

THE ROCKEFELLER FOUNDATION
PRESIDENT'S REVIEW &
ANNUAL REPORT
1967

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THE ROCKEFELLER FOUNDATION

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April 1967—April 1968

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¹ Retired April 5, 1967.

² Beginning April 5, 1967.

³ Beginning July 1, 1967.

⁴ Retired June 30, 1967.

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April 1967—April 1968

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¹ Beginning November 1967.

² Through October 1967.

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FRANCES MAJOROS *Head, Travel Service¹*

ADEL TACKLEY *Head, Personnel Service*

HENRY S. TARTAGLIA *Head, Office Service Department*

¹ Beginning February 1967.

² Beginning November 1967.

³ Through October 1967.

⁴ Retired June 1967.

⁵ Beginning July 1967.

⁶ Beginning April 1967.

⁷ Through June 1967.

AGRICULTURAL SCIENCES

STERLING WORTMAN, PH.D., *Director*
JOHN J. MCKELVEY, JR., PH.D., *Deputy Director*
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E. C. STAKMAN, PH.D., *Consultant*
ALBERT H. MOSEMAN, PH.D., *on leave³*

¹ Beginning October 1967.

² Beginning July 1967.

³ Resigned July 1967.

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W. DAVID MAXWELL, PH.D., Consultant

¹ Resigned May 1967.

² Beginning July 1967.

³ Through May 1967.

⁴ Through July 1967.

⁵ Resigned June 1967.

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INFORMATION SERVICE

HENRY ROMNEY, *Information Officer*²

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Belém

VIRUS RESEARCH PROGRAM

THOMAS H. G.AITKEN, M.D.³
JORGE BOSHELL, M.D.
JOHN P. WOODALL, PH.D.

¹ Retired June 1967.

² Beginning October 1967.

³ Beginning July 1967.

CEYLON

Kandy

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JAMES C. MOOMAW, PH.D., *Agronomist*¹

CHILE

Santiago

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JAMES M. SPAIN, PH.D., *Soil Scientist*

H. DAVID THURSTON, PH.D., *Plant Pathologist*⁷

VIRUS RESEARCH PROGRAM

RONALD B. MACKENZIE, M.D.

¹ Beginning September 1967.

² Temporary appointment completed.

³ Beginning July 1967.

⁴ Assistant Director through May 1967.

⁵ Beginning February 1967.

⁶ On study leave.

⁷ Resigned June 1967.

Cali

AGRICULTURAL SCIENCES

PETER R. JENNINGS, PH.D.¹

ROY L. THOMPSON, PH.D.²

HUMANITIES AND SOCIAL SCIENCES

JAMES M. DANIEL, PH.D.

HERBERT W. FRASER, PH.D.³

ERNEST A. DUFF, PH.D.³

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LUCILLE T. MERCADANTE, R.N., M.A.⁵

VIRUS RESEARCH PROGRAM

HAROLD TRAPIDO, PH.D.

ECUADOR

Quito

AGRICULTURAL SCIENCES

JOHN W. GIBLER, PH.D., *Resident Representative*⁶

WHEELER CALHOUN, M.S., *Specialist, Experiment Station Development*⁸

INDIA

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HUMANITIES AND SOCIAL SCIENCES

CHADEBOURNE GILPATRIC

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LEROY R. ALLEN, M.D.

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GUY B. BAIRD, PH.D., *Director*

BILLY C. WRIGHT, PH.D., *Assistant Director*⁷

R. GLENN ANDERSON, PH.D., *Associate Plant Breeder*

¹ Beginning July 1967.

² Beginning October 1967.

³ Temporary appointment completed.

⁴ Retired June 1967.

⁵ Beginning September 1967.

⁶ Through June 1967.

⁷ Associate Soil Scientist through October 1967.

JOHNSON E. DOUGLAS, M.S., Seed Production Specialist
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FREDERICK F. RANDALL, Administrative Assistant
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WILLIAM R. YOUNG, PH.D., Entomologist

Hyderabad

INDIAN AGRICULTURAL PROGRAM

WAYNE H. FREEMAN, PH.D., Plant Breeder
JAMES S. QUICK, PH.D., Assistant Geneticist⁶

Poona

VIRUS RESEARCH PROGRAM

CHARLES R. ANDERSON, M.D.⁷

Vellore

VIRUS RESEARCH PROGRAM

DONALD E. CAREY, M.D.⁴

¹ Beginning August 1967.

² Beginning January 1967.

³ Beginning October 1967.

⁴ Through July 1967.

⁵ Temporary appointment completed.

⁶ Beginning July 1967.

⁷ Through November 1967.

ITALY

Bellagio (Lake Como)

VILLA SERBELLONI

JOHN MARSHALL, M.A., Director

KENYA

Muguga

AGRICULTURAL SCIENCES

**ORDWAY STARNES, PH.D., on assignment as Director,
East African Agriculture and Forestry Research Organization**

Nairobi

HUMANITIES AND SOCIAL SCIENCES

JAMES S. COLEMAN, PH.D.¹	ROBERT W. JULY, PH.D.
KENNETH O. BJORK, PH.D.²	BENTON F. MASSELL, PH.D.²
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UNIVERSITY DEVELOPMENT—FINANCIAL ADMINISTRATION

LEO F. BOURNE⁴

MEXICO

Mexico City

INTERNATIONAL MAIZE AND WHEAT IMPROVEMENT CENTER

EDWIN J. WELLHAUSEN, PH.D., Director
ROBERT D. OSLER, PH.D., Associate Director¹
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ROBERT D. OSLER, PH.D., Head, International Maize Program⁵
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Inter-American Potato Improvement Project**
ELMER C. JOHNSON, PH.D., Geneticist (maize)
CHARLES F. KRULL, PH.D., Geneticist (wheat)

¹ Beginning July 1967.

² Temporary appointment completed.

³ Beginning August 1967.

⁴ Through November 1967.

⁵ Through June 1967.

REGGIE J. LAIRD, PH.D., *Soil Scientist*

**NEIL B. MACLELLAN, *Administrative Assistant and Field Staff
Photographer***

DELBERT T. MYREN, PH.D., *Information Specialist*

BILL J. ROBERTS, PH.D., *Associate Plant Pathologist*

NIGERIA

Ibadan

INTERNATIONAL INSTITUTE OF TROPICAL AGRICULTURE PROJECT

ARTHUR D. LEACH, PH.D., *Agricultural Engineer*¹

UNIVERSITY DEVELOPMENT—ADMINISTRATION

JOSEPH R. BOOKMYER, M.A.

VIRUS RESEARCH PROGRAM

OTTIS R. CAUSEY, SC.D.

GRAHAM E. KEMP, D.V.M.

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PHILIPPINES

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HUMANITIES AND SOCIAL SCIENCES

REGINALD F. ARRAGON, PH.D.³

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ROBERT W. MILLER, M.A.⁴

MEDICAL AND NATURAL SCIENCES

LUCIEN A. GREGG, M.D.

¹ Through July 1967.

² Beginning February 1967.

³ Temporary appointment completed.

⁴ Beginning July 1967.

Los Baños

INTERNATIONAL RICE RESEARCH INSTITUTE

ROBERT F. CHANDLER, JR., PH.D., Director

A. COLIN McCLEUNG, PH.D., Associate Director

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HENRY M. BEACHELL, M.S., Plant Breeder

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LOYD JOHNSON, M.S., Agricultural Engineer⁴

DUANE S. MIKKELSEN, PH.D., Agronomist⁵

JAMES C. MOOMAW, PH.D., Agronomist⁶

BURT RAY, Seed Production Specialist⁷

ST. LUCIA

Castries

MEDICAL AND NATURAL SCIENCES

PETER JORDAN, M.D.

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CAROL M. SHAFFER, M.S.⁷

ROBERT F. STURROCK, PH.D.

GLADWIN O. UNRAU

SUDAN

Khartoum

AGRICULTURAL SCIENCES

**MITCHELL G. VAVICH, PH.D., on assignment as Visiting Professor,
Arid Zone Research Unit, University of Khartoum⁸**

¹ Beginning June 1967.

² Temporary appointment completed.

³ Through June 1967.

⁴ On study leave.

⁵ Beginning July 1967.

⁶ Through August 1967.

⁷ Beginning August 1967.

TANZANIA

Dar es Salaam

HUMANITIES AND SOCIAL SCIENCES

GERALD K. HELLEINER, PH.D.

CARL G. ROSBERG, JR., PH.D.¹

THAILAND

Bangkok

AGRICULTURAL SCIENCES

ERNEST W. SPRAGUE, PH.D., Agricultural Project Leader

JAMES L. BREWBAKER, PH.D., Geneticist²

DWIGHT C. FINFROCK, M.S., Agronomist

BEN R. JACKSON, PH.D., Associate Plant Breeder

CHARLES L. MOORE, PH.D., Assistant Plant Breeder³

DALE G. SMELTZER, PH.D., Agronomist⁴

HUMANITIES AND SOCIAL SCIENCES

J. CARTER MURPHY, PH.D.⁵ DELANE E. WELSCH, PH.D.⁶

LAURENCE D. STIFEL, PH.D.⁶

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JAMES S. DINNING, PH.D. J. LON POPE, PH.D.

GORDON B. BAILEY, PH.D. CARROLL F. REYNOLDS, PH.D.¹

JOHN H. BRYANT, M.D. EUGENE RODRIGUEZ, SC.D.⁴

WILLIAM P. CALLAHAN, PH.D.² WILLIAM D. SAWYER, M.D.⁶

ROBERT C. HOLLAND, PH.D. DAVID E. SCHAFER, PH.D.⁸

GORDON J. LEITCH, PH.D.⁷ JOE D. WRAY, M.D.⁴

JAMES A. OLSON, PH.D.

UNIVERSITY DEVELOPMENT—ADMINISTRATION

HENRY P. LANGE, JR.⁹

¹ Beginning June 1967.

² Beginning August 1967.

³ Beginning April 1967.

⁴ Beginning September 1967.

⁵ Temporary appointment completed.

⁶ Beginning July 1967.

⁷ Beginning November 1967.

⁸ Through September 1967.

⁹ Beginning March 1967.

TRINIDAD

Port-of-Spain

VIRUS RESEARCH PROGRAM

ANDRIES H. JONKERS, M.D.

UGANDA

Kampala

AGRICULTURAL SCIENCES

**JOHN L. NICKEL, PH.D., on assignment as Dean,
Faculty of Agriculture, Makerere University College**

MICHAEL G. VAVICH, PH.D., Visiting Professor¹

HUMANITIES AND SOCIAL SCIENCES

JAMES S. COLEMAN, PH.D.² DONALD C. MEAD, PH.D.³

EMORY F. BUNDY³ BERNARD OKUN, PH.D.⁴

MEDICAL AND NATURAL SCIENCES

GEORGE A. SAXTON, JR., M.D.⁵

UNITED ARAB REPUBLIC

Cairo

AGRICULTURAL SCIENCES

**ARTHUR E. PETERSON, PH.D., Resident Consultant,
International Maize Improvement Program⁶**

UNITED STATES

Berkeley, California

VIRUS RESEARCH PROGRAM

HAROLD N. JOHNSON, M.D.

Davis, California

AGRICULTURAL SCIENCES

KENNETH O. RACHIE, PH.D.⁶

Lincoln, Nebraska

AGRICULTURAL SCIENCES

KENNETH O. RACHIE, PH.D.⁷

¹ Temporary appointment, July through September, completed.

² Through June 1967.

³ Temporary appointment completed.

⁴ Beginning July 1967.

⁵ Resigned June 1967.

⁶ On study leave through August 1967.

⁷ Beginning September 1967.

Boston, Massachusetts

MEDICAL AND NATURAL SCIENCES

DONALD E. CAREY, M.D.¹

New Haven, Connecticut

VIRUS RESEARCH PROGRAM

WILBUR G. DOWNS, M.D.	VERNON H. LEE, PH.D. ³
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SONJA M. BUCKLEY, M.D.	ROBERT W. SPEIR, M.D.
JORDI CASALS-ARIET, M.D.	LORING WHITMAN, M.D.
DELPHINE H. CLARKE, M.D.	

