS (*Mexico*) b. 1934. Ing.Agr., Natl. School of Agric., Chapingo, 1959. Plant Science — Economic Entomology (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1960-.

- CHAUDHRI, MOHAMMED AHSEN** (*Pakistan*) *b. 1926.* M.A., Univ. of Oregon 1952. Political Science (SS). Appointed from Univ. of Karachi. *Place of Study:* U.S.A., 1960-.
- CHAUDHRY, MAHABIR SINGH** (*India*) *b. 1929.* Assoc., Indian Agric. Research Inst., New Delhi, 1953. Plant Science — Agronomy (A). Appointed from Central Rice Research Inst., Orissa. *Place of Study:* U.S.A., 1960-.
- CORTES, CARLOS MARIO** (*Chile*) *b. 1929.* Comm. Eng., Univ. of Chile, Santiago, 1960. Economics (SS). Appointed from Univ. of Chile. *Place of Study:* U.S.A., 1960-.
- CUBILLOS OYARZO, GUSTAVO** (*Chile*) *b. 1934.* Agron., Catholic Univ. of Chile, Santiago, 1957. Agronomy (A). Appointed from Ministry of Agric., Temuco. *Place of Study:* U.S.A., 1960-.
- CUSIHUAMAN G., ANTONIO** (*Peru*) *b. 1934.* Grad., Escuela Seccional de Primer Grado Mixta, Chinchoro, 1957. Intercultural Understanding (H). Appointed from Nucleo Escolar, Chinchoro. *Place of Study:* U.S.A., 1960-.
- DIVINAGRACIA, GIL G.** (*Philippines*) *b. 1935.* B.S.A., Univ. of the Philippines, Los Baños, 1956. Agriculture — Plant Pathology (A). Appointed from Univ. of the Philippines. *Place of Study:* U.S.A., 1960-.
- ELIAS, RAMES** (*Brazil*) *b. 1932.* Ing. Agr., Luiz de Queiroz Coll. of Agric., Piracicaba, 1957. Entomology (A). Appointed from Inst. of Biol., São Paulo. *Place of Study:* Mexico, 1960-.
- GALVEZ ENRIQUEZ, GUILLERMO EDMUNDO** (*Colombia*) *b. 1931.* Ing. Agr., Natl. Univ. of Colombia, Medellín, 1958. Plant Pathology (A). Appointed from Ministry of Agric., Palmira. *Place of Study:* U.S.A., 1960-.
- GONZALEZ, JESUS** (*Chile*) *b. 1922.* Agron., Univ. of Chile, Santiago, 1944. Agricultural Economics (SS). Appointed from United Nations Econ. Commission for Latin America, Santiago. *Place of Study:* U.S.A., 1960-.
- GUERRERO YOACHAM, CRISTIAN** (*Chile*) *b. 1936.* Bach., Univ. of Chile, Santiago, 1959. History (H). Appointed from Univ. of Chile. *Place of Study:* U.S.A., 1960-.
- GUTIERREZ ALEMAN, CARLOS BERNARDO** (*Colombia*) *b. 1938.* Grad. studies, New School for Social Research, New York, 1959-1960. Philosophy (H). Appointed from Natl. Univ. of Colombia, Bogotá. *Place of Study:* U.S.A., 1960-.
- HAQUE, WAHIDUL** (*Pakistan*) *b. 1934.* M.A., Univ. of Dacca 1955. Economics and Statistics (SS). Appointed from Univ. of Dacca. *Place of Study:* U.S.A., 1960-.
- HERRERA-SOTO, ROBERTO** (*Colombia*) *b. 1927.* Law, Natl. Univ. of Colombia, Bogotá, 1952. Intercultural Understanding (H). Appointed from Natl. Univ. of Colombia. *Place of Study:* Canada, 1960-.
- HOFFMAN, RUDOLF** (*Chile*) *b. 1932.*

Comm.Eng., Univ. of Chile, Santiago, 1960. Economics (SS). Appointed from Univ. of Chile. *Place of Study:* U.S.A., 1960-.

INDUNI, CESAR JUAN (*Argentina*) b. 1924. Ing.Agr., Faculty of Agron. and Veterinary Science of Buenos Aires 1947. Plant Science — Plant Breeding (A). Appointed from Exper. Station of Balcarce, Buenos Aires. *Place of Study:* U.S.A., 1960-.

ISHIHARA, SHUJI (*Japan*) b. 1934. B.S., Univ. of Tokyo 1957. Plant Science — Agronomy (A). Appointed from Ministry of Agric. and Forestry, Tokyo. *Place of Study:* U.S.A., 1960-.

KAMALA CHINNIAH, THUMALA CHETTY (*India*) b. 1929. B.Sc., Govt. Arts Coll., Anantapur, 1950. Home Economics (A). Appointed from Home Science Wing, Rajendranagar. *Place of Study:* U.S.A., 1960-.

KANCHANOMAI, PRACHERN (*Thailand*) b. 1929. M.S., Kasetsart Univ., Bangkok, 1959. Plant Science — Plant Physiology (A). Appointed from Kasetsart Univ. *Place of Study:* U.S.A., 1960-.

KARIBO, MINJIBA FELICIA (*Nigeria*) b. 1936. B.A., Univ. Coll., Ibadan, 1960. Library Science (H). Appointed from Regional Central Library, Enugu. *Place of Study:* England, 1960-.

KASETSUWAN, SUWAN (*Thailand*) b. 1919. M.S., Utah State Univ. 1954. Animal Science — Poultry Breeding (A). Appointed from Kasetsart Univ., Bangkok. *Place of Study:* U.S.A., 1960-.

LIZARRAGA HERRERA, JOAQUIN HECTOR (*Nicaragua*) b. 1927. Ing. Agr., Univ. of San Simón, Cochabamba, Bolivia, 1951. Soil Science — Fertility (LAS; A). Appointed twice from Univ. of San Simón. *Places of Study:* Mexico, 1953-1955; U.S.A., 1960-.

LOPEZ FRIAS, LUIS CESAR (*Mexico*) b. 1936. Ing.Agr., Univ. of Coahuila, Saltillo. Plant Pathology (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1960-.

LOPEZ RUBIO, HERNAN (*Colombia*) b. 1933. D.V.M., Univ. of Caldas, Manizales, 1957. Veterinary Science (A). Appointed from Ministry of Agric., Bogotá. *Place of Study:* U.S.A., 1960-.

LOPEZ VILLANUEVA, HERNAN (*Chile*) b. 1927. Agron., Univ. of Chile, Santiago, 1953. Plant Science — Physiology (A). Appointed from Ministry of Agric., Santiago. *Place of Study:* U.S.A., 1960-.

LUJAN CLAURE, LAURO (*Colombia*) b. 1922. Ing.Agr., Univ. of San Simón, Cochabamba, Bolivia, 1959. Agriculture — Horticulture (A). Appointed from Ministry of Agric., Bogotá. *Place of Study:* U.S.A., 1960-.

LUZURIAGA F., GONZALO (*Ecuador*) b. 1926. Ing.Agr., Central Univ., Quito, 1950. Plant Science — Genetics (A). Appointed from Central Univ. *Place of Study:* Colombia, 1960-.

MACIEL, LUIZ CARLOS FERREIRA (*Brazil*) b. 1938. Drama (H). Appointed from Univ. of Bahia,

- Salvador. *Place of Study:* U.S.A., 1960-.
- MALIJATI, TATIEK (*Indonesia*) b. 1934. Indonesian Natl. Theatre Acad., Djakarta. Drama (H). Appointed from Indonesian Natl. Theatre Acad. *Place of Study:* U.S.A., 1960-.
- MANALO, LINA D. (*Philippines*) b. 1932. M.A., Rutgers, the State Univ. 1960. Library Science (A). Appointed while a Fulbright Fellow at Rutgers. *Place of Study:* U.S.A., 1960-.
- MARKS, GEOFFREY CHARLES (*Ceylon*) b. 1932. B.Sc., Univ. of Ceylon, Colombo, 1956. Plant Pathology (A). Appointed from Dept. of Agric., Peradeniya. *Place of Study:* U.S.A., 1960-.
- MARTINEZ, GREGORIO (*Mexico*) b. 1936. Ing.Agr., Univ. of Coahuila, Saltillo, 1957. Agricultural Extension (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1960-.
- MAZRUI, ALI AL'AMIN (*Kenya*) b. 1933. B.A., Victoria Univ. of Manchester, England, 1960. Political Science (SS). Appointed while at Victoria Univ. of Manchester. *Place of Study:* U.S.A., 1960-.
- MINH, DUONG VAN (*Viet Nam*) b. 1936. B.S., Univ. of the Philippines, Los Baños, 1958. Agricultural Engineering (A). Appointed from Agric. Engineering Section of Tuy-Hoa. *Place of Study:* U.S.A., 1960-.
- MUNOZ DAVILA, ALVARO (*Colombia*) b. 1924. D.V.M., Natl. Univ. of Colombia, Bogotá, 1948. Biochemistry — Pharmacology (A). Appointed from Univ. of Caldas, Manizales. *Place of Study:* U.S.A., 1960-.
- NAVARRO FRANCO, MANUEL (*Mexico*) b. 1934. Ing.Agr., Univ. of Coahuila 1957. Plant Science — Agronomy and Plant Pathology (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1960-.
- NIETO, VICTOR (*Mexico*) b. 1936. Ing.Agr., Tech. Inst. and School of Advanced Studies of Monterrey 1958. Plant Science — Horticulture (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1960-.
- OCHOTORENA, BETHWELL ALLAN (*Uganda*) b. 1929. M.A., St. Andrews Univ., Scotland, 1959. History (H). Appointed from Makerere Coll., Kampala. *Place of Study:* England, 1960-.
- OLIVEIRA, FERNANDO CORREA (*Brazil*) b. 1933. M.S. Cand., Univ. of Wisconsin 1955-1956. Rural Sociology — Economics (A). Appointed from Univ. of Rio Grande do Sul, Pôrto Alegre. *Place of Study:* U.S.A., 1960-.
- ONATE, LUZ U. (*Philippines*) b. 1925. M.S., Iowa State Univ. of Science and Tech. 1952. Home Economics — Foods (A). Appointed while at Iowa State Univ. of Science and Tech. *Place of Study:* U.S.A., 1960-.
- ONORO-CERRA, PEDRO RAUL (*Colombia*) b. 1935. Ing.Agr., Faculty of Agron. of Palmira 1959. Biometry (A). Appointed from Ministry of Agric., Bogotá. *Place of Study:* U.S.A., 1960-.

- PAULETTE DEL CAMPO, MIGUEL** (*Peru*) *b. 1927.* Ing.Agr., Natl. School of Agric., Lima, 1952. Plant Science — Agronomy (A). Appointed from Agrarian Univ., Lima. *Place of Study:* U.S.A., 1960-.
- PAWELSKA, KRYSTYNA** (*Poland*) *b. 1920.* Magis. (Zoology), Marie Curie-Sklodowska Univ., Lublin, 1949. Plant Science — Entomology (A). Appointed from Plant Breeding Inst., Bydgoszcz. *Place of Study:* England, 1960-.
- QUAN, CAO** (*Viet Nam*) *b. 1937.* B.S., Univ. of the Philippines, Los Baños, 1958. Agricultural Extension (A). Appointed from Ministry of Agric., Saigon. *Place of Study:* U.S.A., 1960-.
- QUINTERO PINTO, JORGE** (*Colombia*) *b. 1931.* B.S. (Civil Eng.), Xavier Univ., Bogotá, 1957. Agricultural Engineering (A). Appointed from Ministry of Agric., Bogotá. *Place of Study:* U.S.A., 1960-.
- RAMANA MURTHY, GUNDUGURTHY VENKATA** (*India*) *b. 1924.* M.Sc., Osmania Univ., Hyderabad, 1960. Plant Science — Plant Breeding and Genetics (A). Appointed from Dept. of Agric., Andhra Pradesh. *Place of Study:* U.S.A., 1960-.
- RAMÍREZ CASTAÑO, AMALIA** (*Colombia*) *b. 1934.* Bach., Coll. of the Brothers of the Sacred Heart 1952. Agriculture — Library Science (A). Appointed twice from Agric. Research Center, Tibaitatá. *Place of Study:* U.S.A., 1956-1957; 1960-.
- RAMIREZ PAZ, FELIX** (*Mexico*) *b.*
1932. Ing.Agr., Univ. of Coahuila, Saltillo, 1957. Soil Science — Fertility (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1960-.
- RANDHAWA, NARINDAR SINGH** (*India*) *b. 1925.* M.Sc., Punjab Agric. Coll., Lyallpur, 1947. Agriculture — Economics (A). Appointed from Ministry of Food and Agric., New Delhi. *Place of Study:* U.S.A., 1960-.
- ROEHR, BERNANDO ALFONSO** (*Honduras*) *b. 1925.* B.S. (Forestry), Univ. of Florida 1955. Agricultural Economics (A). Appointed from Pan American Agric. School, Tegucigalpa. *Place of Study:* U.S.A., 1960-.
- ROMERO LOLI, MARINO** (*Peru*) *b. 1930.* Ing.Agr., Natl. School of Agric., Lima, 1955. Plant Science — Genetics and Plant Breeding (A). Appointed from Ministry of Agric., Lima. *Place of Study:* Mexico, 1960-.
- SARASWAT, DEVI SINGH** (*India*) *b. 1926.* M.Sc., Agra Univ. 1952. Animal Science — Dairy Science (A). Appointed from Rajasthan Coll. of Agric., Udaipur. *Place of Study:* U.S.A., 1960-.
- SHARMA, JAGDISH** (*India*) *b. 1929.* B.Sc. (Hons. Agr.), Central Coll. of Agric., New Delhi, 1950. Agricultural Extension (A). Appointed from Ministry of Food and Agric., New Delhi. *Place of Study:* U.S.A., 1960-.
- SINGH, SHER** (*India*) *b. 1921.* M.A., Univ. of Lucknow 1943. Agricultural Extension (A). Appointed from Uttar Pradesh Dept. of