New York, New York

AGRICULTURAL SCIENCES

ARTHUR D. LEACH, PH.D.⁴

MEDICAL AND NATURAL SCIENCES

DAVID E. SCHAFER, PH.D.⁵

Chapel Hill, North Carolina

MEDICAL AND NATURAL SCIENCES

JOE D. WRAY, M.D.⁶

Raleigh, North Carolina

AGRICULTURAL SCIENCES

JOHN W. GIBLER, PH.D.⁷

¹ Study leave beginning August 1967.

² Beginning December 1967.

³ Through January 1967.

⁴ Beginning August 1967.

⁵ Study leave, September through December 1967.

⁶ Study leave through August 1967.

⁷ Beginning July 1967.

**PHILANTHROPIC RISK
BY
J. GEORGE HARRAR**

Realism compels us to admit that civilization thus far has fallen far short of attaining the most cherished goal of mankind—the achievement of a world free of strife, disease, hunger, poverty, and ignorance. In some areas, affluence has no doubt increased; more people than ever before are receiving the benefits of education and medical science; modern technology has scored dazzling successes; and we are surrounded by many other amenities of modern civilization. But it is painfully obvious that man's potential for universal advancement has not yet come to fruition. What hinders the full realization of man's natural possibilities is a combination of self-interest and inertia coupled with ignorance and lack of communication and understanding. These negative forces work unceasingly to the detriment of human progress and well-being and must be countered and modified if man is ever to realize his eternal dream of a world of peace and amity where good health, adequate nourishment, and opportunities for education and employment are available to all.

Today it is generally expected that a duly constituted government will concern itself with the well-being of all citizens and endeavor to satisfy their requirements for self-fulfillment. And most governments do so concern themselves. But quite obviously government must be joined in some fashion by many other elements within the society in order that the public and the private sectors may interact for the greatest good of all.

There are in this country, as elsewhere, many groups keenly aware of the threats which hang over our nation and over human destiny in general. These groups include humanitarian, educational, religious, cultural, economic, scientific, scholarly, and other interests which together make up a great constructive force in modern society. Each can make contributions which though perhaps small in themselves add up in such a way as to have great impact on the grievous and difficult problems that confront mankind. Among them is private philanthropy, which has long played an active role in bettering the human condition. The endeavors of the general-purpose foundation perhaps most nearly epitomize the approach of modern private

philanthropy to human welfare. Because of the broad scope and notable accomplishments of such organizations, their programs are well known. Over the years, they have concerned themselves with health problems throughout the world, have worked to improve the process of education in many lands, have attacked the problems of hunger and famine, and have worked toward the concept of family planning on an international scale to help achieve a better life for more people.

Private foundations have also concerned themselves with a vast number of undertakings dealing with social and cultural development. They have aided key research projects in the fields of economics, political science, international affairs, and the behavioral sciences, thus contributing incalculably to the advancement of human knowledge. Foundations have been active in working to help achieve equal economic, social, and particularly educational opportunities for all Americans. And they have sought to enrich our cultural environment by enabling wider audiences to see and hear high-quality presentations in the performing arts.

Private philanthropy, in short, has sought to direct its experience, energies, and resources toward areas of human concern which are to some degree universal. In doing this, it has of necessity had to concentrate on problems which are extremely difficult, the solution of which often entails considerable risk. Foundations have entered into these areas, fully recognizing the risks involved, but believing that these risks are balanced by the integrity of the purpose and the possibility of long-range benefits. Foundations are aware, too, that in taking such risks, they will often be exposing themselves to controversy. Nevertheless, they have taken the risks, tolerated the resulting controversy, and moved forward steadily in the belief that as their accomplishments become manifest, the original doubt will be dissipated by clear-cut evidence of the value of the undertaking.

Some critical observers complain that foundations are reluctant to support controversial projects and that they may even avoid them. This attitude suggests an inadequate understanding of the criteria used by foundations in selecting the projects and institutions they assist. Foundations first try to identify root causes of dissatisfaction within society—problems which by reason of their physical, social, or political effects deter human progress. Once these causes, or at least some of them, have been identified and it has been recognized that improvements could be brought about, foundations lose no time in entering the field. In all these efforts, controversy may or may not arise, but the factor of risk is always present. Philanthropic risks are nothing less than calculated risks, taken deliberately in the belief that the desired end justifies such risk-taking.

The risks a foundation must take are many and varied. First and fore-

most, of course, there is the risk of being in error; but there is also the risk of failure; and there is always the risk of being unable to convince others of the wisdom of a program. Risk may arise out of differing views of the intent, method, and efficacy of a program. Furthermore, even though a program may prove itself to be highly effective, the type of social change initiated by it may be unpopular. In other instances, cultural differences, religious taboos, and social practices may come into conflict with the undertaking. But in the faith that progress is possible and that accumulating evidence will prove the value of the project, foundations have generally persevered in pioneering activities which are now or will one day become a part of the history of social betterment throughout the world.

A few examples may be pertinent at this point to illustrate that the efforts of the general-purpose foundations to improve the human condition have included a large element of risk. One dramatic example is the attack on an international scale against some of the world's most virulent and debilitating diseases. Thanks to the pioneer work of the private foundations, millions are now free from malaria, yellow fever, tuberculosis, hookworm, and other mass diseases. The risks taken included that of death for the men and women whose dedication led them into remote areas in order to better understand and counteract the diseases under investigation. Ignorance, vested interests, severe climatic conditions, and inaccessibility all combined to make their tasks not only difficult but dangerous. Nevertheless, much of the level of public health that is enjoyed throughout the world today is a direct result of these early programs. Success has not been achieved everywhere, and may not be for a long time in the future, but the benefits that have already accrued are massive. The instrumentalities for further progress are available, and what is needed is a continuing and concerted attack to press back the threatening epidemic diseases which have so long oppressed millions.

Programs directed to improvements in agriculture and nutrition in the underdeveloped world have often involved considerable risk, along with substantial difficulties. Here again, suspicion, lack of understanding, unwillingness to change traditional ways of doing things, and objections of local agencies to what they thought of as interference, were all indications that the risk would be great, particularly in the early years of an undertaking. But the foundations involved, trusting that the demonstrated accomplishments and ultimate success of their programs would win the critics to their side, persevered. Their faith proved justified in instance after instance.

Assistance for the improvement of educational institutions both at home and abroad has been an important concern of foundations. In the developing nations, foundations have been working to help expand and strengthen edu-

cational facilities, especially colleges and universities. However, because there are always a few people who view such assistance as a threat to their cultural sovereignty, the foundations do incur a certain amount of risk in this sensitive area. At home, changes in professional education, such as those that took place in our medical schools in the earlier part of this century with the support of private philanthropy, also involved considerable risk and certainly generated a good deal of controversy. History has demonstrated the wisdom of the changes: in this country the quality of medical education has reached heights unsurpassed by any nation.

It is doubtful whether there is any problem in the world more threatening in its implications than uncontrolled population growth. Its effects are already, either directly or indirectly, touching the lives of almost every man, woman, and child. Yet, there is no concept that has been the subject of more heated public debate than that of family planning. It was the private sector that first ventured into this arena, which government organizations and public officials could not enter because of overt hostility to any public action. For many years, foundations and other private organizations have been supporting research and fellowship programs, pilot projects, and the dissemination of information. Now, at a time when most of the world's leaders, perhaps belatedly, embrace the principle that family planning is essential to improved health, to adequate standards of living and education, and to economic growth, they can take advantage of the pioneering work of private philanthropy to benefit their people. Thanks to its early willingness to provide the risk-capital to sustain programs in this field, it is now possible for individuals and national governments to avail themselves of the techniques, materials, and information concerning family planning that have already been developed under private auspices.

Private philanthropy has a long and distinguished record of accomplishment in the field of human rights, especially in helping to achieve equal opportunity for all. Often there was heavy risk involved in these undertakings and also substantial difference of opinion. Interestingly enough, the General Education Board, which for many years devoted its funds and energies to the cause of education in the United States with special emphasis on the South and the Negro, was in its initial stages criticized for its attempts to increase educational opportunities for Negroes, as well as for other disadvantaged Southern youth. A principal target of this criticism was the Board's support of Negro institutions of higher education. The Board was convinced, however, that only through aid to these institutions could large numbers of Negro students have the opportunity to advance beyond the primary and secondary school level to the college, the university, and the graduate or professional school.

Today, one hears an occasional criticism of the Board's early aid to these Negro colleges, on the ground that such support contributed toward the perpetuation of segregation in the South. The fact is that these colleges came into existence primarily because of segregation—because Negro students were ill prepared in the segregated public schools and were thus unable to qualify for admission to the majority of American universities and colleges, where more often than not they were in any case unwelcome. But it cannot be disputed that the Negro colleges have outstanding accomplishments to their credit, and that over the years they have prepared large numbers of men and women for opportunities they would not otherwise have had. It seems to be the considered opinion of most educators and other leaders today that assistance of the type provided by the Board and other private organizations to these colleges was of enormous importance, since it was the only method available at the time to provide higher education to large numbers of young Negroes.

Perhaps the principal purpose of these remarks is to suggest that over a period of years, the general-purpose foundations have acquired both experience and a degree of wisdom. They have found that to be most useful to society, they must choose their projects in anticipation of the problems of the future and deal with them in a way which will bring light rather than heat to bear upon them. Philanthropic funds should be used with forethought, care, and persistence to support causes, programs, and projects that are clearly demonstrable as fundamental to human progress. An element of risk will assuredly appear in all such cases and will take a variety of forms. These risks cannot be avoided, nor can they be permitted to become deterrents to action. On the contrary, they must be faced squarely with full realization of their implications.

Foundations are, of course, only a minuscule element in the total picture of social institutions. In terms of experience and accomplishment, however, their share is proportionately much larger than the sums of money they have expended over the years. Foundations can innovate, catalyze, and stimulate; they can demonstrate the value of ideas, methods, and materials which can work toward the lessening or elimination of persistent hunger and malnutrition, chronic disease and pestilence, continued ignorance and prejudice, and the other obvious social ills which underlie most human concerns.

Perhaps the greatest single enemy of mankind is self-interest, which appears in countless forms and many guises in every society, in all intergroup and interpersonal relations. There is no one type and none which is unique or unfamiliar. But in all its manifestations, self-interest is a definite symptom of a deep-seated impulse in human nature and can be controlled only through constant improvements in understanding and communication and

respect for the rights of others. Man cannot subsist alone and every individual must find significance and self-fulfillment in relationships with his fellow men. All of us, therefore, must make a determined and deliberate effort to achieve this end through concerted endeavor in mutual tolerance. In this area, too, as in others, private philanthropy must courageously continue to take risks in the cause of human welfare. In itself, private philanthropy is only a small force in the total process of change. It is nonetheless a well-tried and well-proven instrument.

J. George Harrar, President

THE PROGRAM OF THE ROCKEFELLER FOUNDATION

PROBLEMS OF POPULATION

Rapid population growth is at last being widely recognized as a threat to social and economic progress. World leaders are receptive to measures aimed at reducing the rate of growth; the medical profession is increasingly endorsing public programs of family limitation; research in the population field is accelerating; and even deep-seated cultural attitudes toward fertility are beginning to change where modern medicine has demonstrated that a family need not have large numbers of children to guarantee the survival of a few. These changes in outlook and activity are in good part the result of thorough research and painstaking demonstrations sponsored over many years by private organizations.

The Rockefeller Foundation has long been interested in finding widely acceptable and applicable means of achieving population stabilization. It has for many years supported demographic studies and research in the physiology of reproduction. More recently it has supported family planning action programs and training of population specialists. Currently it is encouraging universities both in the United States and abroad to consolidate population studies into an independent academic discipline, embracing demography and the social sciences as well as the basic natural sciences and medical disciplines relevant to human reproduction. This consolidation, it is hoped, will give work on population problems more scientific leverage and wider scope as well as more professional prestige.

Population programs supported in the recent past by the Foundation are beginning to show results. From the slums of Santiago, Chile, comes evidence that the birth rate can be reduced by systematic programs of information, advice, and medical service. With the cooperation of public health authorities and with funds from private organizations, including the Foundation, the University of Chile pioneered family planning clinics in overcrowded urban districts where a high rate of induced abortion had created a health problem of major proportions. These programs managed to lower the birth rate and the number of abortions at a time when in the rest of Chile no such decrease occurred.

To accomplish on a worldwide scale what has been proven possible in a South American city of two million will require a confluence of efforts on the part of international organizations, local governments, and universities

and medical schools, with the support of private and public funds. It will demand a force of dedicated professional people trained in every aspect of population work; it will depend on basic research aimed at developing even more effective contraceptive measures. The university, whose role throughout the world is being redefined to give greater emphasis to community responsibility and leadership, is the focus of current Foundation efforts toward these objectives. Special attention is being given to assisting medical schools, in this country and abroad, to establish full-time family planning units, usually in departments of obstetrics and gynecology, in order to provide an academic framework for teaching and research.

POPULATION STUDIES WITHIN THE UNITED STATES

The population problem of the United States is a compound one, on the one hand resembling that of an industrialized, technologically advanced society and on the other showing many of the characteristics of less developed countries. The net population growth rate is low enough not to impede economic growth, but submerged within this overall low rate is the high fertility of the poor, who number one sixth of the nation's families. Poverty groups generally lack access to birth control services, and their high reproduction rate is a serious hindrance to their educational, social, and economic advancement. The population density of our cities, where 70 percent of the nation's people are now concentrated, is responsible for a deterioration in the quality of life, felt most harshly by the poor, and in cumulative pollution of the environment.

A recent survey made by the American Public Health Association on the teaching of fertility regulation in American medical schools showed, with a few outstanding exceptions, a general neglect of the subject throughout the country. In the majority of medical schools, population and family planning receive scant attention, unless some faculty member happens to be interested in the subject and makes a special effort to provide instruction, more or less as an adjunct to the curriculum. Since this does not occur often, the teaching of family planning is usually limited in scope and likely to be presented in a random and unorganized way; it makes little impact on the student, and a real sense of the urgency of the population problem is not conveyed. Although public and professional concern with population growth has been rapidly mounting over the past decade, of 38 textbooks of gynecology and obstetrics published in the United States during that time, most made no mention of, and the rest only a very brief reference to, general population problems. Two thirds of the texts contained either no mention of contraception or only isolated reference to it, with no discussion. In the light of these deficiencies, it is small wonder that physicians as a group are inade-

quately trained in the technology of family planning and are often not sensitive to the broader significance of population matters.

This situation is the more serious in that, of the contraceptive methods available at present, those most suitable for use in developing countries and among undereducated, poorly motivated people, are medically oriented. Significant improvements in methods and technology are to be expected in the future, but as far as can be foreseen at this time, these methods too will require the participation and leadership of medical personnel.

For these reasons, the Foundation's most recent grants within the United States have been focused on increasing the involvement of the health professions in the field of population. Major appropriations were made this year to Cornell University, Tulane University, and Baylor University for the development of family planning units as a basis for population studies; a smaller grant went to Emory University in Atlanta. Grants made in 1966 are continuing to support population centers at Western Reserve University and the University of North Carolina. In these institutions the study of family planning is being developed in a systematic, concentrated, and organized way in order to create a suitable environment for growth of teaching and research in the field. The full-time academic family planning units supported by these grants also provide an ideal framework for instruction of nurses, midwives, social workers, and other professional health workers.

The Cornell Medical Center in New York is establishing a model unit within the present women's outpatient clinic. Expanded facilities will make possible a program of teaching and training combined with research and clinical services, under the direction of a full-time academic staff. Under the Foundation's grant, the clinic will be redesigned and the staff enlarged to permit expanded activities in family planning. The Department of Obstetrics and Gynecology now serves about 4,500 obstetrical patients a year and has a broad research program in reproductive biology. The clinic expects to emphasize both research on methods of reaching and motivating those members of the population in need of contraceptive services and investigations aimed at the improvement of means of regulating fertility. The unit also will provide encouragement and support to other hospitals and health agencies in the region in the development of family planning programs and the training of personnel and will offer consulting and teaching services to other organizations.

Tulane University in New Orleans recently established a Population and Family Studies Unit which includes representatives of various liberal arts and social science disciplines as well as members of medical departments. The Unit staff is responsible for research, for training medical students in population and family planning, and for a graduate public health course

in population dynamics. The Foundation grant will permit the Unit to operate a central family planning clinic with up to five auxiliary centers in outlying districts. Postpartum patients discharged from New Orleans Charity Hospital, which accounts for over 8,000 deliveries a year in the low-income population, will be given appointments at one of these clinics. Data collected by the clinics, and past records of the Hospital will be used in research and teaching programs. Eventually the experience gained is expected to lead to the designing of a statewide program under public auspices.

Baylor University College of Medicine also is developing family planning teaching, research, and service in an academic framework. Houston, according to the last census the seventh largest city in the country, with 19 percent of its families below the poverty line, had until recently no public birth control services to meet the needs of this large low-income group. The Baylor Department of Obstetrics and Gynecology is responsible for the operation of a municipal maternity hospital which handles about 6,200 deliveries a year. Recently, the Department was reorganized to expand its training and research activities in conjunction with the operation of a family planning service. A Foundation grant made this year will permit expansion of the staff, introduction of training programs in population at both undergraduate and graduate levels, and development of research oriented toward family planning. A sociologist will be added to the staff to undertake research in motivation, communication, and education with respect to family planning.

A grant in aid to Emory University is contributing to the extensive family planning activities of its Department of Gynecology and Obstetrics, which handles about 7,000 deliveries a year and is currently providing contraceptive services to over 16,000 indigent women at the Grady Memorial Hospital, a municipal institution serving the low-income population of Atlanta.

AID TO INSTITUTIONS ABROAD

While our own population problems are severe in certain areas, those of many of the developing countries are very nearly desperate. In most of the developing world, population growth parallels, and often exceeds, economic growth, leaving millions of the poor to struggle against hardship, disease, ignorance, and hunger, much as they have for centuries. In channeling aid and support to overpopulated areas abroad, the Foundation works through agencies like the Population Council, which have effective programs already in operation, staffed by highly qualified personnel. This year a substantial grant was made to the Council to support the programs of its Technical Assistance Division, which is active in many parts of the world, providing services at the request of foreign governments and assisting with large-scale programs sponsored by other agencies. Its activities have included missions

to survey population problems and make recommendations on national policy, field demonstrations and investigations, consultation to governments, local and foreign training of personnel, program operations research, development of materials for professional and public education, and development of better and cheaper contraceptives and advice on establishment and improvement of their local manufacture. The Council has also given financial assistance in support of these types of activity: last year 98 such grants were made in 28 different countries.

Several of the Division's pioneering programs in family planning are now reaching the point where prospects of success appear to be good; in some there is evidence that birth rates are falling. Notably successful are the national family planning programs in Korea and Taiwan, largely government-financed, for which the Division supported demonstration projects, training of personnel, research and follow-up on the intrauterine device and other contraceptives, programs of information and education, and evaluation procedures. The Division has professional staff in seven other countries, assisting with population programs in various stages of development; it is aiding local and regional organizations in still other nations where no official population policy has been defined.

The Council's Technical Assistance Division trains population workers through scholarships and fellowships for study in the medical aspects of family planning as well as in demography; it provides counsel and leadership for local specialists—many of whom have held Division scholarships—who can translate population programs and demographic concepts into terms that are meaningful to their own people. New emphasis is being given by the fellowship program to training professionals in the field of population—people who have both a strong academic background and experience in the actual operation of family planning programs. A previous Foundation grant is supporting the Division's fellowship program.

In many parts of the developing world—India, Pakistan, Korea, the United Arab Republic, Turkey, Chile, Colombia, Taiwan, Iran, Morocco, Ceylon, and Puerto Rico, for example—authorities have recognized the importance of limiting population growth as a concomitant of economic development. Many governments have officially undertaken family planning programs. Some nations, on the other hand, rely on the medical and health professions to take the initiative in family planning, working through privately sponsored agencies.

In several countries overseas, the Foundation is supporting the introduction of population programs based at local universities and medical schools, either by direct grants or through cooperative arrangements with American universities that have strong population programs. In Turkey, which passed

a Family Planning Law in 1965, the Foundation is supporting population work through a grant to the Haceteppe Science Center in Ankara. The Center, a modern university with an excellent faculty and vigorous leadership, is setting up family planning clinics in its teaching hospital and in other teaching facilities staffed by members of its Department of Obstetrics and Gynecology. One such unit is in a maternal and child health clinic located in a shanty area near Ankara; others will be introduced in rural health centers located in six outlying villages. A similar program is being introduced in eastern Turkey by the new Ataturk University, whose school of medicine is staffed by members of the Haceteppe Center faculty.

Thailand has no explicit family planning policy, but there is serious concern among many of its leaders over the population growth rate, estimated at three percent annually on a population base of about 30,000,000. Fairly wide public acceptance of family limitation can be inferred from the experience of family planning units that were set up within departments of obstetrics and gynecology at two medical schools in Bangkok: both were inundated with patients, many of whom came from remote areas of the country, even though no attempt was made to publicize the clinics or their work. A demonstration family planning clinic in a rural area 50 miles from the capital met with the same success. It seems reasonable to assume that Thai couples in both rural and urban areas are strongly motivated to limit the size of their families and would respond favorably to programs on a broader scale.

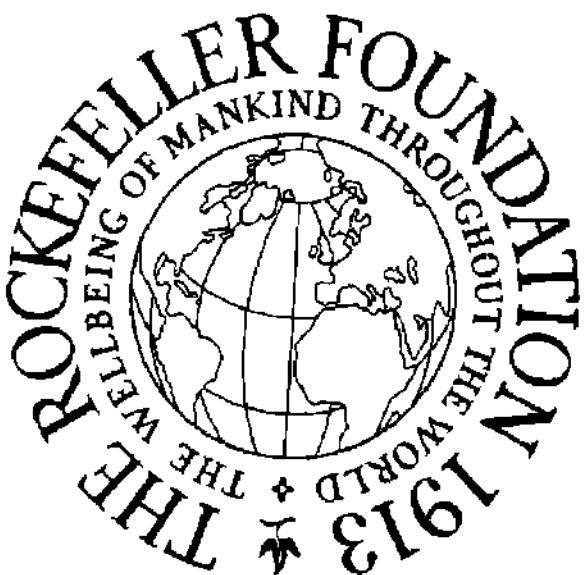
Preliminary steps have been taken by the University of Medical Sciences in Bangkok toward establishing a population program which will include the study of the biological, social, and health aspects of population growth; analysis of problems being encountered in family planning and development of better approaches; formulation of programs and policies; gathering of information needed by government officials; the training of population workers; and consolidation of research. A Foundation grant to the University of North Carolina, Chapel Hill, is supporting a cooperative program toward these objectives between North Carolina's Population Center and the Center for Population and Social Research at the Faculty of Public Health of the University of Medical Sciences in Bangkok. Research and training developed at the Thai Center should have wide relevance throughout South Asia, where population and health problems are basically similar to those in Thailand.

A similar exchange between the School of Public Health of the University of California at Berkeley and the Faculty of Medicine of Makerere University College in Kampala, Uganda, was launched this year with Foundation aid. Uganda has not formulated any official policy on population control, but a Population Studies Center is being planned under the auspices of the Makerere Faculty of Medicine to coordinate the efforts of its Departments

of Preventive Medicine and of Obstetrics and Gynecology with those of the Faculty of Social Sciences of Makerere University College. The emphasis at both Makerere and Berkeley is on child spacing and smaller family size as a part of improved maternal and child health, which makes cooperation between the two institutions particularly advantageous. Under the grant, visiting faculty from Berkeley will be seconded to the Makerere Medical School and African graduate physicians who have completed their residency training in gynecology and obstetrics will be enabled to study maternal and child health and family planning in California. Research in family planning will also be initiated at the Makerere teaching hospital under University auspices.

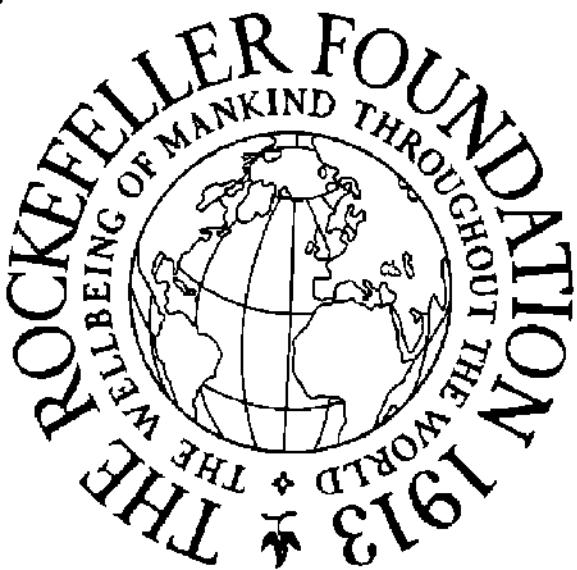
Family planning research and teaching programs launched last year with Foundation support are continuing at the University of Valle in Cali, Colombia, and the University of Chile, Santiago; demographic studies are under way at the Colegio de México in Mexico City. These programs are described in some detail in the Foundation's 1966 *President's Review*.