- Agric., Lucknow. *Place of Study:* U.S.A., 1960-.
- SOEKOTJO, WIRASMONO (Indonesia)** b. 1933. D.V.M., Univ. of Indonesia, Bogor, 1959. Animal Science — Veterinary Medicine (A). Appointed from Univ. of Indonesia. *Place of Study:* U.S.A., 1960-.
- SUDJIO, LILIK (Indonesia)** b. 1930. Tech. School, Bandung. Drama (H). Appointed while a freelance film director and editor, Djakarta. *Place of Study:* U.S.A., 1960-.
- SUZUKI, AKIRA (Japan)** b. 1930. B.Sc., Univ. of Tokyo 1954. Soil Science (A). Appointed from Natl. Kyushu Agric. Exper. Station, Chikugo. *Place of Study:* U.S.A., 1960-.
- THAKUR, PARKASH CHAND (India)** b. 1928. Assoc., Indian Agric. Research Inst., New Delhi, 1949. Soil Science (A). Appointed from Dept. of Agric., Himachal Pradesh, Simla. *Place of Study:* U.S.A., 1960-.
- TRI, BUI HUU (Viet Nam)** b. 1936. B.S.A., Univ. of the Philippines, Los Baños, 1958. Agriculture — Soil Science (A). Appointed from Directorate of Agric. Research, Saigon. *Place of Study:* U.S.A., 1960-.
- VAN, NGUYEN HOAI (Viet Nam)** b. 1938. B.S.A., Univ. of the Philippines, Los Baños, 1958. Soil Science (A). Appointed from Directorate of Agric. Research, Saigon. *Place of Study:* U.S.A., 1960-.
- VAE: COTTHEM M., LUIS CARLOS (Colombia)** b. 1933. B.S., Mis-
- sissippi State Univ. 1957. Animal Science — Physiology (A). Appointed from Ministry of Agric., Bogotá. *Place of Study:* U.S.A., 1960-.
- VASCONCELLOS, FEDERICO COTTA DE (Brazil)** b. 1934. Eng.Agr., Coll. of Agric., Viçosa, 1959. Economics and Rural Life (A). Appointed from Rural Credit and Assistance Assn., Belo Horizonte. *Place of Study:* Mexico, 1960-.
- VELASCO, MARCIAL (Mexico)** b. 1931. Ing. Agr., Tech. Inst. and School of Advanced Studies of Monterrey 1958. Animal Science — Nutrition and Breeding (A). Appointed from Office of Special Studies, Mexico City. *Place of Study:* U.S.A., 1960-.
- VENKATASWAMY, TADY (India)** b. 1921. B.Sc., Agric. Coll., Coimbatore, 1944. Plant Science — Genetics and Cytology (A). Appointed from Agric. Research Inst., Rajendranagar, Hyderabad. *Place of Study:* U.S.A., 1960-.
- VERMA, GOPAL PRASAD (India)** b. 1931. M.Sc., Govt. Agric. Coll., Kanpur, 1954. Soil Science (A). Appointed from Agric. Coll. and Research Inst., Gwalior. *Place of Study:* U.S.A., 1960-.
- VICENS OBRADOR, JOSÉ JAIME (Chile)** b. 1934. Agron., Catholic Univ. of Chile, Santiago, 1958. Plant Science — Agronomy (A). Appointed from Ministry of Agric., Santiago. *Place of Study:* South Australia, 1960-.
- VIOLIC MARTINOVIC, ALEJANDRO (Chile)** b. 1925. Agron., Catholic Univ. of Chile, Santiago, 1949. Plant Science — Genetics and

- Plant Breeding (A). Appointed from Ministry of Agric., Chillán.
Place of Study: U.S.A., 1960-.
- VON DER PAHLEN, ALEJO WENDT
P. R. (Argentina) b. 1932. Ing. Agr., Faculty of Agron. and Veterinary Science of Buenos Aires 1957. Plant Science — Genetics and Plant Breeding (A). Appointed from Inst. of Phytotechnology, Castelar. *Place of Study:* U.S.A., 1960-.
- WIESNER DURAN, EDUARDO (*Colombia*) b. 1934. B.A., Univ. of the Andes, Bogotá, 1959. Economics (SS). Appointed from Univ. of the Andes. *Place of Study:* U.S.A., 1960-.
- YANEZ PEREZ, IVAN (*Chile*) b. 1923. Eng., Univ. of Chile, Santiago, 1958. Economics (SS). Appointed from Univ. of Chile. *Place of Study:* England, 1960-.

Report of the Treasurer

REPORT OF THE TREASURER

IN THE FOLLOWING PAGES is submitted a report of the financial transactions of The Rockefeller Foundation for the year ended December 31, 1960.

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LYBRAND, ROSS BROS. & MONTGOMERY

CERTIFIED PUBLIC ACCOUNTANTS

2 BROADWAY, NEW YORK 4, N. Y.

AUDITORS' REPORT

To the Board of Trustees,
The Rockefeller Foundation:

We have examined the balance sheet of The Rockefeller Foundation as of December 31, 1960 and the related statements of principal fund, commitments, unpaid appropriations and land, buildings and equipment fund 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 statements of principal fund, commitments, unpaid appropriations and land, buildings and equipment fund present fairly the financial position of The Rockefeller Foundation at December 31, 1960, 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.

(Signed) Lybrand, Ross Bros. & Montgomery

March 14, 1961.

BALANCE SHEET—DECEMBER 31, 1960

ASSETS

MARKETABLE SECURITIES, principally at cost or market quotations at date of gift (market quotations December 31, 1960, \$531,522,986.50) \$191,269,430.38

CURRENT ASSETS:

Cash on deposit	4,220,350.13
Advances and deferred charges	753,701.92

LAND, BUILDINGS, AND EQUIPMENT:

Land and buildings at nominal value	\$ 2.00
Equipment at approximate net depreciated cost	278,849.21
	278,851.21
	<u>\$196,522,333.64</u>

FUNDS AND OBLIGATIONS

PRINCIPAL FUND \$129,323,164.00

COMMITMENTS:

Unpaid appropriations	66,649,657.08
-----------------------	---------------

CURRENT LIABILITIES:

Accounts payable	270,661.35
------------------	------------

LAND, BUILDINGS, AND EQUIPMENT FUND	278,851.21
	<u>\$196,522,333.64</u>

PRINCIPAL FUND

Balance, December 31, 1959	\$130,524,412.01
Add:	
Bequest under will of Ella, Princess Della Torre e Tasso	\$ 2,000,000.00
Bequest under will of Robert Marsh, Jr.	47,306.68
Anonymous gift received	15,000.00
Gift received	44.00
Amount by which securities sold or redeemed exceeded their ledger value	<u>600,773.68</u> 2,663,124.36
	<u>\$133,187,536.37</u>
Deduct:	
Amount transferred to Income Account	3,864,372.37
Balance, December 31, 1960	<u>\$129,323,164.00</u>

APPROPRIATIONS AND PAYMENTS

Unpaid appropriations, December 31, 1959	\$ 66,872,065.84
Appropriations during the year	\$32,833,970.69
Unused balances of appropriations allowed to lapse	<u>2,060,826.36</u> 30,773,144.33
	<u>\$ 97,645,210.17</u>
Payments on 1960 and prior years' appropriations	30,995,553.09
Unpaid appropriations, December 31, 1960	<u>\$ 66,649,657.08</u>

INCOME AVAILABLE FOR COMMITMENT

Balance, December 31, 1959		\$ 3,130,405.15
Add:		
Income and refunds:		
Income from securities	\$23,764,530.49	
Refunds on closed appropriations	13,836.32	
Unused balances of appropriations allowed to lapse	2,060,826.36	
Amount transferred from Principal Fund as of December 31, 1960	3,864,372.37	29,703,565.54
		<hr/>
		\$32,833,970.69
Deduct:		
Appropriations during 1960		32,833,970.69
Balance, December 31, 1960		\$ —0—

LAND, BUILDINGS, AND EQUIPMENT FUND

	BALANCE DEC. 31, 1959	CHANGES DURING 1960			BALANCE DEC. 31, 1960
		ADDITIONS	ACQUISITIONS	DEPRECIATION AND DISPOSALS*	
New York Office:					
Library	\$ 6,885.00	\$ 2,717.06	\$	\$ 2,578.06	\$ 7,024.00
Equipment	174,446.64	169,892.35		41,254.05	271,825.21
Girardot, Colombia:				31,259.73*	
Land and buildings at nominal value			1.00		1.00
Bellagio, Italy:					
Land and buildings at nominal value			1.00		1.00
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	\$181,331.64	\$172,609.41	\$2.00	\$75,091.84	\$278,851.21

FINANCE COMMITTEE'S STATEMENT OF TRANSACTIONS RELATING TO INVESTED FUNDS

PURCHASED:

\$1,000,000	United States of America Treasury Bills April 14, 1960 @ 98.840	\$ 988,400.00
3,000,000	United States of America Treasury Bills May 19, 1960 @ 98.980	2,969,400.00
2,000,000	United States of America Treasury Bills August 18, 1960 @ 99.0491	1,980,982.00
9,000,000	United States of America Treasury Bills November 17, 1960 @ 99.427	8,948,430.00
9,000,000	United States of America Treasury Bills February 16, 1961 @ 99.336	8,940,240.00
650,000	United States of America 3 ¹ / ₈ % Treasury Certificates of Indebtedness August 1, 1961 @ 100	650,000.00
11,000	shares American Smelting & Refining Co. Common (No Par) @ 46.60501818	512,655.20
		<hr/>
		\$24,990,107.20

OTHERWISE ACQUIRED:

\$4,000,000	United States of America 4 ¹ / ₈ % Treasury Certificates of Indebtedness May 15, 1961 received in exchange for a like amount of 4% Treasury Certificates of Indebtedness May 15, 1960 @ 99.95	\$ 3,998,000.00
5,000,000	United States of America 4 ¹ / ₈ % Treasury Notes "C" November 15, 1964 received in exchange for a like amount of 3 ³ / ₄ % Treasury Certificates of Indebtedness "A" February 15, 1960 @ 99.75	4,987,500.00
440	shares Dow Chemical Company Common (Par \$5) received as a stock dividend on 22,000 shares of Common (Par \$5) owned of record 9/16/60	—0—
33,500	" The First National Bank of Chicago Common (Par \$20) received in a stock split on 8,375 shares of Common (Par \$100) owned of record 1/12/60	—0—
25,000	" Hartford Fire Insurance Co. Capital (Par \$5) received in a stock split on 25,000 shares of Capital (Par \$10) owned of record 3/14/60	—0—
50,000	" Hartford Fire Insurance Co. Capital (Par \$5) received as a stock dividend on 50,000 shares of Capital (Par \$5) owned of record 3/14/60	—0—
25,000	" Insurance Company of North America Capital (Par \$5) received as a stock dividend on 25,000 shares of Capital (Par \$5) owned of record 5/16/60	—0—
55,000	" International Nickel Co. of Canada Ltd. Common (No Par) received in a stock split on 55,000 shares of Common (No Par) owned of record 4/28/60	—0—

**FINANCE COMMITTEE'S STATEMENT OF TRANSACTIONS
RELATING TO INVESTED FUNDS—*continued***

644	shares Monsanto Chemical Co. Common (Par \$2) received as a stock dividend on 32,200 shares of Common (Par \$2) owned of record 11/15/60	\$ —0—
15,384	" 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 11/10/60. Taken into the books @ 39.9400136 and the value credited to income. (Cash in the amount of \$25.20 was received in lieu of the fractional share and was also credited to income)	614,437.17
20,000	" Westinghouse Electric Corp. Common (Par \$6.25) received in a stock split on 20,000 shares of Common (Par \$12.50) owned of record 1/5/60	—0—

SOLD	PROCEEDS	LEDGER VALUE
\$ 2,000,000	United States of America Treasury Bills August 18, 1960 @ 99.0491	\$ 1,980,982.00* \$ 1,980,982.00
25,000	shares Phelps Dodge Corp. Capital (Par \$12.50) @ 47.4393432	1,185,983.58 658,959.90
15,384	" Standard Oil Co. (New Jersey) Capital (Par \$7) @ 39.9400136	614,437.17 614,437.17
		<u><u>\$ 3,781,402.75</u></u> <u><u>\$ 3,254,379.07</u></u>