The University of North Carolina's Population Center encompasses a score of scientific and scholarly disciplines all focused on problems of population stabilization at home and abroad. *Below*, local citizens interested in setting up a family planning clinic meet with Dr. Jaroslav F. Hulka, associate director of the Population Center (*front row, right*).



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NORTH CAROLINA: PEOPLE & POPULATIONS



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Officials of the Carolina Population Center hold an impromptu conference in a hallway: *left to right*, Robert R. Blake, director of the Educa-

tional Materials Unit, Dr. John B. Graham, chairman of Policy Board, and Dr. Moye W. Freymann, director of the Population Center.



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Dr. Jaroslav F. Hulka, also shown on earlier page, personifies the Population Center's policy of combining research and field study by

working in the laboratory and heading the Family Life Clinic at North Carolina Memorial Hospital. *Below*, he consults with clinic nurses.



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Family planning action programs sponsored by the Population Center through county health departments are preceded by surveys of family

planning knowledge and attitudes (*above*) as well as by the county health department's assurance of competent child health care (*below*).



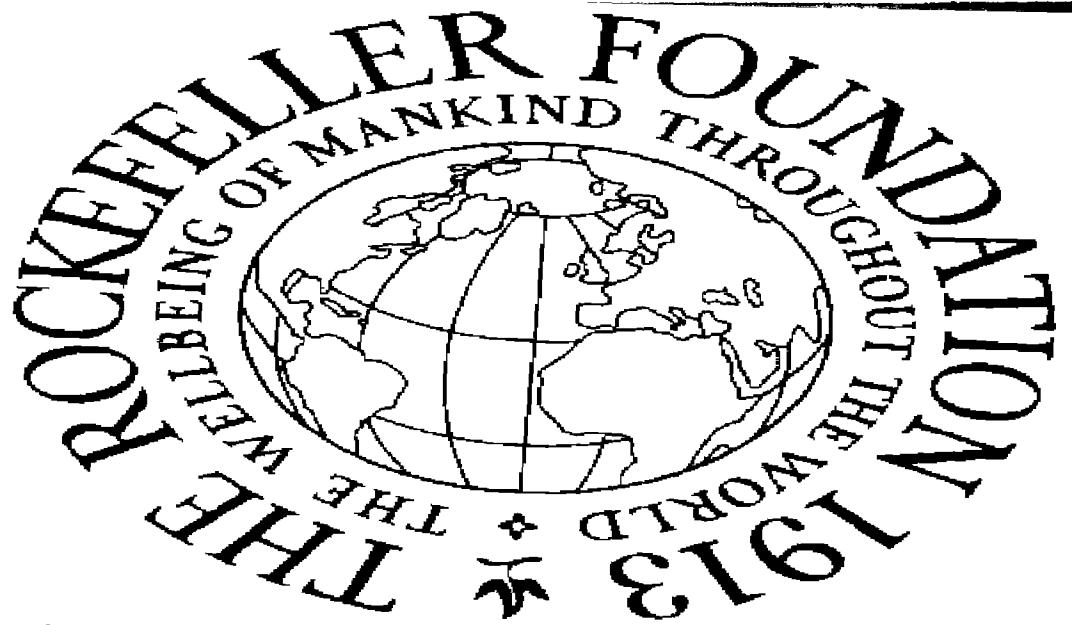
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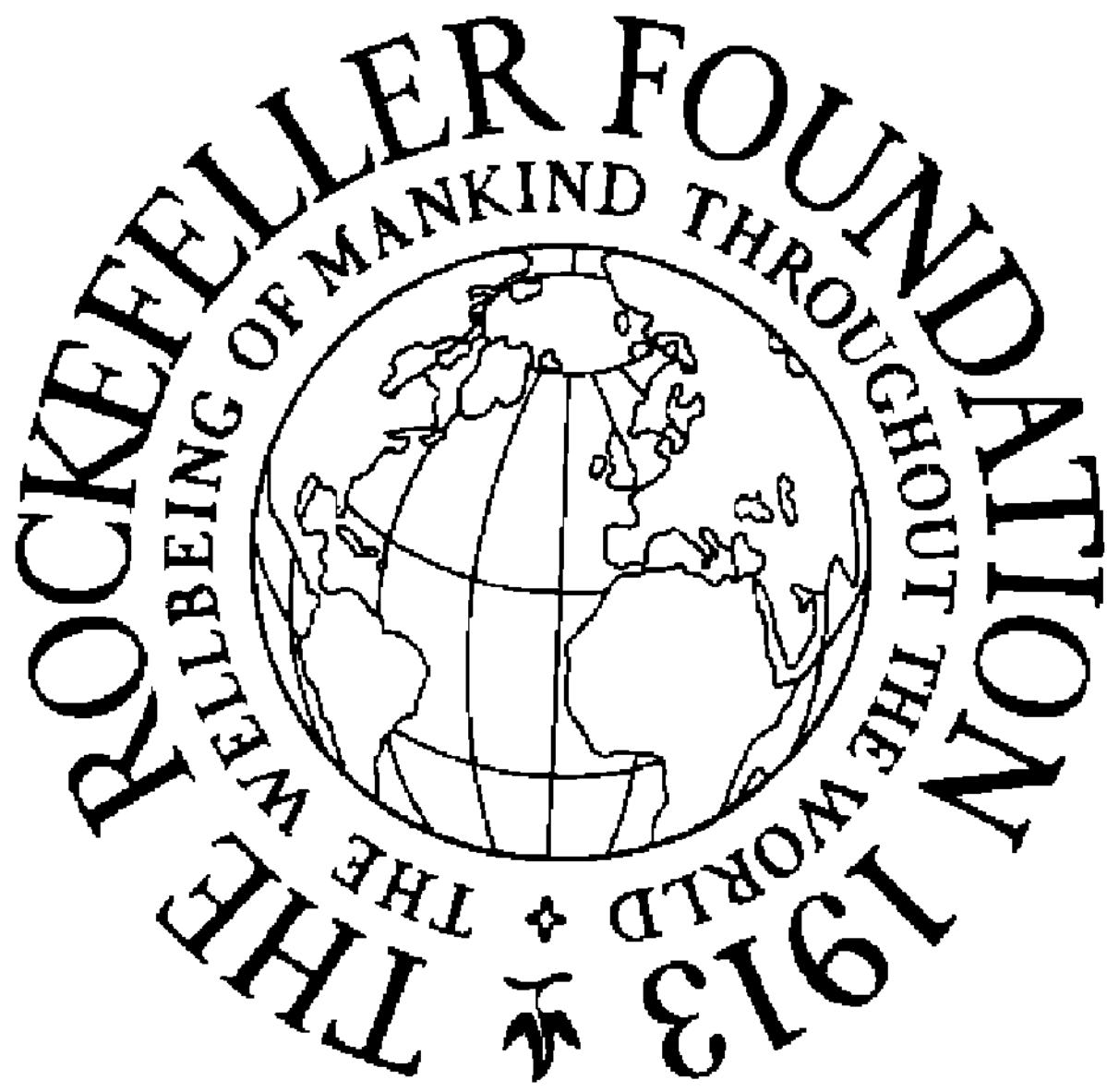
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Funds from the Population Center provide for teaching and counseling by public health nurses at the Family Planning Clinic in Wake

County. Below, Dr. Hulka and a resident physician explain the function of the intrauterine device to a patient at the Family Life Clinic.



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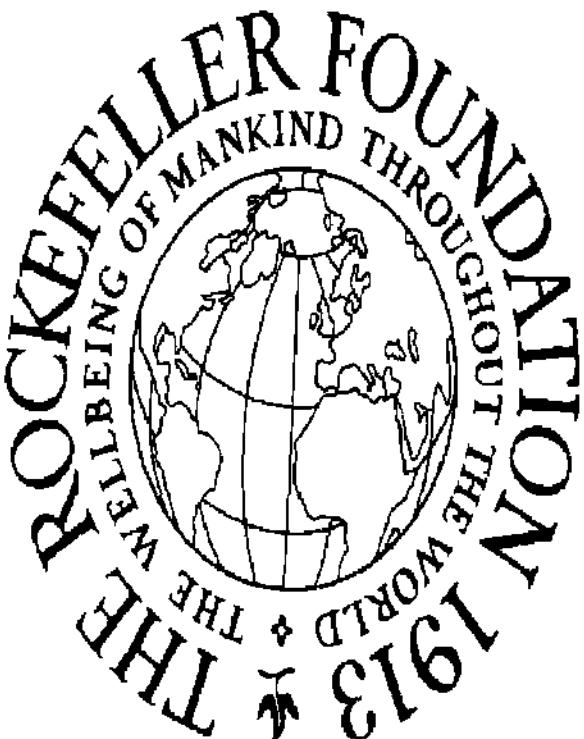
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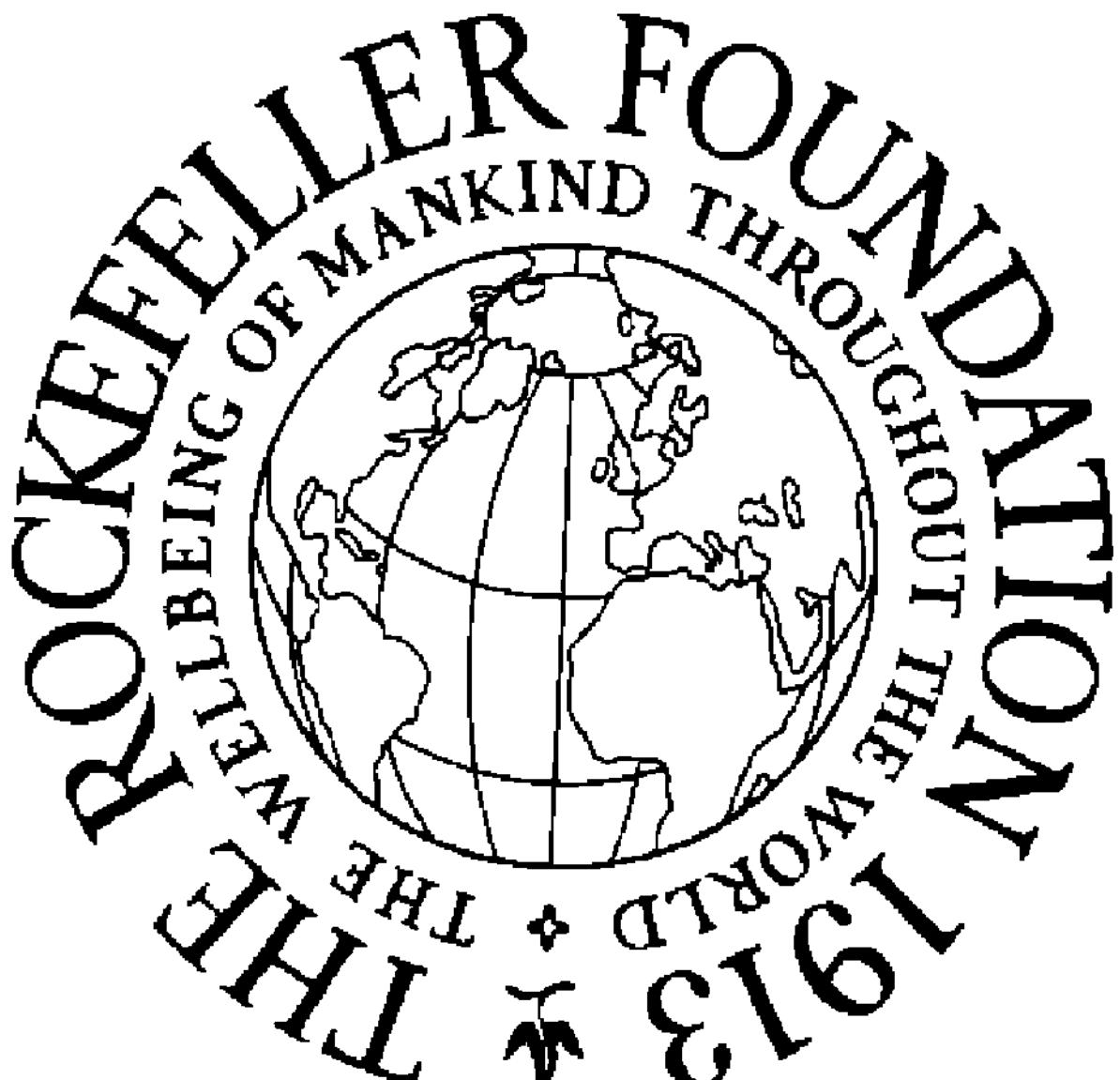
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Techniques demonstrated at the Population Center are spreading to other communities. *At left and above*, O. J. Sykea, director of the Family Planning Program, Caswell County, visits the Center to discuss his program and to

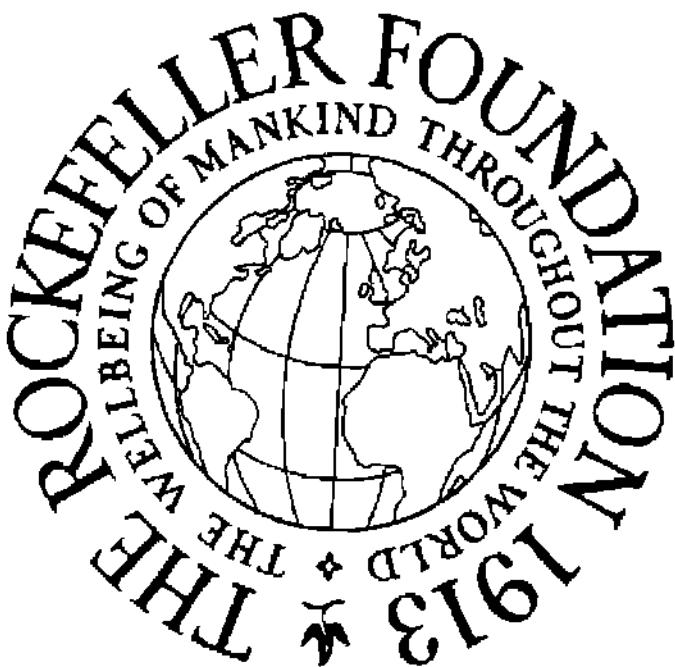
organize consultant services. *Below*, Robert R. Blake and an assistant work together on a filmstrip for an information kit which will be distributed to various local family planning programs in neighboring North Carolina counties.



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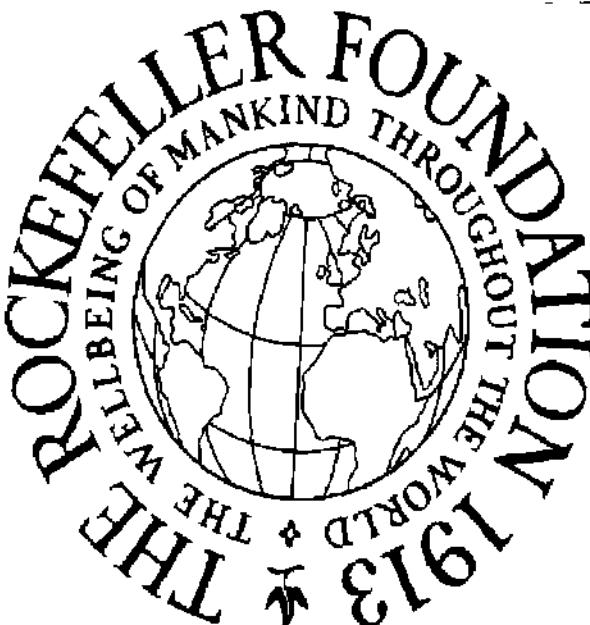
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At left, students of Dr. James R. Abernathy (center, standing), assistant professor of biostatistics, come from many countries where population pressures are severe. The study of biostatistics provides students with the basic methods of population research as well as field experience in sampling and survey techniques.

Through training of foreign students, the Population Center's work has international influence. *Above, students from four countries attend Dr. Hulka's class on reproductive physiology. The Center's faculty is also international; below, Dr. K. Srinivasan of India, visiting professor of biostatistics, shares valuable overseas experience.*



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Various departments and schools of the University of North Carolina cooperate with the Population Center to provide instruction in all disciplines concerned with population stabilization. *Below*, three graduate students in the School of Journalism, working on a project for

the Center, analyze and code newspapers and periodicals to determine press coverage of family planning. *At right*, Ralph Dennis of the Department of Radio, Television, and Motion Pictures, instructs three Pakistani students in the techniques of film and television production.



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GRANTS

PROBLEMS OF POPULATION

COLOMBIA

COLOMBIAN ASSOCIATION FOR THE SCIENTIFIC STUDY OF POPULATION, Bogotá: toward its organizational and administrative costs; \$15,000 for an 18-month period beginning in January, 1968;

UNIVERSITY OF VALLE, Cali:

Research in reproductive biology under the direction of Dr. Edgard Cobo, Department of Obstetrics and Gynecology; \$8,500;

Dr. Miguel Bueno Montaño; to study the operation of university population study centers and of family planning clinics in teaching hospitals in American medical schools; \$2,030;

HONG KONG

CHINESE UNIVERSITY OF HONG KONG: support of a study of the population of Hong Kong by Professor Chen Cheng-siang; \$15,000 through June, 1969;

INDIA

DR. JAGRI RAM BHATIA, All India Institute of Medical Sciences, New Delhi: to study at the Harvard University Center for Population Studies; to observe community medicine, population projects, and comprehensive health care in the United States, Guatemala, Jamaica, and Colombia; and to take a summer course at the Institute of Nutrition of Central America and Panama, Guatemala City; \$4,250;

SUDAN

DR. ROUSHDI A. HENIN, University of Khartoum: to visit centers of population and demographic research in the United States and Canada; \$1,125;

THAILAND

GENERAL NETR KHEMAYODHIN, Office of the Prime Minister, Bangkok: to visit university population centers and organizations involved in population programs in the United States; \$2,550;

DR. SRISOMANG KEOVICHIT and MRS. YUPHA UDOMSAKDI, University of Medical Sciences, Bangkok: to attend a workshop on family planning training methods at the University of North Carolina, Chapel Hill; \$4,200;

UNIVERSITY OF PITTSBURGH, Pennsylvania: to enable Tiamchai Surapath, Chulalongkorn University, Bangkok, to participate in a demographic economics training program; \$7,550;

TURKEY

HACETTEPE SCIENCE CENTER, Ankara: development of family planning clinics for research, teaching, and demonstration; \$250,000 for a four-year period;

UGANDA

MAKERERE UNIVERSITY COLLEGE MEDICAL SCHOOL, Kampala (University of East Africa):

Research, under the direction of Professor A. G. Shaper, on blood clotting mechanisms in relation to ovarian steroid hormones and their analogs; \$8,500;

Professor Richard R. Trussell; to observe the organization of teaching and research in population and family planning in the United States; \$2,200;

Professor Joseph S. W. Lutwama; to observe the organization of teaching and research in population and family planning in the United States; \$1,880;

UNIVERSITY OF CALIFORNIA, Berkeley: exchange training program in maternal health services, with emphasis on family planning, between its School of Public Health and the Faculty of Medicine of Makerere University College, Kampala; \$94,000 for a two-year period beginning in January, 1968;

UNITED KINGDOM

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE: support of a population control program, directed by Dr. D. Wolfers, at the University of Singapore; \$10,000;

UNITED STATES

AMERICAN UNIVERSITIES FIELD STAFF, New York: toward the costs of a study by Dr. Richard W. Patch on internal migration in Peru and Bolivia; \$10,000;

ASSOCIATION OF SCHOOLS OF PUBLIC HEALTH, New Haven, Connecticut: study of the teaching of population dynamics in schools of public health; \$15,000;

Baylor UNIVERSITY, Waco, Texas: development of a family planning unit in the Department of Obstetrics and Gynecology of its College of Medicine, located in Houston; \$320,000 for a five-year period;

CORNELL UNIVERSITY, Ithaca, New York: development of a family planning clinic for teaching and research in the Department of Obstetrics and Gynecology of its Medical College, located in New York; \$700,000; of this sum, \$275,000 toward the costs of rebuilding and equipping part of the present outpatient clinic, payable as an outright grant on or before April 30, 1968, upon receipt of evidence that the University has secured an equal amount from other sources for completion of the physical facilities; up to \$425,000 for the general operating expenses of the family planning clinic for a five-year period;

EMORY UNIVERSITY, Atlanta, Georgia: toward operating costs of the Family Planning Clinic of its Department of Gynecology and Obstetrics, located at the Grady Memorial Hospital; \$25,000;

MOUNT SINAI SCHOOL OF MEDICINE, New York: research on motivation for family planning among economically disadvantaged groups; \$24,700;

PAN AMERICAN SANITARY BUREAU, Washington, D.C.: toward operating costs of its Population Information Center; \$10,000;

POPULATION COUNCIL, New York: toward the program of its Technical Assistance Division; \$3,000,000 for a five-year period beginning in January, 1968;

PRINCETON UNIVERSITY, New Jersey: travel expenses of participants in a conference to be held by its Office of Population Research at the Villa Serbelloni, Bellagio, Italy, in July, 1968; \$4,200;

TULANE UNIVERSITY, New Orleans, Louisiana: support of a research, teaching, and demonstration family planning program in New Orleans under the direction of the University's Population and Family Studies Unit; \$600,000 for a three-year period;

UNIVERSITY OF MICHIGAN, Ann Arbor: studies of the teaching of population matters and family planning in professional schools; \$15,000;

UNIVERSITY OF NORTH CAROLINA, Chapel Hill: cooperative program between the University's Population Center and the Center for Population and Social Research of the University of Medical Sciences, Bangkok, Thailand; \$133,000 for a three-year period.

TOWARD THE CONQUEST OF HUNGER

Reports of dwindling food supplies, of famine and near-famine, continue to alarm national and international authorities. There is consequently a growing understanding among world leaders that food production and populations must be brought into favorable balance, nation by nation, if men are to survive with dignity and to prosper. A few nations have already demonstrated that it is possible to move from food deficits to sufficiency and even surpluses; others have begun promising national programs to accelerate, through higher yields, the production of major agricultural commodities such as wheat, rice, corn, and sorghum.

National agricultural programs can succeed only if national leaders fully understand that farming is a basic industry which, if it is to prosper, requires investment of men and money. For the economy of developing nations a relatively few basic food crops and animal species are highly important. In past decades considerable attention has been given to export crops—sugar cane, coffee, tea, cacao, jute, cotton, bananas, and spices. Relatively little research and other efforts have been undertaken in these countries to increase productivity of the cereal grains, root crops, grain legumes, or the animal species on which men depend for their lives. As a result, yields have remained static while populations have soared. Until recent years many nations were content to meet increasing food needs through expansion of acreage—an unsatisfactory measure, since suitable land is limited and development is costly. And, importantly, continued low productivity will not provide the increases in farm incomes needed to permit the purchase of industrial products or provide an increasing tax base for the financing of improvements in education, transportation, health, and cultural development.

For every commodity and every nation, a prerequisite to increased production per unit area is the solution of the technical problems which limit the yields and the profit of farming. Since only the agricultural scientist can solve such generally complex problems as the determination of fertilizer practices, methods of insect and disease control, and new methods of man-

aging crops and livestock, scientific manpower must rapidly be developed by each nation, or brought in through technical assistance programs, to permit the forging of functional national production campaigns, commodity by commodity.

The Rockefeller Foundation has adhered to this approach for 25 years, knowing that the direct export of varieties and practices from developed nations to other areas seldom makes for lasting progress. The widely held view that extension men or farmers from technically advanced nations can make an immediate impact on another nation's agriculture has been proven generally erroneous. On the other hand, if such personnel are first given training abroad in the use of technical information and materials tailored to the needs of the recipient nation, their efforts can be effective.