REDEEMED AT MATURITY	PROCEEDS	LEDGER VALUE
\$ 1,000,000	United States of America Treasury Bills January 14, 1960 @ 98.9318	\$ 989,318.00* \$ 989,318.00
1,000,000	United States of America Treasury Bills April 14, 1960 @ 98.840	988,400.00* 988,400.00
3,000,000	United States of America Treasury Bills May 19, 1960 @ 98.980	2,969,400.00* 2,969,400.00
9,000,000	United States of America Treasury Bills November 17, 1960 @ 99.427	8,948,430.00* 8,948,430.00
3,000,000	United States of America 3 3/4% Treasury Certificates of Indebtedness "A" February 15, 1960 @ 100	3,000,000.00 3,000,000.00
11,000,000	United States of America 4 3/4% Treasury Notes August 15, 1960 @ 100	<u><u>11,000,000.00</u></u> <u><u>10,926,250.00</u></u>
		<u><u>\$27,895,548.00</u></u> <u><u>\$27,821,798.00</u></u>

OTHERWISE DISPOSED OF

\$ 5,000,000	United States of America 3 3/4% Treasury Certificates of Indebtedness "A" February 15, 1960 exchanged for a like amount of 4 1/8% Treasury Notes "C" November 15, 1964 @ 100	\$ 5,000,000.00 \$ 5,000,000.00
4,000,000	United States of America 4% Treasury Certificates of Indebtedness May 15, 1960 exchanged for a like amount of 4 1/8% Treasury Certificates of Indebtedness May 15, 1961 @ 99.95	3,998,000.00 3,998,000.00
		<u><u>\$ 8,998,000.00</u></u> <u><u>\$ 8,998,000.00</u></u>

LEDGER VALUE REDUCED

Amortization of bond premiums	\$ 7,953.14 \$ 7,953.14
	<u><u>\$40,682,903.89</u></u> <u><u>\$40,082,130.21</u></u>

RECONCILIATION

Ledger Value of Securities December 31, 1959	\$196,761,516.22
Purchased	\$24,990,107.20
Otherwise Acquired	<u><u>9,599,937.17</u></u> <u><u>34,590,044.37</u></u>
	<u><u>\$231,351,560.59</u></u>
Sold	\$ 3,254,379.07
Redeemed at Maturity	27,821,798.00
Otherwise Disposed of	8,998,000.00
Ledger Value Reduced	<u><u>7,953.14</u></u> <u><u>40,082,130.21</u></u>
Ledger Value of Securities December 31, 1960	<u><u>\$191,269,430.38</u></u>

* Proceeds of U.S.A. Treasury Bills sold and redeemed were augmented by the sum of \$120,680.56 which was appropriately credited to income.

BONDS	SCHEDULE OF SECURITIES			MARKET QUOTATIONS	
	PAR	LEDGER PRICE	VALUE TOTAL	PRICE	TOTAL
American Telephone & Telegraph Co. 3 1/8% 34 yr. Deb. July 1, 1990	\$ 2,000,000	102.430	\$2,048,596.90	91.125	\$ 1,822,500.00
Dallas Power & Light Co. 4 1/4% 1st Mtge. December 1, 1986	500,000	100.736	503,677.76	96.	480,000.00
General Motors Acceptance Corp. 5% 20 yr. Deb. August 15, 1977	1,000,000	97.50	975,000.00	103.625	1,036,250.00
Illinois Bell Telephone Co. 4 1/4% 1st Mtge. Series "E" March 1, 1988	1,000,000	101.242	1,012,420.46	95.5	955,000.00
International Bank for Reconstruction and Development 3 1/2% October 15, 1971	1,000,000	98.00	980,000.00	93.	930,000.00
Michigan Bell Telephone Co. 4 3/8% 35 yr. Deb. December 1, 1991	1,000,000	102.009	1,020,086.48	96.	960,000.00
The Mountain States Telephone & Tele- graph Co. 4 3/8% 31 yr. Deb. February 1, 1988	1,000,000	101.133	1,011,332.37	96.	960,000.00
Pacific Gas & Electric Co. 4 1/2% 1st & Ref. Mtge. "AA" December 1, 1986	1,000,000	101.301	1,013,010.26	99.	990,000.00
Public Service Electric & Gas Company 4 3/8% 1st & Ref. Mtge. November 1, 1986	1,000,000	101.091	1,010,914.48	96.5	965,000.00
Scott Paper Company 3% Conv. Deb. March 1, 1971	1,000,000	103.032	1,030,323.44	111.125	1,111,250.00
United States of America Treasury Bills February 16, 1961	9,000,000	99.336	8,940,240.00	99.336	8,940,240.00

United States of America Treasury Bonds:

2 3/4% — Sept. 15, 1961	1,920,000	100.00	1,920,000.00	100.09375	1,921,800.00
2 1/2% — Nov. 15, 1961	9,000,000	100.010	9,000,871.98	99.65625	8,969,062.50
2 1/2% — Aug. 15, 1963	11,000,000	99.460	10,940,554.94	98.75	10,862,500.00
2 1/2% — June 15, 1962-67	11,200,000	98.739	11,058,762.94	94.8125	10,619,000.00
2 1/2% — Dec. 15, 1964-69	12,000,000	96.305	11,556,562.50	90.8125	10,897,500.00
2 1/2% — June 15, 1967-72	9,000,000	98.941	8,904,650.50	88.5625	7,970,625.00

United States of America 2 1/2% Savir
Bonds "G" October 1, 1962

1,000,000	100.00	1,000,000.00	97.90	979,000.00
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United States of America Treasury Cer-
tificates of Indebtedness:

4 3/8% — May 15, 1961	4,000,000	99.95	3,998,000.00	100.65625	4,026,250.00
3 1/8% — Aug. 1, 1961	650,000	100.00	650,000.00	100.375	652,437.50

United States of America Treasury Notes:

1 1/2% — April 1, 1963	4,000,000	92.25	3,690,000.00	97.25	3,890,000.00
4 3/8% — Nov. 15, 1963	1,000,000	99.95	999,500.00	104.75	1,047,500.00
4 3/8% — Nov. 15, 1964	5,000,000	99.75	4,987,500.00	105.25	5,262,500.00
				\$88,252,005.01	\$86,248,415.00

SCHEDULE OF SECURITIES—*continued*

STOCKS	SHARES	PRICE	LEDGER VALUE TOTAL	MARKET QUOTATIONS	
				PRICE	TOTAL
American Electric Power Co., Inc. (Par \$10)	62,700	\$ 17.138	\$ 1,074,570.80	\$ 57.50	\$ 3,605,250.00
American Smelting & Refining Co. (No Par)	11,000	46.605	512,655.20	55.125	606,375.00
American Telephone & Telegraph Co. Cap. (Par \$33-1/3)	74,250	44.029	3,269,169.30	107.125	7,954,031.25
Christiania Securities Co. (Par \$100)	200	5,568.00	1,113,600.00	13,600.00	2,720,000.00
Consolidated Natural Gas Co. Cap. (Par \$10)	300,000	16.001	4,800,180.01	51.125	15,337,500.00
Continental Insurance Co. Cap. (Par \$5)	27,500	33.262	914,713.17	56.50	1,553,750.00
Continental Oil Co. Cap. (Par \$5)	300,000	6.718	2,015,418.15	55.75	16,725,000.00
Corning Glass Works (Par \$5)	12,500	35.593	444,917.79	179.00	2,237,500.00
Crown Zellerbach Corporation (Par \$5)	22,500	26.274	591,167.64	54.00	1,215,000.00
Dow Chemical Co. (Par \$5)	22,440	22.300	500,413.67	74.625	1,674,585.00
First National Bank of Chicago (Par \$20)	41,875	27.938	1,169,895.85	71.25	2,983,593.75
Freeport Sulphur Co. (Par \$10)	90,000	24.799	2,231,877.90	31.25	2,812,500.00
General Electric Co. (Par \$5)	60,000	19.674	1,180,424.14	74.50	4,470,000.00
Goodrich, B. F. Co. (Par \$10)	50,000	36.798	1,839,893.41	52.50	2,625,000.00
Hartford Fire Insurance Co. Cap. (Par \$5)	100,000	21.785	2,178,527.78	57.00	5,700,000.00

Inland Steel Co. (No Par)	30,000	24.984	749,507.83	41.375	1,241,250.00
Insurance Company of North America Cap. (Par \$5)	50,000	48.238	2,411,908.38	78.00	3,900,000.00
International Business Machines Corp. (Par \$5)	8,700	77.189	671,546.06	593.00	5,159,100.00
International Nickel Co. of Canada Ltd. (No Par)	110,000	20.818	2,289,969.82	58.875	6,476,250.00
International Paper Co. (Par \$2.50)	222,768	10.596	2,360,358.18	31.375	6,989,346.00
Kennecott Copper Corporation (No Par)	30,000	58.539	1,756,180.37	74.125	2,223,750.00
Monsanto Chemical Co. (Par \$2)	32,844	23.287	764,835.02	46.375	1,523,140.50
National Lead Co. (Par \$5)	15,300	48.811	746,805.13	85.00	1,300,500.00
The Ohio Oil Co. (No Par)	200,000	17.292	3,458,394.00	37.125	7,425,000.00
Peoples Gas Light & Coke Co. (Par \$25)	33,600	31.469	1,057,373.46	63.375	2,129,400.00
Phelps Dodge Corporation Cap. (Par \$12.50)	45,000	26.358	1,186,127.84	46.75	2,103,750.00
Socony Mobil Oil Co. Inc. Cap. (Par \$15)	300,000	25.927	7,778,152.30	39.25	11,775,000.00
The Southern Co. (Par \$5)	26,000	39.009	1,016,586.05	48.00	1,248,000.00
Standard Oil Co. of California Cap. (Par \$6.25)	200,000	9.468	1,893,562.39	48.125	9,625,000.00
Standard Oil Co. (Indiana) Cap. (Par \$25)	1,000,000	14.185	14,184,717.71	47.125	47,125,000.00
Standard Oil Co. (New Jersey) Cap. (Par \$7)	6,000,000	5.006	30,037,173.47	41.25	247,500,000.00
Travelers Insurance Co. Cap. (Par \$5)	25,000	34.255	856,385.00	92.50	2,312,500.00

SCHEDULE OF SECURITIES—*concluded*

STOCKS— <i>concluded</i>	SHARES	LEDGER VALUE		MARKET QUOTATIONS	
		PRICE	TOTAL	PRICE	TOTAL
Union Carbide Corporation (No Par)	20,000	\$ 85.790	\$ 1,715,807.93	\$ 118.875	\$ 2,377,500.00
Union Tank Car Co. Cap. (No Par)	100,000	5.931	593,186.57	31.00	3,100,000.00
United States Steel Corporation (Par \$16-2/3)	20,000	41.115	822,293.22	75.50	1,510,000.00
Westinghouse Electric Corporation (Par \$6.25)	40,000	30.614	1,224,541.52	49.375	1,975,000.00
Weyerhaeuser Co. Cap. (Par \$7.50)	120,000	13.3716	1,604,588.31	33.625	4,035,000.00
			<u>\$103,017,425.37</u>		<u>\$445,274,571.50</u>

SUMMARY

	LEDGER VALUE	MARKET QUOTATIONS
Bonds	\$ 88,252,005.01	\$ 86,248,415.00
Stocks	<u>103,017,425.37</u>	<u>445,274,571.50</u>
	<u>\$191,269,430.38</u>	<u>\$531,522,986.50</u>

**Geographical Distribution
of Grants, 1960**

GEOGRAPHICAL DISTRIBUTION OF GRANTS, 1960

Amount \$ page

UNITED STATES

ALABAMA

AUBURN UNIVERSITY

Fisheries management: H. S. Swingle; travel 5,450 284

ARIZONA

UNIVERSITY OF ARIZONA

Training program for Indian artists: development 93,100 190

CALIFORNIA

CALIFORNIA INSTITUTE OF TECHNOLOGY

Symposium on cerebral systems and computer logic:
expenses 10,000 125

CENTER FOR ADVANCED STUDY IN THE BEHAVIORAL SCIENCES

Modern Russian history: C. Black; research 7,840 178

DEPARTMENT OF PUBLIC HEALTH

Epidemiology: L. Breslow; travel 2,200 122

LONG BEACH STATE COLLEGE

Diplomatic history: J. F. Ragland; study 1,500 219

MILLS COLLEGE

Political science: R. L. Johnston; travel and study 3,500 218

PACIFIC SOUTHWEST FOREST AND RANGE EXPERIMENT STATION, INSTITUTE OF FOREST GENETICS

Plant physiology: N. T. Mirov; travel 4,400 273

SOUTHERN CALIFORNIA SCHOOL OF THEOLOGY

Religion: F. H. Ross; travel and study 9,920 177

STANFORD UNIVERSITY

Economics: publication of research results 10,000 216

Sociology: P. Wallin; study 5,760 216

	Amount \$	page
UNIVERSITY OF CALIFORNIA		
<i>Berkeley:</i>		
Chinese law program: development	40,000	236
Demography: W. W. Borah and S. F. Cook; research	9,670	177
Industrialization of Europe: D. S. Landes; research	5,650	218
Industry in Indonesia: L. A. Doyle; research	10,000	231
<i>Davis:</i>		
International agricultural service program: development	10,000	273
Plant pathology: D. J. Raski; travel	1,405	273
<i>Los Angeles:</i>		
Arab-Byzantine relations: I. Kawar; research	9,950	177
Musical improvisation program: L. Foss; expenses	10,000	196
Oriental music program: development	55,400	192
VIRUS STUDIES	39,000	63

COLORADO

UNIVERSITY OF COLORADO		
Political theory: H. W. Ehrmann; research	5,000	244

CONNECTICUT

AMERICAN EDUCATIONAL THEATRE ASSOCIATION, LATIN AMERICAN THEATRE COMMITTEE		
Participation by a Latin American director in United States theatre productions: expenses	4,700	197
YALE-IN-CHINA ASSOCIATION		
New Asia College, Hong Kong: development of humanities teaching and research	47,500	183
YALE UNIVERSITY		
Control of outer space: study	4,500	240
School of Drama:		
F. C. Canfield; travel	1,400	198
Electromechanical laboratory; equipment	23,000	194
Electromechanical techniques; research and training	14,400	194
Study in Indonesian history: translation	6,200	178
Virology: J. R. Henderson; travel	2,930	160

YALE UNIVERSITY PRESS		
Publication of translations of Latin American literature by American university presses: expenses	225,000	168

DISTRICT OF COLUMBIA

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE		
Annual meeting: expenses	1,000	296
AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES		
Biological Sciences Curriculum Study Conference: expenses of two Latin American participants	1,898	272
Biology: R. W. Gerard; travel	2,800	104

	Amount \$	page
AMERICAN STATISTICAL ASSOCIATION		
Meeting on statistics: expenses of participants	9,000	217
AMERICAN UNIVERSITY		
Foreign policy formulation: research	30,000	213
BROOKINGS INSTITUTION		
Political science: study	10,000	231
DEPARTMENT OF AGRICULTURE		
Agricultural documentation: F. E. Mohrhardt; travel	1,430	272
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE		
Maternal and infant care: R. G. Taylor; travel	3,000	104
ENTOMOLOGICAL SOCIETY OF AMERICA		
Symposium on entomology: expenses of two participating virologists	2,700	160
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT		
Expenses of gift libraries on economic development for selected institutions abroad	100,000	222
NATIONAL ACADEMY OF SCIENCES—NATIONAL RESEARCH COUNCIL		
Conference on transportation problems: expenses	25,000	293
Ecology of East Africa: study	3,000	284
International Astronomical Union: expenses of meeting	10,000	162
Meetings of international earth sciences organizations: expenses of Chilean participants	10,000	295
International Indian Ocean Expedition meetings: expenses of participants	5,500	295
NATIONAL ARCHIVES AND RECORDS SERVICE		
Inter-American archival seminar: expenses	40,700	199
NATIONAL PLANNING ASSOCIATION		
Conference on inflation and growth in Latin America: expenses of four participating economists	5,000	232
PAN AMERICAN SANITARY BUREAU		
Institute of Nutrition of Central America and Panama: research on crops of the region	75,000	262
WASHINGTON DRAMA SOCIETY, INC.		
Construction of a theatre for the Arena Stage: expenses	100,000	189
FLORIDA		
UNIVERSITY OF FLORIDA		
Caribbean studies: H. Portell V.; visiting professorship	7,500	178
Plantation system in Brazil: H. W. Hutchinson; study	6,000	231
UNIVERSITY OF MIAMI		
Marine biology: research	15,000	135
HAWAII		
HONOLULU ACADEMY OF ARTS		
Far Eastern cultural history: G. H. Kerr; appointment as advisor	7,200	177

	Amount \$	page
Film on Hawaiian dance: expenses	10,000	195
Japanese art: R. Lane; research and writing	7,000	177
Record of Ryukyu Islands culture: preparation	14,800	177
UNIVERSITY OF HAWAII		
Soviet-Japanese relations: research	18,900	176
Higher education: L. H. Snyder; travel	2,400	296

ILLINOIS

AMERICAN LIBRARY ASSOCIATION

Exchange visits by librarians from the Soviet Union and the United States: expenses	10,000	177
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ASSOCIATION OF AMERICAN MEDICAL COLLEGES

Annual meeting: expenses of Latin American participants	8,000	105
Conference of faculties of Latin American medical schools: expenses of United States delegates	2,600	105

FUND FOR THE INTERNATIONAL CONFERENCE OF AGRICULTURAL ECONOMISTS, INC.

Annual meeting: expenses of foreign participants	20,000	273
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MODERN POETRY ASSOCIATION

Literature: H. Rago; travel	10,000	195
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UNIVERSITY OF CHICAGO

Biology research laboratories: development	75,000	131
Islamic political philosophy: M. S. Mahdi; research	2,850	245
Pediatric nursing: F. G. Blake; study	13,500	105
Philippine Studies Program: manuscript translations	13,500	177

INDIANA

INDIANA UNIVERSITY

History and logic of science: research	15,000	185
Political science: H. J. Muller; research	15,000	242
Russian and East European Institute: R. F. Byrnes; travel	3,700	179

PURDUE UNIVERSITY

Civic planning: L. Haworth; study	3,140	197
Symposium on Growth: expenses	10,000	273

UNIVERSITY OF NOTRE DAME

Political science: J. S. Dunne; research and writing	5,000	244
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IOWA

IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY

Maize genetics: research	10,000	273
Nitrogen cycle in soil: research	21,200	271
Plant resistance to insect attack: research	45,000	266

Amount \$ page

KANSAS**KANSAS STATE UNIVERSITY OF AGRICULTURE AND
APPLIED SCIENCE**

Biological processes occurring in stored grain: research 26,000 270

LOUISIANA**LOUISIANA STATE UNIVERSITY**

Training center for rice research: support 31,000 267

TULANE UNIVERSITY OF LOUISIANAHigher education: Dr. and Mrs. H. E. Longenecker; travel 4,700 295
Psychiatry: F. G. Silva; travel 1,450 105**MASSACHUSETTS****AMHERST COLLEGE**

Political science: K. Loewenstein; research 6,000 244

BRANDEIS UNIVERSITY

Political science: J. P. Roche; completion of study 8,000 243

HARVARD MEDICAL CENTER

Central medical library: development 1,500,000 90

HARVARD UNIVERSITY

Armaments control: research 25,000 238

Books as a medium for art expression: research 7,500 196

Center for International Affairs: fellowships 120,000 221

Chinese literature: A. Fang; study 7,930 178

Conference on input-output techniques: expenses 25,000 215

Creativity: research 6,000 137

East Asian intellectual history: B. I. Schwartz; research 8,300 178

Indian democracy: A. J. Parel; travel and study 2,300 217

International legal studies: advanced training for Africans 80,000 225

International student center: establishment 75,000 161

Law School: expenses of a seminar 6,000 217

Medical care: study 125,000 117

Medical student selection and performance: study 5,000 103

Nutrition center in Colombia: establishment 90,000 143

Pediatrics: L. K. Diamond; travel 6,000 103

Philosophy: R. S. Peters; travel and study 8,000 202

Physiology: J. H. Welsh; travel 1,500 137

Russian Research Center: research 75,000 241

Seminar in Preventive Medicine and Public Health:

travel expenses of students 1,500 103

Social science: L. L. Fuller; research 11,325 242

Virology: G. Ivanovics; visiting appointment 1,200 160

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Armaments control: research 25,000 238

SMITH COLLEGE

Political science: L. Weinstein; research 4,000 245

	Amount \$	page
TUFTS UNIVERSITY		
Conference on International Court of Justice: expenses	2,500	219
Contemporary Indian philosophy: G. B. Burch; travel and study	5,000	179
WELLESLEY COLLEGE		
Political theory: D. L. Germino; travel and research	4,000	245
MICHIGAN		
MICHIGAN STATE UNIVERSITY		
Economic development administration: research	50,000	227
Economics: B. P. Pesek; study	9,945	216
Economics: W. P. Strassman; travel and research	3,500	231
Political science: F. M. Najjar; research	7,500	231
UNIVERSITY OF MICHIGAN		
Linguistics: training for Egyptian teachers	3,000	202
Phoenix Memorial Laboratory: research	10,000	295
Political science: S. J. Eldersveld; study	8,000	243
Population genetics and anthropology: B. J. Williams; travel and study	2,090	142
Sociology: M. Janowitz; study	8,000	243
Voting behavior: study	206,800	211
WAYNE STATE UNIVERSITY		
Latin American history: C. N. Guice; research	1,200	180
Legal philosophy: S. I. Shuman; study	8,000	243
Public health nursing: I. Bower; travel	2,720	105
MINNESOTA		
CARLETON COLLEGE		
Biology: development of research	175,000	129
UNIVERSITY OF MINNESOTA		
Political science: A. M. Rose; research	15,000	216
Teaching aids for Seoul National University, Korea: expenses	6,000	196
MISSOURI		
UNIVERSITY OF KANSAS CITY		
History of Kansas City: A. T. Brown; research and teaching	46,500	184
WASHINGTON UNIVERSITY		
Medicine: L. Recant; travel	3,300	105
Renaissance political theory: J. H. Dexter; research	2,000	245
NEW JERSEY		
DREW UNIVERSITY		
Religious art: J. Karlin; travel and study	2,480	198

GEOGRAPHICAL DISTRIBUTION—UNITED STATES 351

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EDUCATIONAL TESTING SERVICE		
Conference on the Measurement and Comparison of Values: expenses	2,000	219
PRINCETON UNIVERSITY		
Legal philosophy: R. R. Palmer; research	15,500	242
ST. PETER'S COLLEGE		
Political science: F. P. Canavan; research	3,500	245
NEW MEXICO		
UNIVERSITY OF NEW MEXICO		
Mexican history: E. Lieuwen; research	600	180
NEW YORK		
AMERICAN COUNCIL OF LEARNED SOCIETIES		
Congress of Orientalists:		
visits in the Soviet Union by American participants	30,000	174
<i>Current Digest of the Soviet Press</i> : publication	36,000	237
United States-Soviet Union exchange program: development	40,000	174
AMERICAN CRAFTSMEN'S COUNCIL		
Registry of American craftsmen: development	101,000	188
AMERICAN GEOGRAPHICAL SOCIETY OF NEW YORK		
History and sociology: D. Lowenthal; research	4,100	232
AMERICAN UNIVERSITIES FIELD STAFF		
Nationalism: comparative study	10,000	231
ASIA SOCIETY		
Asian art program: development	9,500	178
BOYCE THOMPSON INSTITUTE FOR PLANT RESEARCH, INC.		
Obligate parasitism: research	59,100	263
CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE		
Training program for young diplomats: development	500,000	220
COLUMBIA UNIVERSITY		
American Assembly:		
Expenses of Eighteenth Assembly	42,500	236
Preparation of materials on national goals	50,000	292
American Press Institute training program: support	135,000	170
Biography of Booker T. Washington: M. James; support	5,000	185
Italian economic history: S. B. Clough; research	8,000	215
John Jay papers: collection, research, and writing	15,000	215
Legal philosophy: M. P. Golding; research	6,500	244
Middle Eastern diplomacy: research and training	10,000	215
Political philosophy of Jeremy Bentham: M. P. Mack; research and writing	4,500	244
Political science: R. Niebuhr; study	10,000	239
Political theory: H. Arendt; research	5,000	244
United States foreign aid: H. Feis; study	30,000	214

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Visits to scientific institutions in North America by nutrition specialists from the Far East: expenses	10,000	104
COMMITTEE FOR ECONOMIC DEVELOPMENT		
Expanded research program on international economic problems and policies: support	50,000	226
CONSERVATION FOUNDATION		
Ecology of Kenya: survey	7,500	284
Study programs on the use of chemical pesticides: expenses	30,000	268
CORNELL UNIVERSITY		
Civic design: T. W. Mackesey; travel and study	3,600	197
Medical College orientation course: development	125,000	98
Quechua language program: development	155,000	169
FOUNDATION LIBRARY CENTER		
General support	400,000	288
PEGGY GLANVILLE-HICKS		
Music: travel and study	4,000	197
INSTITUTE OF INTERNATIONAL EDUCATION		
Briefing service for visitors to the Soviet Union: establishment	10,000	294
Conference on United States-Soviet Union cultural relations: expenses	2,201	295
INTERNATIONAL GRAPHIC ARTS SOCIETY, INC.		
Art: T. Gusten; travel	6,390	186
JAPAN INTERNATIONAL CHRISTIAN UNIVERSITY FOUNDATION, INC.		
Values in education: Y. Owada; travel and study	1,175	203
JAPAN SOCIETY, INC.		
Lithography: A. Flory; travel and teaching	13,500	195
MUSEUM OF MODERN ART		
International study center facilities: development	1,500,000	186
NATIONAL BUREAU OF ECONOMIC RESEARCH		
International economics: research	300,000	210
NATIONAL CATHOLIC WELFARE CONFERENCE		
Program for Cuban refugees: support	10,000	295
NATIONAL CONFERENCE OF STATE LEGISLATIVE LEADERS		
General support	10,000	295
NATIONAL COUNCIL OF THE CHURCHES OF CHRIST IN THE UNITED STATES OF AMERICA		
Ethics and economic life: completion of study	5,000	218
NATIONAL INFORMATION BUREAU		
General support	3,750	296
NATIONAL MUSIC COUNCIL		
Inter-American music conferences: expenses of delegates	675	198