One of the encouraging findings of recent years has been that farmers, even though their landholdings may be small and their level of education low, will adopt new packages of practices provided certain conditions are met. Scientists and governments must furnish complete and sufficiently profitable sets of practices; extension agents must be adequately trained to show the farmers how to use these new practices; governments must provide stimulatory prices and arrange for products to get to market; and the necessary fertilizers, pesticides, machinery, and credit must be available when needed and at reasonable cost.

In 1963 The Rockefeller Foundation set the Conquest of Hunger as one of its major program goals. Building upon its cooperative experience with Mexico, which began in 1942, the Foundation extended its activities to Chile, Colombia, Ecuador, India, Kenya, Nigeria, the Philippines, Thailand, and Uganda. Because the solution of technical problems and the training of scientific manpower are basic to the success of national production campaigns and require a greater concentration of qualified personnel than can be provided in the reasonably near future in national institutions, the Foundation has joined other organizations, particularly the Ford Foundation, in the development and support of international centers. In operation now are the International Rice Research Institute in the Philippines and the International Maize and Wheat Improvement Center in Mexico. These international centers are undertaking to solve problems of worldwide importance; at the same time they are endeavoring to train the scientists necessary for more rapid organization of national production efforts.

WHEAT

Revolutions in wheat production are now under way in a number of nations in which spring-type wheats can be grown, particularly in India, Pakistan, and Turkey. With the use of dwarf wheat varieties such as Sonora 64 and

Lerma Rojo 64, which were cooperatively developed by the Ministry of Agriculture of Mexico and The Rockefeller Foundation, yields of four tons per hectare have been commonly obtained by farmers, and yields of five to eight tons have been achieved by some producers. This compares with typical yields of 1.2 to three tons using standard varieties.

The International Maize and Wheat Improvement Center estimates that in 1966-1967 there were some 500,000 hectares of these new varieties under cultivation in Pakistan, and some 800,000 hectares in India. During the 1967-1968 crop season it is calculated that approximately six million hectares in Pakistan, India, and Turkey were sown to these varieties. The rapid increase in acreage in these nations resulted from extensive domestic seed production supplemented by massive importations of seed wheat from Mexico during the past 18 months: India purchased 18,000 tons of seed of the dwarf varieties; Turkey acquired 22,000 tons; Pakistan recently effected the world's most massive importation of 42,000 tons.

Other nations—among them Afghanistan, Guatemala, Kenya, Nepal, Rhodesia, South Africa, and the United States—are now making use of the improved dwarf varieties. Seed is being increased by several nations on an experimental basis; Cyprus, Denmark, Iran, Iraq, Lebanon, Libya, Morocco, and Tunisia have such programs.

The rate of progress is particularly evident when one considers the fact that Pakistan's Accelerated Wheat Improvement and Production Program was not initiated until mid-1964, that India's program started at about the same time, and that Turkey obtained its first substantial experience with 60 tons of Sonora 64 introduced in 1966.

New varieties alone are not responsible for this rapid progress. These short, stiff-strawed varieties are capable of utilizing high levels of nitrogenous fertilizers for grain production without falling over (lodging) as a result of excess foliage. With such varieties, use of heavy applications of fertilizers not only becomes possible and profitable but indeed is necessary for high yields. The new varieties are insensitive to length of day, an important factor in their adaptation over a wide range of ecological conditions. Admittedly, the short, stiff-strawed varieties require excellent field management for highest performance, but investments in good seedbed preparation, better water management, and weed control are made profitable by their use.

To sustain the dramatic advances now being made in wheat production, each nation must develop its own research program to produce even better varieties adapted to its own ecological conditions, resistant to local strains of diseases and insects, and suited to local consumer preferences. Large numbers of wheat specialists must be trained for research and extension agencies, to serve agribusiness and lending institutions, and to teach the

new technology in schools and universities. Pakistan's Accelerated Wheat Improvement and Production Program and the All-India Coordinated Wheat Improvement Scheme are models of concerted national efforts to achieve these sustained advances.

THE INTERNATIONAL MAIZE AND WHEAT IMPROVEMENT CENTER

The Rockefeller Foundation, in concert with the Ford Foundation, provides almost all the support for the International Maize and Wheat Improvement Center (CIMMYT), which has its headquarters in Mexico. This organization, which operates under the supervision of an international board of trustees, undertakes specific lines of research of value internationally, trains technical personnel, promotes international cooperation needed to make national efforts more effective, and assists nations in the development of national wheat production programs.

Scientists at the International Center are cooperating with the National Institute of Agricultural Research in the development of new commercial varieties of wheat for Mexico, many of which will have value elsewhere; nine such varieties are described in the Center's 1966-1967 report. Pathologists continue to search for more comprehensive and stable types of resistance to the wheat rusts; if these can be found, the useful life of wheat varieties might be extended considerably over much of the world. The International Center continues its assistance with an international network of disease nurseries through which experimental materials are continually evaluated for their resistance to important diseases. Through a network of yield trials, new materials are introduced into national experimental programs.

Work on Triticale, a man-made species obtained by crossing wheat and rye, continues to make rapid progress at the Center and at the University of Manitoba in Canada, where work is supported in part by The Rockefeller Foundation. The durum wheats, used primarily for macaroni and spaghetti, are now receiving attention at the Center: an attempt is being made to incorporate the short, stiff-straw characteristics and to introduce bread-making qualities.

In addition to direct support of the Center, the Foundation provides a staff member to serve as joint coordinator of the All-India Coordinated Wheat Improvement Scheme. The work of this highly important new organization in India is also supported by a Foundation pathologist, an entomologist, a soil specialist, an experiment station specialist, and others on the Foundation's field staff in India. The Foundation is also providing partial support for a number of significant wheat projects in Kenya, Colombia, Ecuador, Peru, and Chile.

CORN

Major breakthroughs are occurring in the improvement of corn, which contributes over a quarter of a billion tons of grain per year to the world food supply. Yields have risen sharply in recent decades in the United States, Canada, and Europe. On the other hand, in the tropical regions of the world—in Latin America, the Far East, Africa, and the Middle East—yields have remained almost static. Encouragingly, average yields are now rising sharply in some places. To the well-known success stories of Mexico and Thailand can now be added Kenya and El Salvador. In the latter two nations, corn improvement programs have been highly effective, and they are reaching the small farmers.

Improvement of corn yields involves several difficulties peculiar to this crop. In many countries, much of the corn is grown on small farms without irrigation, making the rapid adoption of improved practices more difficult—but not impossible. Corn is generally highly sensitive to daylength and to temperature; this has necessitated the development of specific varieties or hybrids for a nation's every ecological situation. In a country like Mexico, this could mean breeding literally hundreds of distinct varieties. There is an obvious need to remove corn's sensitivity to daylength.

It has long been thought that maximum corn yields in any situation would be obtained through the development of hybrids—a process which is costly in terms of time and numbers of technical personnel required. Furthermore, if hybrids are used, the farmer must purchase new seed each year to maintain top yields; he cannot save seed from his own fields. Therefore, a seed industry capable of producing and distributing adequate supplies of hybrid seed each year is required. Recent research results suggest, however, that hybrids may not be necessary, that improved open-pollinated varieties may yield about as much as their more sophisticated hybrid competitors. If this holds true, the development of more productive and more profitable technology for the many different corn-producing regions of the world can be rapidly accelerated.

As in wheat, the Foundation concentrates its support for work on corn at the International Maize and Wheat Improvement Center in Mexico and at associated regional centers. The International Maize Improvement Program, headquartered at the Center, is working closely with the National Institute of Agricultural Research of Mexico in developing germplasm useful not only to that nation but to many others. Over 250 separate races of corn have been identified and described. Five germplasm complexes (Tuxpeño, Coastal Tropical Flint, Cuban Flint, Salvadoreño, and Eto) are the basic materials for the improvement of corn in most of the tropics of the world.

Scientists at the Center are searching for new breeding methods which

will speed the process of corn improvement anywhere. Attention is being given to the evaluation of tropical germplasm for the high latitudes such as the corn belt of the United States and corn areas of Europe. The prospects for rapid improvement of nutritional quality of corn grain seem highly promising, and Center scientists are actively screening the world collection for quality characteristics. Entomologists at CIMMYT are working in close cooperation with Kansas State University in an attempt to identify plant resistance to important insect pests.

The Center is participating in a pilot program for the promotion of increased corn production in the State of Puebla, in Mexico, with partial support from the Foundation. This program, which involves close collaboration of a number of Mexican agencies, seeks to demonstrate to farmers efficient techniques for increasing corn production. Plots in a zone covering 150,000 hectares will be planted in cooperation with farmers. It is estimated that about 100 plots will be planted the first year and double or triple that number the second. Mexican scientists and technicians from the Center are training corn specialists who can subsequently direct similar large-scale projects elsewhere. In addition to the Foundation grant, substantial support is being provided for the pilot project by the collaborating Mexican agencies.

NATIONAL EFFORTS

The All-India Coordinated Corn Improvement Scheme, now under the leadership of Dr. N. L. Dhawan (until recently a Foundation staff member was joint coordinator), is rapidly bringing the benefits of modern technology to India's corn farmers. One of the varieties developed recently in India, J-1, is also being increased in Pakistan, where it yields well.

The College of Agriculture of the University of the Philippines recently initiated, with partial support from the Foundation, a production-oriented corn research and training program. Centered at the College's experiment station, it will operate through outlying experiment stations in the corn-growing regions of the nation.

General supporting and consulting services are provided to these and other Asian national programs by the Foundation-supported Inter-Asian Corn Improvement Program which is headquartered in Thailand and is closely associated with that nation's corn and sorghum improvement program. In addition, organized training courses are provided by this program for corn workers in the several Asian national programs.

In Kenya the national corn improvement program of the Department of Agriculture, supported in part by grants from the Foundation, has achieved extraordinary success in accelerating yields, particularly on small farms. Hybrids developed in Kenya were grown on 160 hectares in 1963; in 1967

there were 140,000 hectares, and Kenya was self-sufficient in corn for the first time.

The Central American Corn Improvement Project, to which the Foundation has given modest support since 1954, provides a mechanism by which plant scientists in the Central American region can cooperate informally. In El Salvador, a highly effective corn production campaign is under way under the direction of Jesús Merino Argueta. This program has been successful in assisting thousands of small farmers to achieve marked increases in yields in a very short period of time.

The Northern Andean Corn Improvement Project, a Foundation-supported activity, cooperates closely with the Colombian Institute of Agriculture and with national corn improvement programs in Venezuela, Ecuador, and Peru.

In support of these international activities, the Foundation is assisting in a modest way with work on plant type of corn at Hokkaido University in Japan, and on genetics in Brazil.

BIBLIOGRAPHIES

Since corn and wheat researchers are finding it increasingly difficult to keep abreast of the vast amount of scientific literature being published in many different languages in both of these fields, a digest of the material in the form of selective bibliographies has become a necessity. The Foundation is underwriting two important projects at George Washington University to provide such tools for corn and wheat scientists; the bibliographies, covering the period 1958-1968, are expected to be of particular value to the work of the International Maize and Wheat Improvement Center.

RICE

A rice revolution, rivaling that of wheat, is now under way in areas of the Asian tropics where rice can be irrigated or water controlled to avoid excessive depths. Yield increases have been particularly rapid during the past two years as a result of the use of new varieties, improved cultural practices, and satisfactory methods of pest control developed by the International Rice Research Institute.

In 1962, immediately after the dedication of the Institute, the staff embarked upon a research program to try to bring yields in the Asian tropics up to the high standards achieved in Japan, the United States, Australia, Spain, and Italy. The task seemed formidable. In most Asian nations average yields of only two tons per hectare were common even in irrigated areas; upland rice yields usually were less than one ton. In the technically advanced nations yields ranged from four to 5.5 tons.

Varieties had to be developed (as they had been in Japan and Taiwan) with short, stiff straw which, when high levels of nitrogenous fertilizers were used, produced grain rather than excess foliage. Insensitivity to daylength was required, to permit the varieties to be grown successfully at any time of the year and without restriction by latitude. The rice stem borer was not being controlled; yet this insect pest could take a toll of one or two tons per hectare when other requirements for yields of five to eight tons were met.

The rice blast disease, caused by the fungus *Piricularia oryzae*, was found to be of particular importance, since high levels of nitrogenous fertilizers would predispose varieties to attack by the organism. Soon after the research program was started, the fields were badly hit by an unknown disease which, after about two years of work, was found to be caused by a little-known complex of four virus diseases transmitted by insect vectors.