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NEW YORK ACADEMY OF MEDICINE		
Symposium on tobacco and health: expenses	5,000	162
NEW YORK CITY CENTER OF MUSIC AND DRAMA, INC.		
Kabuki drama: expenses of New York performances	75,000	191
NEW YORK CITY HOUSING AUTHORITY		
Program on aesthetic components in city housing: development	10,000	186
NEW YORK PUBLIC LIBRARY		
Foreign government gazette service: development	3,900	202
Quarterly journal on Latin American books: expenses	48,000	175
NEW YORK UNIVERSITY		
Conference on philosophical theology: expenses	3,800	186
Graduate Institute of Book Publishing: support	25,000	201
Hebraica and Judaica: A. I. Katsh; travel	5,000	186
Seminar on Constitutional Review: expenses	10,000	231
NEW YORK YOUTH CONCERTS ASSOCIATION, INC.		
Indonesian State Radio symphony orchestra: development	2,500	198
POPULATION COUNCIL, INC.		
Cooperative research and service program on population problems: development	250,000	127
ROCKEFELLER FOUNDATION		
Hungarian Refugee Aid Program	215,000	290
Memoirs on public health: J. B. Grant; preparation	5,830	162
ROCKEFELLER INSTITUTE		
Departments of Mathematics and Philosophy: development	750,000	287
SOCIAL SCIENCE RESEARCH COUNCIL		
Legal and political philosophy: fellowships	86,250	240
STATE UNIVERSITY OF NEW YORK		
Conference for Indian medical educators: expenses	4,800	104
UNION THEOLOGICAL SEMINARY		
Religion in higher education:		
Dr. and Mrs. J. A. Martin, Jr.; travel	6,000	178
UNITED BOARD FOR CHRISTIAN HIGHER EDUCATION IN ASIA		
Higher education: M. Munn; continued appointment at Silliman University, Philippines	2,000	202
UNITED NATIONS		
Seminar on radiation studies: travel expenses of participants	8,000	295
UNITED NEGRO COLLEGE FUND		
African scholarship program: preliminary studies	10,000	295
UNIVERSITY OF BUFFALO		
Neurophysiology: S. Figar; travel	600	126

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UNIVERSITY OF ROCHESTER Economics: A. Eckstein; research	9,500	217
VIRUS STUDIES	409,700	63
YESHIVA UNIVERSITY Psychiatry: H. B. Makover; travel	2,025	104
YOUNG AUDIENCES, INC. Chamber music concert program: support	50,000	193
YOUNG MEN'S AND YOUNG WOMEN'S HEBREW ASSOCIATION Poetry Center: development	35,000	193
NORTH CAROLINA		
DUKE UNIVERSITY International law: H. W. Baade; research	8,000	217
DUKE UNIVERSITY PRESS <i>Hispanic American Historical Review:</i> D. E. Worcester; travel	4,700	179
NORTH CAROLINA STATE COLLEGE Maize genetics: graduate training and research	125,000	259
OHIO		
oberlin college Science building: construction and equipment	375,000	126
OHIO AGRICULTURAL EXPERIMENT STATION Equipment and supplies and research expenses Plant pathology: L. J. Alexander; travel	9,500 6,000	273 273
OHIO STATE UNIVERSITY English population history: J. T. Krause; study Political philosophy: H. V. Jaffa; research	10,000 6,500	216 244
OKLAHOMA		
UNIVERSITY OF OKLAHOMA Cheyenne religious beliefs: P. J. Powell; research Literature: W. B. Fleischmann; travel Sociology: research	3,000 3,275 9,500	186 197 217
PENNSYLVANIA		
BRYN MAWR COLLEGE Philosophy: G. L. Kline; travel Political science: F. Gilbert; study	2,640 4,000	179 245
MEDICAL LIBRARY ASSOCIATION, INC. Medical librarianship: fellowships	24,000	102
NATIONAL BOARD OF MEDICAL EXAMINERS Improved examination: development and evaluation	75,000	100

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SWARTHMORE COLLEGE		
Ethical theory: R. Brandt; travel and study	2,050	186
Political science: D. G. Smith; study	3,000	245
UNIVERSITY OF PENNSYLVANIA		
Economics: research	8,000	217
PUERTO RICO		
DEPARTMENT OF HEALTH OF PUERTO RICO		
Public health: I. Martinez; study	1,400	104
UNIVERSITY OF PUERTO RICO		
Economic development: J. A. Torres; research and travel	5,350	244
Medical education: J. R. Vivas, F. Raffucci, and M. Garcia-Palmieri; travel	1,750	104
Philosophy: J. R. Echeverría; research	800	186
SOUTH CAROLINA		
CLEMSON AGRICULTURAL COLLEGE		
Botany and bacteriology: research equipment	5,000	272
UNIVERSITY OF SOUTH CAROLINA		
Political science: G. Tullock; research	6,000	244
TENNESSEE		
UNIVERSITY OF TENNESSEE		
Physiology: R. R. Overman; travel	905	105
TEXAS		
Baylor University		
Brazilian theatre: J. de Laban; travel	1,725	198
INSTITUTE OF RELIGION		
Effects of religion on the ill: clinical study	5,000	104
TEXAS AGRICULTURAL AND MECHANICAL COLLEGE SYSTEM		
Rice improvement and management: training program	28,500	267
TEXAS RESEARCH FOUNDATION		
Plant science: research expenses	7,750	272
UTAH		
UNIVERSITY OF UTAH		
Modern dance program: expenses of visiting choreographers	10,000	196
VERMONT		
MIDDLEBURY COLLEGE		
Russian language courses: development	20,000	176

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VIRGINIA	
UNIVERSITY OF VIRGINIA	
International relations: H. Djalal; study	1,000 232
WASHINGTON	
UNIVERSITY OF WASHINGTON	
Bibliography on Sinkiang: T. L. Yuan; preparation	5,000 177
Economic history: D. C. North and M. D. Morris; research	37,650 212
Sino-American conference on intellectual cooperation: expenses	10,000 177
Tibetan studies: development	75,000 174
WASHINGTON STATE UNIVERSITY	
Agricultural equipment: design and testing	1,000 274
WEST VIRGINIA	
AMERICAN SYMPHONY ORCHESTRA LEAGUE, INC.	
Pilot regional management program: development	16,000 195
WISCONSIN	
BELoit COLLEGE	
Political science: H. R. Davis; travel and research	2,500 245
UNIVERSITY OF WISCONSIN	
African history: J. Vansina; visiting professorship	16,000 177
Agronomy: K. P. Buchholtz; travel	1,705 273
Fungicides: research	10,000 273
Human genetics: research	8,000 142
Legislative process: R. K. Huitt; research	8,000 243
United States economic growth: research	5,000 218
NORTH AMERICA	
CANADA	
MCGILL UNIVERSITY, MONTREAL	
Christian ethics: I. Faruqi; completion of study	8,320 178
Islamic political theory: C. J. Adams; research	6,000 244
UNIVERSITY OF BRITISH COLUMBIA, VANCOUVER	
Planning for a university hospital: expenses	10,000 105
UNIVERSITY OF TORONTO	
Political science: E. McWhinney; research	8,000 243
Slavic studies: development	8,850 178

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MEXICO		
AGRICULTURAL OPERATING PROGRAM	227,000	46
COLEGIO DE MÉXICO, MEXICO CITY		
Center for International Studies: development	75,000	223
Historiography: J. Miranda; travel and research	4,000	186
MINISTRY OF AGRICULTURE, COSOLAPA, OAXACA		
Tropical agriculture: A. Vergara C.; travel	2,510	275
NATIONAL INSTITUTE OF NUTRITION, MEXICO CITY		
Hospital for Nutritional Diseases: development	152,000	95
NATIONAL UNIVERSITY OF MEXICO		
Chemistry: R. Cetina R.; travel and study	1,800	110
Department of Biochemistry: development	125,000	99
Genetics: R. Villalobos-Pietrini; travel and study	1,175	110
Institute of Chemistry: research	60,000	121
Nuclear magnetic resonance:		
J. L. Mateos G.; travel and research	1,150	110
Organic chemistry: A. Sandoval L.; travel	4,500	110
Pathology: research	7,200	110
School of Veterinary Medicine: development	145,000	258
TECHNOLOGICAL INSTITUTE AND SCHOOL OF ADVANCED STUDIES OF MONTERREY		
Agricultural education and research: development	112,000	260
TECHNOLOGICAL INSTITUTE OF VERACRUZ		
Marine Biological Station: development	30,000	136
UNIVERSITY OF COAHUILA, SALTILLO		
Soil science: H. A. Velasco; travel and study	2,985	276
UNIVERSITY OF GUADALAJARA		
Faculty of Medicine: development	240,420	93
Physiology: C. Rodriguez E.; travel and research	1,200	110
UNIVERSITY OF SONORA, HERMOSILLO		
School of Agriculture and Animal Husbandry: development	100,000	261
Soil science: J. Dula N.; travel	1,000	276

CARIBBEAN**CUBA**

CUBAN-AMERICAN CULTURAL INSTITUTE, HAVANA		
Expenses of selected cultural activities	23,000	294

JAMAICA

UNIVERSITY COLLEGE OF THE WEST INDIES, MONA		
Anatomy: D. A. N. Hoyte; travel	2,630	106
Biochemistry: equipment and research	10,000	150
Creole English: research	1,250	203
Electron microscopy: M. Locke; travel and study	2,300	106

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Faculty of Agriculture Regional Research Center:		
equipment	3,700	274
Faculty of Medicine: development	288,000	92
Pathology: D. C. Turk; travel	2,050	106
Physiology faculty exchange program: support	1,000	106
Urological surgery: P. A. Weston; travel	2,000	106

TRINIDAD

TRINIDAD REGIONAL VIRUS LABORATORY	267,965	63
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CENTRAL AND SOUTH AMERICA

INTER-AMERICAN FOOD CROP IMPROVEMENT PROGRAM	125,000	60
LATIN AMERICAN SCHOLARSHIPS IN THE AGRICULTURAL SCIENCES	250,000	283

ARGENTINA

**NATIONAL COUNCIL OF SCIENTIFIC AND TECHNICAL RESEARCH,
BUENOS AIRES**

Medical research: equipment and supplies	150,000	118
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UNIVERSITY OF BUENOS AIRES

Scientific research: equipment and supplies	91,000	160
Seminar on social and intellectual history: development	35,000	184

UNIVERSITY OF CIUYO, MENDOZA

Electron microscopy: O. Santamarina; travel and study	2,250	106
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BRAZIL

**BOTANICAL GARDEN OF RIO DE JANEIRO, MINISTRY OF
AGRICULTURE**

Electron microscopy: research	10,000	157
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BRAZILIAN ACADEMY OF SCIENCES, RIO DE JANEIRO

Cinematographic equipment and supplies	8,000	162
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FACULTY OF PHILOSOPHY, SCIENCES, AND LETTERS OF RIO CLARO

Zoology and genetics: research	20,000	135
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HERMANTINA BERALDO SCHOOL OF NURSING, JUIZ DE FORA

Nursing: C. Viegas; travel	133	106
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INSTITUTE OF ATOMIC ENERGY, SÃO PAULO

Radiochemistry: research	26,000	154
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ROCKEFELLER FOUNDATION FIELD OFFICE, RIO DE JANEIRO

45,420 —

RURAL UNIVERSITY OF THE STATE OF MINAS GERAIS

Piçosa:

School of Home Economics: equipment	30,000	269
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Belo Horizonte:

Veterinary medicine: A. V. Machado; travel	2,900	274
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SÃO PAULO STATE SECRETARIAT OF AGRICULTURE, SÃO PAULO		
Institute of Biology:		
W. F. de Almeida; travel	2,950	274
Equipment for a greenhouse	5,000	274
Library development	10,000	274
V. Rosetti; travel	2,750	274
UNIVERSITY OF BAHIA, SALVADOR		
Public health nursing program: development	10,000	106
Theatre School:		
A. Bulhões Carvalho; travel	2,800	197
M. Gonçalves; travel	3,325	197
UNIVERSITY OF BRAZIL, RIO DE JANEIRO		
Institute of Biophysics: research	21,000	156
Institute of Microbiology: development	60,000	101
UNIVERSITY OF PARANÁ, CURITIBA		
Department of Zoology: research	10,000	136
UNIVERSITY OF RECIFE		
School of Nursing:		
M. J. Banza and A. V. de Mello; travel	5,200	106
UNIVERSITY OF RIO GRANDE DO SUL, PÓRTO ALEGRE		
Agricultural education: R. Markus; travel	1,890	274
Agronomy: J. Grossman; travel	3,900	274
Economic sciences: support of advanced training program	36,500	228
Veterinary pathology: E. J. Trein; travel	2,950	274
UNIVERSITY OF SÃO PAULO		
Ribeirão Preto:		
Ophthalmology: A. P. de Azeredo; travel	2,925	107
Pathology: F. Koberle; travel	2,000	107
São Paulo:		
Anatomy: O. M. de Sousa; travel	3,000	107
Laboratory for Cell Physiology: research	21,000	134
Laboratory of Electron Microscopy: research	23,000	155
Laboratory of Experimental Endocrinology: research	18,000	122
Plant anatomy: B. L. de Morretes; travel and study	1,900	107
EDUARDO WADDINGTON		
Drama: travel	3,350	197
VIRUS STUDIES	32,000	63
CHILE		
AGRICULTURAL OPERATING PROGRAM	185,000	56
BACTERIOLOGICAL INSTITUTE OF CHILE, SANTIAGO		
Virology: L. McLendez; travel	4,300	107
CATHOLIC UNIVERSITY OF CHILE, SANTIAGO		
Bacteriology: F. Montiel A.; travel and study	670	107

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MINISTRY OF AGRICULTURE, SANTIAGO		
Agricultural research:		
A. Mathieu; travel	2,470	275
M. Vallejo; travel	2,470	275
C. Vergara; travel	2,470	275
Institute of Veterinary Investigations: equipment	10,000	275
UNIVERSITY OF CHILE, SANTIAGO		
Cardiology: G. Sepulveda; travel	2,800	108
Center of Graduate Studies on American History: establishment	75,000	171
Epidemiology: R. Armijo R.; travel	2,375	108
Faculty of Medicine: research	100,000	119
Gastroenterology: G. Ugarte; travel	3,500	107
Graduate medical education program: support	15,000	107
Institute of Physics and Mathematics: research equipment and supplies	8,750	151
Institute of Physiology:		
H. McKennis, Jr.; visiting professorship	2,000	108
Neurology: J. Gonzalez C.; travel	3,800	107
Physiology: H. R. Maturana; travel	1,050	108
UNIVERSITY OF CONCEPCIÓN		
Equipment, supplies, and library materials	60,000	291
Writers' Workshop: support	10,000	196
UNIVERSITY OF THE SOUTH, VALDIVIA		
Equipment, supplies, and library materials	40,000	291
COLOMBIA		
AGRICULTURAL OPERATING PROGRAM	216,000	53
MINISTRY OF AGRICULTURE, BOGOTÁ		
Animal science:		
G. Riveros; travel	2,500	275
B. Rodriguez U.; travel	2,500	275
Fisheries Center Laboratory; equipment	1,200	284
NATIONAL UNIVERSITY OF COLOMBIA, BOGOTÁ		
Preventive medicine: S. Renjifo; faculty appointment	6,600	108
Social sciences: library development	1,800	232
Sociology: research	4,715	232
ROCKEFELLER FOUNDATION FIELD OFFICE, CALI	40,550	78
UNIVERSITY HOSPITAL OF VALLE, CALI		
Medical administration: A. Ocampo; travel and study	5,000	108
Technical teaching personnel and services: development	10,000	108
UNIVERSITY OF THE ANDES, BOGOTÁ		
Arts and sciences program: planning expenses	1,000	108
Biology:		
Library development	5,000	108
Training fellowships	10,000	108
Center for Studies in Economic Development: support	36,000	229
Genetics: research equipment and supplies	10,000	142

	Amount \$	page
UNIVERSITY OF ANTIOQUIA, MEDELLÍN		
Biochemistry: equipment	9,355	151
Biology: equipment	10,000	136
Medical library: development	10,000	108
Microbiology: teaching and research equipment	6,500	151
Neurophysiology: teaching and research equipment	10,000	125
UNIVERSITY OF CALDAS, MANIZALES		
Microbiology laboratory: equipment	10,000	150
UNIVERSITY OF VALLE, CALI		
Biochemistry: A. Colás; travel and study	1,120	110
Clinical physiology: G. Barlow; visiting appointment	10,000	109
Faculty of Economic Sciences: library development	1,700	232
Medical faculty exchange program: support	5,000	109
Obstetrics and gynecology: A. Cuadros; travel	2,190	109
Pediatrics: C. A. Canosa; travel	2,325	109
Physiology and medicine: research	7,650	122
Surgery:		
C. Guzmán L.; travel and research	1,785	109
V. Rojo; travel	2,475	109
A. Velez-Gil; travel	2,600	109
Tropical disease: research	96,000	120
Virology: C. Sanmartin; travel	2,000	109
XAVIER UNIVERSITY, BOGOTÁ		
Medical School library: development	5,000	110
COSTA RICA		
INTER-AMERICAN INSTITUTE OF AGRICULTURAL SCIENCES, TURRIALBA		
<i>Elements of Farm Management:</i>		
J. A. Hopkins; revision and translation	3,525	275
INTER-AMERICAN SOCIETY OF AGRICULTURAL SCIENTISTS, TURRIALBA		
Fifth meeting: expenses	25,000	271
EL SALVADOR		
UNIVERSITY OF EL SALVADOR, SAN SALVADOR		
Physiology: research	4,900	126
GUATEMALA		
MINISTRY OF AGRICULTURE, GUATEMALA CITY		
National Agricultural Institute: library development	2,500	275
PARAGUAY		
UNIVERSITY OF ASUNCIÓN		
Surgery: C. Centurión and M. Riveros; travel	3,200	110

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PERU		
AGRARIAN UNIVERSITY, LA MOLINA, LIMA		
Postgraduate agricultural teaching and research program: development	300,000	251
MINISTRY OF AGRICULTURE, LIMA		
Research centers and crop improvement projects: development	75,000	251
UNIVERSITY OF SAN MARCOS, LIMA		
Biophysics: laboratory equipment	10,000	157
Renal physiology: C. Monge C.; travel	3,800	110
Veterinary medicine: C. E. Chavez; travel	2,975	276
T. Ramos S.; travel	2,695	276
URUGUAY		
RESEARCH INSTITUTE OF BIOLOGICAL SCIENCES, MONTEVIDEO		
Electron microscopy: J. R. Sotelo; travel	3,750	111
UNIVERSITY OF THE REPUBLIC, MONTEVIDEO		
Institute of Neurology: research equipment	10,000	125
EUROPE		
AUSTRIA		
AUSTRIAN ACADEMY OF SCIENCES, VIENNA		
Animal behavior: research	6,000	126
UNIVERSITY OF GRAZ		
Physiology and animal behavior: research equipment	8,000	125
UNIVERSITY OF VIENNA		
Neurophysiology: research equipment	5,000	126
BELGIUM		
FREE UNIVERSITY OF BRUSSELS		
Conference on economics: expenses	2,500	219
National economic policies: comparative study	60,000	235
Neurophysiology: research	12,000	124
UNIVERSITY OF GHENT		
Biochemistry and microbiology: research equipment	25,000	148
UNIVERSITY OF LIÈGE		
Laboratory of Experimental Surgery: research	10,000	150
CZECHOSLOVAKIA		
CZECHOSLOVAK ACADEMY OF SCIENCES, BRATISLAVA		
Virology: D. Blaskovic; travel	920	160

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DENMARK

CARLSBERG FOUNDATION, COPENHAGEN		
Cytophysiology: research supplies	2,000	137
UNIVERSITY OF COPENHAGEN		
Genetics: research	9,000	142
Marine Biological Institute: equipment and library materials	15,000	135

FINLAND

UNIVERSITY OF HELSINKI		
Institute of Electron Microscopy: research equipment	36,000	152
Medical education:		
U. U. Uotila; travel	3,100	111
I. A. Vartiainen; travel	3,100	111
Virology: N. G. E. Oker-Blom; travel	3,350	160
UNIVERSITY OF TURKU		
Institute of Physiology: research equipment	8,000	125

FRANCE

CONGRESS FOR CULTURAL FREEDOM, PARIS		
Music conference: expenses of Western participants	18,000	195
NATIONAL CENTER OF SCIENTIFIC RESEARCH, PARIS		
Genetics: research	47,000	138
X-ray crystallography: research equipment	10,000	157
NATIONAL OFFICE OF FRENCH UNIVERSITIES AND SCHOOLS, PARIS		
Tibetan studies: development	25,000	173
PASTEUR INSTITUTE, PARIS		
Biochemistry: Dr. and Mrs. T. Erdös; research	7,875	151
UNIVERSITY OF LILLE		
Ethics and politics: R. Polin; research	7,000	243
UNIVERSITY OF MARSEILLES		
Biochemistry: S. F. Lissitzky; travel	2,800	152
UNIVERSITY OF STRASBOURG		
Laboratory of Biological Chemistry: equipment	9,000	151

GERMANY

BAVARIAN ACADEMY OF SCIENCES, MUNICH		
Tibetan studies: development	26,475	173
FREE UNIVERSITY OF BERLIN		
Political science: research	42,000	181
JOHANN WOLFGANG GOETHE UNIVERSITY, FRANKFURT		
Economics: E. Sohmen; visiting professorship	4,025	218

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UNIVERSITY OF MUNICH			
Institute of Biochemistry: research equipment		15,000	149
IRELAND			
UNIVERSITY COLLEGE, DUBLIN			
Biochemistry: research		12,000	149
UNIVERSITY OF DUBLIN			
Biochemistry: B. Spencer; travel		1,592	152
Medical education: P. B. B. Gatenby; travel		1,200	111
ITALY			
CATHOLIC UNIVERSITY OF THE SACRED HEART, MILAN			
Maize genetics: research		13,000	276
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, ROME			
Wheat and small grain improvement: training awards for Middle Eastern scientists		150,000	255
ITALIAN INSTITUTE FOR THE MIDDLE AND FAR EAST, ROME			
Tibetan studies: development		27,000	173
UNIVERSITY OF FLORENCE			
Political science: research		1,535	219
UNIVERSITY OF GENOA			
Neurophysiology: research equipment		7,500	125
UNIVERSITY OF NAPLES			
Genetics: C. Baglioni; travel		900	142
M. Siniscalco; visiting appointment		750	143
UNIVERSITY OF PADUA			
Institute of Biological Chemistry: equipment		9,000	151
UNIVERSITY OF PALERMO			
Embryology and cytology: A. Monroy; travel and research		3,270	137
Experimental embryology and developmental physiology: G. Reverberi and A. Monroy; research		55,000	131
UNIVERSITY OF PARMA			
Biochemistry: research		14,000	149
Human genetics: research		5,800	142
UNIVERSITY OF PAVIA			
Genetics: research		3,000	142
Political science: G. Borsa; travel and research		1,800	232
UNIVERSITY OF ROME			
Biochemistry: research		30,000	146
Genetics: B. Nicoletti; travel		750	143

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UNIVERSITY OF TURIN		
Human genetics: research	10,000	142
 NETHERLANDS		
AGRICULTURAL UNIVERSITY, WAGENINGEN		
Plant pathology: A. Rozendaal; travel	1,440	276
HAUGE ACADEMY OF INTERNATIONAL LAW		
Center for Studies and Research in International Law and International Relations: support	150,000	233
INTERNATIONAL INSTITUTE FOR SOCIAL HISTORY, AMSTERDAM		
Political science: research	27,000	181
UNIVERSITY OF AMSTERDAM		
Enzyme chemistry: research equipment	23,000	148
X-ray crystallography: research equipment	3,000	158
UNIVERSITY OF LEIDEN		
Tibetan studies: development	30,000	174
UNIVERSITY OF Utrecht		
X-ray crystallography: research equipment	8,000	157
 NORWAY		
UNIVERSITY OF BERGEN		
Biological Station at Espegrind: development	23,265	133
UNIVERSITY OF OSLO		
Neuroanatomy: research	5,000	137
 POLAND		
ACADEMY OF MEDICINE, POZNAN		
Institute of Physiological Chemistry: research equipment	6,000	151
ACADEMY OF MEDICINE, WARSAW		
Institute of Physiology: research equipment	8,000	125
CENTRAL COLLEGE OF RURAL ECONOMICS, WARSAW		
Laboratory equipment	10,000	276
COLLEGE OF AGRICULTURE, CRACOW		
Plant and animal science: research equipment	35,000	264
COLLEGE OF AGRICULTURE, LUBLIN		
Plant polyploidy: C. Tarkowski; travel	3,065	277
Soil science: S. Ziemnicki; travel	3,590	277
Veterinary Faculty: research equipment	5,000	276
COLLEGE OF AGRICULTURE, OLSZTYN		
Soil science: K. O. Ruppert; travel	2,400	277

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COLLEGE OF AGRICULTURE, POZNAN		
Biochemistry and plant physiology:		
development	20,000	264
equipment	1,600	277
Plant pathology: K. Mańska; travel	3,525	277
COLLEGE OF AGRICULTURE, WARSAW		
Fruit breeding: A. Rejman; travel	1,780	277
INSTITUTE OF PLANT PROTECTION, POZNAN		
Virus laboratory: equipment	56,000	265
INSTITUTE OF SOIL MANAGEMENT AND PLANT CULTIVATION, PULAWY		
Soil Science: J. Ziemiecka; travel	2,800	277
JAGIELLONIAN UNIVERSITY OF CRACOW		
Institute of Comparative Anatomy: research equipment	5,000	137
MINISTRY OF HEALTH, WARSAW		
Nursing: J. Izycza; travel	4,375	111
MUNICIPAL HOSPITAL, WARSAW		
Nursing: J. Staniewska; travel	2,400	111
POLISH ACADEMY OF SCIENCES, WARSAW		
Animal breeding seminar: expenses of two participants	4,075	277
Institute of Experimental Zoology: research equipment	1,100	138
Nencki Institute of Experimental Biology: research equipment	550	126
RESEARCH INSTITUTE OF POMOLOGY, SKIERNIEWICE		
Fruit physiology: W. Ostrowski; travel	2,615	277
Horticulture: Z. Soczek; travel	750	277
TEACHERS COLLEGE, WARSAW		
Nursing education: R. Hutner; travel	2,500	111
UNIVERSITY OF POZNAN		
Institute of Organic Chemistry: research equipment	6,500	151
UNIVERSITY OF WARSAW		
Institute of Genetics: research equipment	4,000	142
Institute of Organic Chemistry: research equipment	3,200	152
Organic chemistry: O. Achmatowicz; travel	3,900	152
VETERINARY INSTITUTE OF PULAWY		
Animal viruses: research equipment	30,000	265
Swine pathology: H. Janowski; travel	3,540	277
 SWEDEN		
KAROLINSKA INSTITUTE, STOCKHOLM		
Enzyme chemistry: research	50,000	144
UNIVERSITY OF STOCKHOLM		
Institute of Genetics: equipment	6,500	142

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SWITZERLAND		
GENEVA GRADUATE INSTITUTE OF INTERNATIONAL STUDIES		
Microfilm edition of <i>The New York Times</i> : expenses	10,000	216
INTERNATIONAL PRESS INSTITUTE, ZURICH		
Asian press program: development	78,000	171
LE BON SECOURS SCHOOL OF NURSING, GENEVA		
Nursing: staff travel	9,400	111
UNIVERSITY OF FRIBOURG		
Political science: research	20,000	181
UNIVERSITY OF GENEVA		
Human genetics: research	12,500	141
WORLD HEALTH ORGANIZATION, GENEVA		
International Commission on Radiological Units and Measurements: expenses of meeting	4,200	296
Repertory of Practice: preparation	7,500	162

UNITED KINGDOM

BRITISH MUSEUM (NATURAL HISTORY), LONDON		
Monograph in entomology: J. A. Reid; preparation	2,175	137
EAST MALLING RESEARCH STATION, MAIDSTONE		
Plant pathology: J. E. Crosse; travel	2,920	278
SIR STEPHEN GIBSON		
Area studies programs: travel	1,650	179
INSTITUTE FOR STRATEGIC STUDIES, LONDON		
Research on international security: travel expenses of scholars	10,000	240
INTERNATIONAL COUNCIL OF NURSES, LONDON		
Nursing: A. C. P. Sher; travel	3,200	111
SIR LIONEL LAMB		
Area studies programs: travel	1,950	179
MRS. E. LAYTON		
Area studies programs: travel	2,000	179
MARINE BIOLOGICAL ASSOCIATION OF THE UNITED KINGDOM, PLYMOUTH		
Marine Biological Laboratory: research equipment	30,000	132
NORTHERN IRELAND HOSPITALS AUTHORITY, BELFAST		
Nurse-Teacher Exchange Program: support	18,000	112
ROWETT RESEARCH INSTITUTE, BUCKSBURN		
Animal nutrition and animal physiology: research	14,750	278
ROYAL COLLEGE OF NURSING, LONDON		
Nursing education: M. F. Carpenter; travel	1,755	112

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ROYAL ECONOMIC SOCIETY, CAMBRIDGE		
Articles on economic theory: expenses	7,000	217
SIR STEVEN RUNCIMAN		
Area studies programs: travel	1,650	180
SCOTTISH HORTICULTURAL RESEARCH INSTITUTE, INVERGOWRIE		
Plant pathology: research equipment	10,000	278
Plant science: R. M. Lister; travel	2,500	278
SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD, LONDON		
Biochemistry of the nervous system: research	23,000	149
STRANGWAYS RESEARCH LABORATORY, CAMBRIDGE		
Experimental biology: research	20,000	156
UNIVERSITY OF ABERDEEN		
Soil science: E. A. FitzPatrick; travel	2,690	278
UNIVERSITY OF CAMBRIDGE		
Biochemistry of reproduction: research	25,000	147
Botany: D. A. Hopwood; travel and research	700	143
UNIVERSITY OF DURHAM		
Political science: W. H. Morris-Jones; travel	2,730	219
Radiation chemistry: research equipment	15,000	157
UNIVERSITY OF EDINBURGH		
Nursing:		
A. L. John; travel	2,200	112
K. J. W. Wilson; travel	3,640	112
Plant physiology: research equipment	10,000	136
UNIVERSITY OF LIVERPOOL		
Biology and soil microbiology: N. A. Burges; travel	720	138
UNIVERSITY OF LONDON		
Biophysics: research	30,000	153
Demography: research	10,000	216
Department of Biological Sciences: equipment	7,200	278
Ethics: A. T. Kolnai; research and writing	4,000	243
Human biochemical genetics: research	20,000	141
Human genetics: research	43,500	139
Institute of Advanced Legal Studies:		
Fellowships and library materials	31,350	230
G. O. Sayles; research and writing	34,200	242
International relations: M. Wight; research	8,450	216
Medical entomology: D. S. Bertram; travel	2,500	136
Plant physiology: research equipment	7,700	136
Political science:		
B. R. Crick; travel and research	7,300	243
J. R. Pole; research	3,500	243
Sociology: R. P. Dore; research	6,700	216
Tibetan studies: development	59,825	174
UNIVERSITY OF OXFORD		
Area studies programs: W. Hayter; travel	2,050	179
Biochemistry: research	50,000	145

GEOGRAPHICAL DISTRIBUTION—AFRICA

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British foreign policy: H. G. Nicholas; travel and research	2,000	219
European history: G. A. Holmes; interpretative studies	2,280	186
VICTORIA UNIVERSITY OF MANCHESTER		
Organic biochemistry: research	15,000	149
YUGOSLAVIA		
UNIVERSITY OF LJUBLJANA		
Institute of Pathophysiology: research equipment	1,500	137
Virology: research	14,000	159
UNIVERSITY OF SARAJEVO		
Institute of Pharmacology: research equipment	3,200	152
Virology: research	2,500	160

AFRICA

CONGO

LOVANIUM UNIVERSITY, LEOPOLDIVILLE		
Department of Anatomy and Histology: equipment	2,460	137
General support	250,000	289
Institute of Agriculture: equipment	26,300	254
School of Nursing: development	100,000	99
NATIONAL INSTITUTE FOR AGRONOMIC RESEARCH, YANGAMBI		
Plant science: A. Ringoet; travel and research	3,810	278

GHANA

ARTS COUNCIL OF GHANA, ACCRA		
Ghana Experimental Theatre: support	9,280	196
CONFERENCE ON HIGHER EDUCATION IN GHANA		
	650	180
GHANA LIBRARY BOARD, ACCRA		
Library services: E. J. A. Evans; travel	8,550	202
KUMASI COLLEGE OF TECHNOLOGY		
School of Agriculture: teaching and research equipment	42,750	253
UNIVERSITY COLLEGE OF GHANA, ACCRA		
Visiting professorship on physics: establishment	2,850	112

KENYA

EAST AFRICA HIGH COMMISSION, NAIROBI		
Cattle physiology: research	20,000	255
Creative writing program in East Africa: development	8,550	196
East African Agriculture and Forestry Research Organization: equipment	9,000	278

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Sorghum research program: development equipment	60,000 4,270	254 278
EAST AFRICAN VETERINARY RESEARCH ORGANIZATION, MUGUGA Entomology: J. B. Walker; travel	1,900	278
MINISTRY OF AGRICULTURE, ANIMAL HUSBANDRY, AND WATER RESOURCES, NAIROBI Agricultural research stations: library development	10,000	279
Cereal rusts: research	100,000	254
Farm institutes' educational program: support	5,000	279
Plant science: R. G. Poultney; travel	735	279
Wheat improvement: G. E. Dixon; travel	810	279
MINISTRY OF HEALTH, NAIROBI Rural health demonstration and training center: development and research	142,500	97

LIBERIA

CUTTINGTON COLLEGE, SUACOCO Agricultural teaching and research program: development	10,000	279
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NIGERIA

DEPARTMENT OF ANTIQUITIES, LAGOS Exhibition gallery: establishment	8,265	196
MOOR PLANTATION, IBADAN Nematology: F. Caveness; travel	606	279
UNIVERSITY COLLEGE, IBADAN Contemporary African literature: H. U. Beier; study	5,500	197
Faculty of Agriculture: research	40,000	253
Nutrition and biochemistry: O. Bassir; travel	830	112
Tropical medicine: H. M. Gilles; travel	3,200	112

RHODESIA AND NYASALAND

FEDERAL DEPARTMENT OF CONSERVATION AND EXTENSION, SALISBURY Farming methods: D. E. Baker; travel	6,180	279
RHODESIAN ACADEMY OF MUSIC, BULAWAYO African music program: development	14,000	195
UNIVERSITY COLLEGE OF RHODESIA AND NYASALAND, SALISBURY Agricultural economics: research	4,360	232
Agricultural sciences: development	75,000	252
Animal science: J. H. Topps; travel	1,450	279

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Central African history: research and training	61,000	180
Department of Zoology: teaching and research	213,750	128
Political science: E. T. Stokes; research	9,575	217
Tick biology: research	8,700	136

SUDAN**UNIVERSITY OF KHARTOUM**

Faculties of Agriculture and Veterinary Science: development	41,300	253
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TANGANYIKA**EAST AFRICAN INSTITUTE FOR MEDICAL RESEARCH, MWANZA**

Schistosomiasis Research Team: G. Webbe; travel	1,230	112
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MINISTRY OF FINANCE AND ECONOMICS, DAR ES SALAAM

Department of Agriculture: library development	10,000	279
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MINISTRY OF NATURAL RESOURCES, DAR ES SALAAM

Plant breeding: A. K. Auckland; travel	3,180	279
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TREASURY OF THE TANGANYIKA GOVERNMENT, DAR ES SALAAM

Rural surveys: expenses	10,000	279
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UGANDA**COTTON RESEARCH STATION, NAMULONGE**

Soil science: P. H. LeMare; travel	900	280
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MAKERERE COLLEGE, KAMPALA

Biochemistry laboratory: research equipment	18,000	122
Faculty of Agriculture: W. Banage; visiting appointment	10,000	280
Medical education: A. Galloway; travel	2,990	113

UNION OF SOUTH AFRICA**SOUTH AFRICAN INSTITUTE FOR MEDICAL RESEARCH,
JOHANNESBURG**

Virology: field expenses and research equipment	16,100	159
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UNIVERSITY OF CAPE TOWN

Nutrition and pediatrics: J. D. L. Hansen; travel	6,400	113
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UNITED ARAB REPUBLIC**AMERICAN UNIVERSITY AT CAIRO**

Islamic art and architecture: C. Kessler; study	5,600	178
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HIGH INSTITUTE OF PUBLIC HEALTH, ALEXANDRIA

Medical insurance: A. Z. Zaghloul; travel	1,500	113
Public health: A. M. Taher; study	787	113

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MIDDLE EAST		
ISRAEL		
GOVERNMENT HOSPITAL, TEL HASHOMER		
Human genetics: research	30,000	139
HEBREW UNIVERSITY OF JERUSALEM		
Political theory: J. L. Talmon; research	11,000	242
WEIZMANN INSTITUTE OF SCIENCE, REHOVOTH		
Science conference: travel expenses of participants	10,000	295
LEBANON		
AMERICAN UNIVERSITY OF BEIRUT		
Agriculture: S. Macksoud; travel and study	5,000	280
Community health services: R. Tabbara; travel	800	113
Connective tissue disorders: research	8,500	122
Higher education: Dean and Mrs. F. S. Hanania; travel	12,500	201
Medical School:		
development	230,000	94
research equipment	8,500	94
Dr. and Mrs. F. J. D. Fuleihan; travel	2,000	113
MINISTRY OF FOREIGN AFFAIRS, BEIRUT		
International relations: library development	5,000	231
TURKEY		
MINISTRY OF HEALTH AND SOCIAL ASSISTANCE, ANKARA		
School of Hygiene: teaching and research equipment	10,000	113
UNIVERSITY OF ANKARA		
Medical education and research: Z. Paykoç; travel	3,500	113
Preventive medicine and pediatrics:		
W. L. Nute, Jr.; travel	2,000	114
Research Institute of Child Health: development	145,000	96
UNIVERSITY OF ISTANBUL		
Institute of Pharmacology: research equipment	7,500	151
SOUTH ASIA		
CEYLON		
DEPARTMENT OF AGRICULTURE, PERADENIYA		
Soil science: F. N. Ponnamperuma; travel	1,500	280
UNIVERSITY OF CEYLON, PERADENIYA		
Drama: J. Tilakasiri; travel and study	3,600	197
INDIA		
AGRICULTURAL OPERATING PROGRAM	210,000	58