Because rice often is harvested during rainy seasons, it was necessary that the grain of new varieties have a period of seed dormancy to prevent sprouting in the panicle during a wet harvest season.

Finally, most consumers in tropical Asia prefer a long-grain type of rice; those available from Taiwan and Japan generally were of the short japonica type.

The Institute's staff was able to initiate immediately a large-scale, rapid program of varietal improvement using two and sometimes three cycles of experimental crop production per year. By 1966 the first new models of rice varieties were available for test in rice-growing nations. Cultural practices had been modified, the utility of high levels of fertilization for high grain yield had been worked out, and chemical means of controlling the rice stem borer had been devised.

In 1966 the first varieties, including the now well-known IR 8, were tested in the Philippines, Thailand, India, Pakistan, Malaysia, and other countries. As had occurred with wheat, the new varieties, when properly managed and fertilized, commonly reached yields of five to seven tons per hectare, and on occasion scientists on the experiment stations reported yields of eight to ten tons. The response of farmers to the improved varieties and cultural practices was swift. Government leaders in some Asian countries, seeing outstanding results in their own countries, have begun to mount regional and national rice production campaigns including intensification of research and training of local extension agents and other personnel. Consideration has also been given to availability of supplies of fertilizers and pesticides and of credit, and to the organization of farmers' cooperatives and improved marketing facilities.

Three concurrent events in the Philippines attest to the widespread acceptance in one year's time of IR 8: Some of the rice purchased abroad by

the Government of the Philippines in anticipation of a rice deficit in 1967 has been resold to other countries; large amounts of IR 8 seed are being exported from the Philippines to other rice-growing areas; the sudden increase in yields in the major rice-producing provinces has created a temporary crisis in rice drying, marketing, and storage.

Seed of IR 8 was not released for multiplication until June, 1966, in time for the wet-season crop. Most of the nearly 60 metric tons of seed released at that time was planted and grown under close supervision in six provinces in the Philippines. While not all of the seed produced was planted during the 1967 dry season, the dry-season harvest of IR 8 was estimated at nearly 37,500 metric tons. This was sufficient seed to plant one quarter of the more than 3,000,000 hectares of wet-season rice land in the Philippines. (It is difficult to obtain an accurate estimate as to how much of the land was actually planted to IR 8 in the 1967 wet season.)

The remarkable yielding ability of IR 8 has sparked the interest of government agencies, private industry, farmers, and landowners. Spurred by the potential profits and the need for rice to make the country self-sufficient, these interests are working together to increase the local availability of the needed inputs and the agricultural credit necessary to finance them.

With IR 8, Philippine farmers who invest the equivalent of \$200 per hectare in labor and chemical inputs can net a profit of at least \$250 per hectare at harvest time four months from planting, assuming levels of 4.5 metric tons per hectare and the present support price of about \$4 per 44 kilograms of rough rice. Many farmers report yields ranging from six to nine metric tons. Under such circumstances, net returns may be as much as \$500 per hectare.

Such potential yields and returns have encouraged some landowners to establish their own systems of irrigation so that they can produce two or three crops a year. Moves toward double cropping or more intensive cultivation have increased interest in mechanization, particularly for land preparation, harvesting, and drying.

The rapid spread of IR 8 has been accompanied by increases in average yields in several provinces. With 32 percent of its total area planted to this variety in the dry season, the average yield in Rizal Province increased from 2.5 to 3.9 metric tons per hectare. In Laguna Province, where only ten percent of the total irrigated land was planted to IR 8 in the last season, the average yield increased by seven percent. This season, more than 50 percent of the total irrigated land of the Province is planted to the new variety. President Ferdinand E. Marcos and his Government have launched a nationwide campaign to make the Philippines self-sufficient in rice; they hope to achieve this within two or three years.

INTERNATIONAL ACCEPTANCE

Since the beginning of regional testing in the 1966 wet season, IR 8 has had an outstanding performance record in tropical Africa, Asia, and the Americas. It has wide adaptability and high yield potential in different crop seasons within the tropics around the world. Consequently, a demand for seed has arisen in several countries, notably India, Pakistan, Malaysia, Ceylon, Burma, Indonesia, Laos, Mexico, and Colombia. In India, for instance, some 120,000 hectares of IR 8 were being grown in late 1967. Recently, the Agricultural Development Corporation of East Pakistan purchased 1,500 metric tons of seed in the Philippines. The Philippine Government in October reported that negotiations for sale of seed were under way with Israel, Saudi Arabia, the United Arab Republic, and Argentina.

The Government of India has initiated the All-India Coordinated Rice Improvement Scheme, a concerted national effort involving relevant state universities and departments of agriculture. A Foundation staff member serves as joint coordinator. Indian plant breeders have made many crosses of IR 8 with other lines to improve grain quality, to increase resistance to the bacterial leaf diseases, and to produce some early- and some late-maturing varieties of the IR 8 type. Pakistan, with the assistance of the Ford Foundation, recently initiated a rice production campaign based on the new varieties and practices from the International Rice Research Institute. Also with Ford Foundation help, Malaysia has undertaken a highly promising rice production effort. The Government of Thailand, with its well-organized Rice Department of the Ministry of Agriculture, is adapting some of the new technology to meet its own needs. Particularly, work is under way in the plant breeding division, of which the head is a Foundation staff member, on the development of short, stiff-strawed varieties with a grain type more suitable than that of IR 8 to Thailand's requirements.

IRRI AS A TRAINING CENTER

Training at the International Rice Research Institute has been designed to fill diverse needs. Programs range from short, intense orientation courses for foreign scientists, to training for extension workers and work for advanced degrees. During the early years of the research program, a great many young Asians were given training in management of rice for high yields, including all aspects of the use of stiff-strawed varieties, high levels of fertilizer, and control of pests. By October 1, 1967, 140 persons from 18 countries had completed from three to 30 months of research-oriented training at Los Baños; about one third of these earned M.S. degrees from the University of the Philippines' College of Agriculture. On October 1, another 34 were enrolled in similar departmental research programs. Initial

training activities of the Institute were designed to prepare young scientists to carry on rice research in their own countries.

One of the Institute's latest contributions is the development of an intensive training course for rice production specialists, established in June, 1964. The courses, varying in length from six to 12 months, have graduated 39 persons; in the second half of 1967 another 35 were enrolled. Rice workers in Asia, as well as persons from the technically advanced countries who are on assistance missions, also can be given one to two weeks of intensive training in the diagnosis of production problems, their solutions, and how to explain them to farmers. This program is production-oriented, with the objective of preparing extension specialists. During the first half of 1967, the Institute enrolled a total of 200 persons in seven one-week courses in tropical rice production. Included were 94 American agriculturists, 70 Filipinos, 19 agriculturists from East Pakistan, and five Institute research scholars in varietal improvement.

Since 1965, trainees in increasing numbers have been accepted from such rice-deficient countries as India, Pakistan, Indonesia, and Ceylon. Overall, representatives of 23 countries have been enrolled in training activities at the Institute. The countries which sent the greatest number of trainees are: Philippines 107, Thailand 26, Japan 20, Pakistan 18, India 17, Taiwan 16, Korea 9, Indonesia 7, and Ceylon 6.

OTHER SUPPORT

The Rockefeller Foundation contributes to world rice improvement primarily through its support to the Institute; it also engages in some related Foundation-supported and -directed activities. As already indicated, a Foundation staff member is serving as joint coordinator of the All-India Coordinated Rice Improvement Scheme, and another serves as head of the breeding division of the Rice Department of Thailand. In 1967, in addition, a Foundation staff member was assigned to Colombia to initiate the Inter-American Rice Improvement Project, whose goal is to bring to the western hemisphere the benefits of improved varieties and new practices.

SORGHUM

Sorghum, a well-known feed grain in the United States and Europe, is a major human food crop in India and parts of Africa. The Foundation has been providing the services of several of its staff members assigned to the Indian Agricultural Program, to assist with the All-India Coordinated Sorghum Improvement Scheme; one of the staff is serving as joint coordinator of this national effort. Initially, the Sorghum Improvement Scheme focused on the development of a world collection of varieties upon which a

breeding program could be based. Major attention then was given to the development of hybrids; two of these, CSH-1 and CSH-2, have now been released and are being grown on a commercial scale. More recently, efforts have been made to identify a number of high-yielding varieties from which the farmers could save their own seed; several of these appear promising. Two major insect pests, the shoot fly and the stem borer, are receiving the attention of entomologists in India, and studies of the important sorghum diseases are under way.

The response of sorghum hybrids and varieties to high levels of soil fertility is almost as dramatic as that obtained with the dwarf rice and wheat varieties—the new strains utilize most of the increased fertilizer applied for the production of grain rather than foliage.

During the months of December through April, following the monsoon rice crop, vast areas of Asia's prime cropland lie idle and brown. Three years ago a Foundation staff member at the International Rice Research Institute suggested that sorghum might produce well on the late rains and the reserve soil moisture if planted following the rice crop. Good results were obtained when sorghum was planted in November or December following the rice harvest and allowed to mature during the dry months as the rainfall declined to nearly zero in March and April. In addition, one or two productive ratoon crops can be grown by cutting off the plants just above the ground level following grain harvest—if fertilizer and some irrigation water are applied at that time. Results to date indicate that from four to six tons of rice and from 12 to 18 tons of sorghum grain can be produced in a year on one hectare of well-managed, irrigated land. There is now some realistic hope that sorghum could become a major crop in Southeast Asia as it is in India, Africa, and the United States.

The Foundation is cooperating with the Government of Thailand in the initiation of a national sorghum program to develop varieties tailored to the requirements of the Southeast Asian subcontinent and to train the necessary personnel in the management of the crop for high yields. Meanwhile, with support from the Foundation, the United States Department of Agriculture is undertaking a search of the back country of Ethiopia for strains of sorghum to be added to the world collection. The Foundation also is supporting a research project at the University of Nebraska to develop an understanding of the physiology of sorghum as it is related to yield under conditions of moisture stress.

POTATOES

During the past 15 years Mexico has trebled its production of potatoes, one of the five major food crop species. This remarkable progress occurred

as a result of development of high-yielding varieties resistant to the late blight disease, the use of higher levels of fertilizer, improved cultural practices, and the development of a certified seed potato program in Mexico. During this period, potato production became profitable in areas where the blight disease previously had made production too hazardous. The Foundation contributed significantly to these developments through its Mexican Agricultural Program and more recently through its International Potato Improvement Project.

The assured success of Mexico's potato program, now carried on by the National Institute of Agricultural Research (INIA), spurred cooperative efforts by other Latin American potato specialists. Latin American nations with progressive potato improvement programs include Guatemala, Costa Rica, Panama, Colombia, Ecuador, Venezuela, and Peru.

At the request of national leaders in Asia, the Foundation's potato specialist will now work on an international basis through the International Potato Improvement Project headquartered in Mexico.

SUMMARY

Striking as have been the successes in improving yields of the major food crops — rice, wheat, corn, sorghum, and potatoes — progress so far is still small compared with the magnitude of the problem. Much remains to be done to ensure adequate supplies of food for the rapidly expanding population of the world. Nevertheless, these dramatic results, to which Rockefeller Foundation programs have made important contributions, provide encouragement for the future, and the methods by which they have been accomplished form patterns for continuing and expanding efforts for the conquest of hunger.

ANIMAL SCIENCES

The prospects for increasing livestock production in the tropics are excellent. Although it is not possible to state with any precision what levels of productivity can be achieved by beef cattle in the lowland tropics, there is every indication that many of the factors that now limit production can be corrected. Research programs supported by the Foundation are gathering the data necessary to develop a new technology which, it is hoped, will make possible a comprehensive approach to tropical livestock production.

A crucial factor in livestock productivity is the level of nutrition. Malnutrition causes slow growth, high mortality, increased susceptibility to disease, and low reproductive efficiency. For this reason new techniques are being developed to ensure an adequate and continuous supply of nutrient resources. Intensive studies on the management and utilization of tropical

pastures and forages, including legumes, promise to increase the total yield and improve the quality of feed from these sources. Results of beef cattle feeding studies conducted to date in Colombia have clearly demonstrated the feasibility of using agricultural by-products and supplements available in the tropics to provide more complete and continuous nutrition to range cattle and thus avoid the serious losses caused by prolonged or periodic starvation. Remarkable progress has already been achieved in raising natality rates, reducing calf mortality, and accelerating growth rate simply by increasing the quantity and improving the quality of the ration.