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ALL-INDIA INSTITUTE OF MEDICAL SCIENCES, NEW DELHI		
Scholarships for graduate students; support	30,500	91
Teaching hospital: development	500,000	91
ANDHRA MEDICAL COLLEGE, VISAKHAPATNAM		
Physiology: research	10,000	125
BALWANT RAJPUT COLLEGE, AGRA		
Library science: K. D. Singh; travel	250	280
CHRISTIAN MEDICAL COLLEGE AND HOSPITAL, VELLORE		
Department of Neurology and Neurosurgery: equipment	10,000	114
Otolaryngology and medical education: A. F. Desmond; travel	4,750	114
COIMBATORE AGRICULTURAL COLLEGE AND RESEARCH INSTITUTE		
Laboratory and field research equipment	135,000	258
DEPARTMENT OF AGRICULTURE, STATE OF BIHAR, PUSA		
Soil science: S. D. Sinha; travel and study	1,170	280
GOVERNMENT OF ANDHRA PRADESH, HYDERABAD		
Agriculture: M. Q. Khan; travel	5,400	280
GOVERNMENT MEDICAL COLLEGE, AMRITSAR		
Gastroenterology: P. N. Chhuttani; travel	1,140	122
Medical education: S. S. Anand; travel	4,300	114
INDIAN CANCER RESEARCH CENTRE, BOMBAY		
Biophysics: research	26,000	154
Equipment and supplies	6,000	137
INDIAN COUNCIL OF AGRICULTURAL RESEARCH, NEW DELHI		
Purchase of plant materials: expenses	6,000	281
INDIAN INSTITUTE OF SCIENCE, BANGALORE		
Department of Biochemistry: research	28,500	146
INSTITUTE OF SCIENCE, BOMBAY		
Cytology: research equipment	510	138
MINISTRY OF AGRICULTURE OF WEST BENGAL, CALCUTTA		
Agricultural education: Dr. and Mrs. H. K. Nandi; travel	7,450	281
MINISTRY OF FOOD AND AGRICULTURE, NEW DELHI		
Horticulture: L. Venkataratnam; travel	5,800	281
OSMANIA UNIVERSITY, HYDERABAD		
Higher education: D. S. Reddi; travel	4,900	202
RAJASTHAN COLLEGE OF AGRICULTURE, UDAIPUR		
Animal husbandry: H. C. Saxena; travel	1,200	281
ROCKEFELLER FOUNDATION FIELD OFFICE, NEW DELHI	64,000	—
SETH GORDHANDAS SUNDERDAS MEDICAL COLLEGE, BOMBAY		
Medical education: S. V. Joglekar; travel	4,775	114

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M. P. SHAH MEDICAL COLLEGE, JAMNAGAR		
Department of Pharmacology: equipment	8,500	114
UNIVERSITY OF CALCUTTA		
Higher education: N. K. Sidhanta; travel	3,825	202
UNIVERSITY OF DELHI		
Vallabhbhai Patel Chest Institute: research	8,500	114
UNIVERSITY OF LUCKNOW		
Medical residency program: support	8,500	114
VIRUS RESEARCH CENTRE, POONA	105,260	63

INDONESIA

INDONESIAN NATIONAL THEATRE ACADEMY FOUNDATION, DJAKARTA		
Educational program: equipment and supplies	2,450	198
MINISTRY OF EDUCATION, DJAKARTA		
Linguistics: B. Sutherland; travel and study	600	203
UNIVERSITY OF INDONESIA		
<i>Bogor:</i>		
Animal husbandry: D. Atmadilaga; travel	4,300	281
Faculty of Veterinary Sciences: development	42,000	267
Farm management: B. Rifai; travel	6,600	281
<i>Djakarta:</i>		
Higher education: T. Hadiwidjaja; travel	3,000	296
Humanities: library development	5,000	186

MALAYA

MINISTRY OF FOREIGN AFFAIRS, KUALA LUMPUR		
International relations: library development	5,000	232

THAILAND

KASETSART UNIVERSITY, BANGKOK		
Fish biology: N. J. Thiemmedh; travel	6,000	284
UNIVERSITY OF MEDICAL SCIENCES, BANGKOK		
Virology:		
research	10,000	159
P. Ujjin; travel and study	1,625	159

FAR EAST**AUSTRALIA**

AGRICULTURAL RESEARCH INSTITUTE, WAGGA		
Wheat breeding: A. T. Pugsley; travel	5,060	281

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AUSTRALIAN NATIONAL UNIVERSITY, CANBERRA		
Biochemistry: research equipment	10,000	149
Immunology and virology: A. Gottschalk; travel	600	115
ROYAL CHILDREN'S HOSPITAL, MELBOURNE		
Pediatrics: research	8,500	122
ROYAL NORTH SHORE HOSPITAL, SYDNEY		
Medicine: research	10,000	122
UNIVERSITY OF ADELAIDE		
Biochemistry: research equipment	6,000	151
Molecular structure: research	4,500	157
Neurology: research	10,000	141
Waite Agricultural Research Institute:		
W. G. Allden; travel and study	2,700	281
D. C. Swan; travel	3,160	281
Dr. and Mrs. O. Vaartaja; travel	1,615	282
UNIVERSITY OF MELBOURNE		
Agricultural biochemistry: F. J. R. Hird; travel	1,250	150
Biochemistry: R. W. Henderson; travel	1,350	150
Experimental physiology: laboratory construction	113,000	123
Medical research: A. E. Doyle; travel	750	115
Microbiology: research equipment	10,000	150
Pediatrics: V. L. Collins; travel	1,015	115
Psychology: O. A. Oeser; travel	1,600	115
Surgery: M. R. Ewing; travel	1,950	115
Zoology and physiology: research	8,000	136
UNIVERSITY OF NEW ENGLAND, ARMIDALE		
Agriculture: G. L. McClymont; travel	1,250	282
UNIVERSITY OF SYDNEY		
Organic chemistry: research	5,600	151
Pathology: F. R. Magarey; travel	2,250	115
FIJI		
MEDICAL SCHOOL AND MEDICAL SERVICES OF THE FIJI GOVERNMENT, SUVA		
Medical education and cardiology: C. H. Gurd; travel	2,200	115
HONG KONG		
UNIVERSITY OF HONG KONG		
Linguistics: A. W. T. Green; travel	1,750	203
JAPAN		
YOSHINOBU ASHIHARA		
Architecture: travel	6,850	196
HANAZONO COLLEGE OF ZEN, KYOTO		
Zen and contemporary thought: study	10,000	185

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HITOTSUBASHI UNIVERSITY, TOKYO Japanese economy: research	58,770	226
HOKKAIDO UNIVERSITY, SAPPORO Biochemistry: M. Yasuda; travel research	900 10,000	150 150
Chemistry: research	10,000	135
Clark Memorial Student Center: development	50,000	293
School of Medicine: development of laboratory teaching	10,000	116
INTERNATIONAL CHRISTIAN UNIVERSITY, TOKYO Student values: study	55,000	198
INTERNATIONAL HOUSE OF JAPAN, TOKYO Japanese-American relations: study	25,000	239
JAPAN WOMEN'S UNIVERSITY, TOKYO Graduate school of home economics: development	48,000	256
JUNTENDO UNIVERSITY, TOKYO Genetics and anthropology: research	10,000	141
History: research	7,290	185
KAGAWA UNIVERSITY, TAKAMATSU Economic history: Y. Kodama; travel	5,760	218
KEIO UNIVERSITY, TOKYO Medical library services: Y. Tsuda; travel	1,900	116
KOKUGAKUIN UNIVERSITY, TOKYO Library development	31,118	200
KYOTO PREFECTURAL UNIVERSITY OF MEDICINE Physiology: research	10,000	125
KYOTO UNIVERSITY Animal behavior: research	37,000	124
Modernization of Japan: research	4,940	185
Psychology: K. Sato; travel	1,500	185
Religion: Y. Takeuchi; travel and research	10,000	185
Tissue culture: research equipment	10,000	135
Virology: research	42,000	158
KYUSHU UNIVERSITY, FUKUOKA Electron microscopy: research equipment	20,000	157
Physiology: research	10,000	125
NAGOYA NATIONAL UNIVERSITY Animal science: S. Nakajo; travel	4,500	282
Faculty of Agriculture: library development	10,000	282
NATIONAL INSTITUTE OF AGRICULTURAL SCIENCES, TOKYO Forage crops: T. Yamada; travel	5,400	282
Meteorology: Y. Mihara; travel	3,950	282
NATIONAL INSTITUTE OF ANIMAL HEALTH, TOKYO Library development	5,000	282
Veterinary science: O. Itikawa; travel	4,500	282

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NATIONAL INSTITUTE OF HEALTH, TOKYO		
Biochemistry: research	7,100	151
Microbiology: J. Tomizawa; travel	1,900	116
Virology: research	46,000	158
NATIONAL TOKAI-KINKI AGRICULTURAL EXPERIMENT STATION, SHIZUOKA		
Horticulture: S. Tanaka; travel	1,500	282
OBIHIRO ZOOTECHNICAL UNIVERSITY		
Forage crop management and animal nutrition: research	19,000	282
OCHANOMIZU UNIVERSITY, TOKYO		
Department of Biology: teaching and research equipment	10,000	136
OKAYAMA UNIVERSITY		
Agriculture: J. Kobayashi; travel	4,050	283
Genetics: research	23,000	140
OSAKA CITY UNIVERSITY		
Neurophysiology: research	10,000	125
OSAKA UNIVERSITY		
Higher education: K. Shoda; travel	1,975	116
Library science: K. Fujii; travel	3,450	116
Neurophysiology: research	10,000	125
TOHOKU UNIVERSITY, SENDAI		
Biochemistry: research	10,000	150
Economics: T. Yasui; travel	3,500	218
Intestinal malabsorption: research equipment	8,000	122
Microbiology: I. Yamane; travel	750	116
Student counseling services: T. Ishizu; travel	1,300	203
TOKYO UNIVERSITY OF EDUCATION		
Biochemistry: research	10,000	150
TOYO BUNKO (ORIENTAL LIBRARY), TOKYO		
Tibetan studies: development	22,000	173
UNIVERSITY OF TOKYO		
Biochemistry: S. Tamura; travel	4,000	283
Faculty of Agriculture: development	50,000	265
Forestry: I. Mine; travel	3,925	283
International relations: research and training	75,000	234
Library science:		
staff travel	8,460	202
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Nursing education: R. Fujii; travel	1,100	116
Pharmacology:		
research	15,000	149
K. Uraguchi; travel	4,000	116
Religion and library science:		
Dr. and Mrs. H. Kishimoto; travel	7,410	202
South Asia studies: T. Yamamoto; travel	4,660	179
Veterinary science: S. Yamamoto; travel	3,900	283
Virology: research	10,000	159

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WAKAYAMA UNIVERSITY, TAKARAZUKA-SHI Economics: Z. Matsumura; travel	5,660	218
KOREA		
KOREA UNIVERSITY, SEOUL Asiatic Research Center: W. E. Henthorn; visiting appointment	6,000	178
NATIONAL REPUBLIC OF CHINA		
NATIONAL TAIWAN UNIVERSITY, TAIPEI Seminar in the social sciences and humanities: expenses	3,000	179
NEW ZEALAND		
ALEXANDER TURNBULL LIBRARY, WELLINGTON Bibliography on the Pacific Islands: C. R. H. Taylor; travel expenses	825	180
BRITISH COMMONWEALTH NURSES' WAR MEMORIAL FUND, WELLINGTON Nursing education: N. J. Kinross; travel	1,950	115
UNIVERSITY OF AUCKLAND Marine biology: research	6,600	136
UNIVERSITY OF OTAGO, DUNEDIN Physiology: research Thoracic surgery: J. Borrie; travel	2,500 1,690	126 115
OKINAWA		
UNIVERSITY OF THE RYUKYUS FOUNDATION, SHURI Art: M. Adaniya; travel	900	198
PHILIPPINES		
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INTERNATIONAL RICE RESEARCH INSTITUTE, LOS BAÑOS General development and support	229,000	43
UNIVERSITY OF THE PHILIPPINES <i>Los Baños:</i> Soil science: N. L. Galvez; travel	3,410	283
<i>Manila:</i> Institute of Public Administration: research and training	87,700	224
<i>Quezon City:</i> Department of Home Economics: construction and equipment	150,000	256
Higher education: V. G. Sinco; travel	2,650	296
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