Animal diseases continue to reduce the productive potential of livestock in the tropics by one-third to one-half. Failure to apply preventive measures is sometimes responsible, but effective measures against certain diseases are not available. Hemoparasitic disease research in Colombia is being strengthened by a unique program sponsored by the Foundation. Under a grant made this year, two members of the staff of the School of Veterinary Medicine at Texas A & M University are now on extended assignments in Colombia, collaborating with Foundation and Colombian scientists in the hemoparasite project. The grant also includes provision for support of graduate studies in tropical veterinary medicine. The first two graduate students from Texas A & M are now in Colombia doing their thesis research for M.S. degrees. Colleagues in Texas are preparing color transparency series of exotic animal diseases for use as training aids and reference material in veterinary schools.

In Chile, a grant to the Agricultural Research Institute will permit expansion of its program in animal sciences. (See University Development, page 86.)

MARINE BIOLOGY

Fish farming as an inexpensive means of producing protein-rich food in developing areas is the object of several projects supported by the Foundation. Research to increase the productivity of coastal ponds or impounded inland waters in Southeast Asia is being carried out under two grants made last year—one in Taiwan and the other in the Philippines.

Chile, as well as much of the rest of South America, has not been able fully to exploit its coastline as a food resource, in part because of a lack of trained manpower. This year a grant to the University of Washington, Seattle, which is one of the most important centers of fishery education in this country, extended support of fishery technology to the Catholic University of Valparaiso, Chile.

This grant, which provides for faculty exchanges and library development, will enable the Catholic University to expand the research and training

programs of its School of Fisheries. The School already has a well-planned curriculum in which scientific and technological studies are combined with practical experience; candidates for bachelor's degrees take academic work in fisheries technology, food processing, biochemistry, marine biology, and oceanography, and in addition spend at least three semesters on fishing boats and in fish canneries and a processing plant. A strong center in fishery education in Chile is needed not only to train more specialists to exploit that nation's ocean resources, but also to develop teachers for training centers in other Latin American countries.

INSTITUTIONAL DEVELOPMENT

In 1967 the Foundation inaugurated a new cooperative project with the Government of Colombia: the **International Center of Tropical Agriculture (CIAT)** with proposed headquarters at Palmira, near Cali. This new Center will be organized along the lines proven successful at the International Maize and Wheat Improvement Center in Mexico and the International Rice Research Institute in the Philippines. As in the case of IRRI and CIMMYT, the core operating costs of CIAT will be financed jointly by the Ford and Rockefeller Foundations. Its programs will be devoted to research on the improvement of tropical agriculture, in the hope of developing ways to exploit the vast unused tracts of land in the lowland tropics of this hemisphere for increased food production. Research will be focused on developing the potentials of the various tropical regions through assistance with crop and livestock programs, and training will be offered in tropical agriculture and animal science and related disciplines. Teams of scientists are now investigating the prospects for international improvements in beef and swine production and programs involving the grain legumes and root crops. Work on rice and corn has already been initiated.

CIAT is incorporated under Colombian law as an autonomous institute governed by an international board of trustees. The headquarters site is being provided by the Colombian Government on long-term lease at nominal cost. The Center is collaborating with scientists at the various experiment stations of the Colombian Institute of Agriculture and plans to develop working relationships with agricultural agencies in other countries of the tropics.

The Rockefeller Foundation also has continued work, in cooperation with the Ford Foundation, on the development of the **International Institute of Tropical Agriculture** at Ibadan, Nigeria, which similarly will be concerned with research and training related to agricultural development in the humid tropics. The legal basis for incorporation of the Institute has been provided by a decree issued by the Federal Military Government of Nigeria. Sub-

stantial development work has been done on the site which is being provided on a long-term lease by the Government of Nigeria. Architectural plans have progressed to the point where construction, staffing, and initiation of the research program can move forward rapidly as soon as the situation in Nigeria permits.

One of the most highly developed of the agricultural institutions serving the Caribbean islands and Central America is the Faculty of Agriculture of the University of the West Indies, located at St. Augustine, Trinidad. Two important projects now in progress at the Faculty, one in grain legumes and the other in root crops, were accelerated this year with support from the Foundation. Graduate students and technician trainees—about half from the West Indies and the rest from Latin America and Africa—will be working on these projects; candidates for advanced degrees will undertake at least a year of full-time research and will present the results to meet thesis requirements at the University.

The Faculty of Veterinary Medicine at the University of San Marcos in Lima, Peru, which has been receiving Foundation aid since 1949 and has developed into one of the strongest centers in Latin America for advanced studies in veterinary science, has this year initiated the first graduate degree program in this field to be offered by an institution in Latin America. Under a grant made this year, the University will continue its scholarship program and will create graduate assistantships leading to the M.S. or Ph.D. degree in veterinary microbiology, physiology, pathology, or clinical medicine.

Agricultural development programs in Thailand are closely related to the Foundation's efforts in the area of University Development (see page 84). Another important project, in which the Foundation is cooperating with the Government of Thailand and the University of Chiengmai, is the development of an international center for research into nutritional anemias and deficiency diseases, which are prevalent throughout Southeast Asia. Investigation of the many factors involved in these diseases will be combined at the center with training of nutritional scientists to serve Thailand and other countries of the region. A grant to Saint Louis University, which is providing staff for the program, will supply equipment to permit clinical investigations to get under way while the new center is being built.

In Chile Foundation activities are coordinated with the work of the Agricultural Research Institute, one of the three institutions receiving support under the University Development Program in Santiago (see page 86).

SCHISTOSOMIASIS CONTROL

Growing populations require increased utilization of land and water resources in many areas of the world. However, in many of the tropical lands

the impoundment and distribution of water to irrigate crops and generate power facilitates the spread of an endemic parasitic disease called schistosomiasis (or bilharzia in Africa). Sometimes characterized as the greatest unconquered plague, it is the result of infestation of man by worms which have complicated life cycles involving certain species of aquatic snails as intermediate hosts. Water pollution leads to the man-snail-man transmission cycle. Of the three species known to infest humans, *S. hematobium*, which has a predilection for the genito-urinary system, is prevalent in Africa; *S. mansoni*, which involves the intestinal tract, is endemic in the Middle East, Africa, some of the Caribbean islands, and the northeastern part of South America; and *S. japonicum*, which combines the effects in man of the two other species, affects large population groups in the Far East. At present, control is difficult and costly. Since schistosomiasis is widely found among agricultural workers and thus represents a barrier to increased productivity, The Rockefeller Foundation has initiated a program of research support with particular emphasis on field investigations in Africa and the Caribbean.

In Africa where new irrigation schemes are being developed on the Nile, Volta, Zambesi, and other rivers, there is increasing concern regarding the long-term effects of infestation due to *S. hematobium*. The disease is usually acquired in childhood and has been considered by some physicians to be an innocuous and self-limited process. Recently, however, Dr. Donald M. Forsyth of the London School of Hygiene and Tropical Medicine, with financial support from the Foundation, completed a three-year study of rural school children in Zanzibar, Tanzania, where 75 to 100 percent of school children are infested. Up to 35 percent have been shown by X-ray examination to have profound abnormalities of the urinary tract due to schistosomiasis. The extent to which these changes may be reversible with or without treatment remains a question. A grant to enable investigators in Nigeria to conduct long-term studies of similarly affected children has recently been made.

For the past two and one-half years The Rockefeller Foundation has been engaged in a collaborative project with the Government of St. Lucia, West Indies, concerning the problem of schistosomiasis due to *S. mansoni* on that island. St. Lucia, with a population of about 100,000, has an agricultural economy, with bananas as its major exportable product. Although schistosomiasis has been known to be present focally here for at least forty years, there is evidence to suggest a recent island-wide spread. Surveys conducted by Rockefeller Foundation staff members have demonstrated prevalence rates varying from 35 to 80 percent in school children. Studies are in progress to determine the effects produced by the worm on the population in terms of organ dysfunction and physical disability, and, in collaboration with

economists from the University of Wisconsin, on the productivity of agricultural workers. Surveys of the snail species, which act as the intermediate host, are under way to define transmission patterns. The long-range objectives of the project are to determine how and at what cost transmission can be interrupted and the disease brought under control.

ARID LANDS RESEARCH

A drastic but promising modification of conventional agriculture, developed by the University of Arizona and the University of Sonora, Mexico, may one day help to increase agricultural productivity of desert regions. Working together since 1965 with the aid of a Rockefeller Foundation grant, they have developed a closed system for supplying power, fresh water, and food. In the coastal desert community of Puerto Peñasco, a small village on the arid Mexican coast, researchers have developed a complex, unified plant that supplies electricity, desalinates sea water, and raises greenhouse crops.

The system is comprised basically of a diesel-powered generator, a desalting apparatus, and inflatable plastic greenhouses, ingeniously linked. Excess heat from the generator, which would normally be lost, is used to distill sea water for desalinization; the greenhouses are attached to the two other components in such a way that waste water from the desalting plant or cool water directly from the ocean can be used to control the inner temperature and humidity of the chambers, and carbon dioxide (obtained by purifying exhaust gases from the diesel engine) can be pumped into them to accelerate photosynthesis. Preliminary results indicate that throughout most of the year crops can be grown in this environment using only one to ten percent of the fresh water required to irrigate open fields. Certain crops may eventually be produced as economically as under conventional regimes.

The system may eventually prove useful as a core survival unit for small communities in regions now barely habitable. At the present time it is being applied chiefly for agricultural research to test for maximum yield capacities of major field and horticultural crops. The system also may point to ways of utilizing the wasted heat and carbon dioxide from existing power plants. It could be used as a basic design for a system of agricultural production applicable wherever there is a source of water, a source of waste heat, and enough land for plastic greenhouses.

Foundation assistance is also being provided to the Dry-Lands Research Institute of the University of California. In 1964, the University established this Institute at its Riverside campus, with the aid of a Foundation grant, for the purpose of stimulating research, training specialists, and offering consultation services in problems related to the development of arid and

semi-arid regions for agricultural production. Research is to be problem-oriented and interdepartmental, focused on such areas as water resources, plants for dry tropical and subtropical regions, plant and animal protection, and animal science. Attention is currently being given to arrangements for cooperative research and development projects in northern Mexico.

Both the Riverside and the Davis campuses train graduate students and postdoctoral fellows from institutions in arid regions of the developing countries. At the present time, 18 foreign Ph.D. candidates and three post-doctoral fellows are receiving scholarship aid under a previous grant.

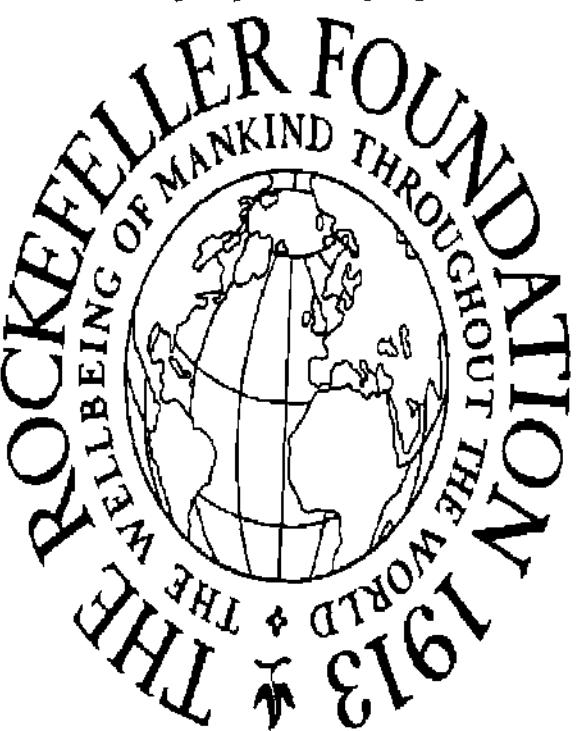
Larger harvests, critically needed for India's millions, are now reaching villages and towns throughout India. Major progress is today in sight through food-crop-oriented research and training given young Indian scientists at centers such as the Indian Agricultural Research Institute, with which the Foundation has long been associated.

INDIA: CROP-ORIENTED RESEARCH PAYS OFF

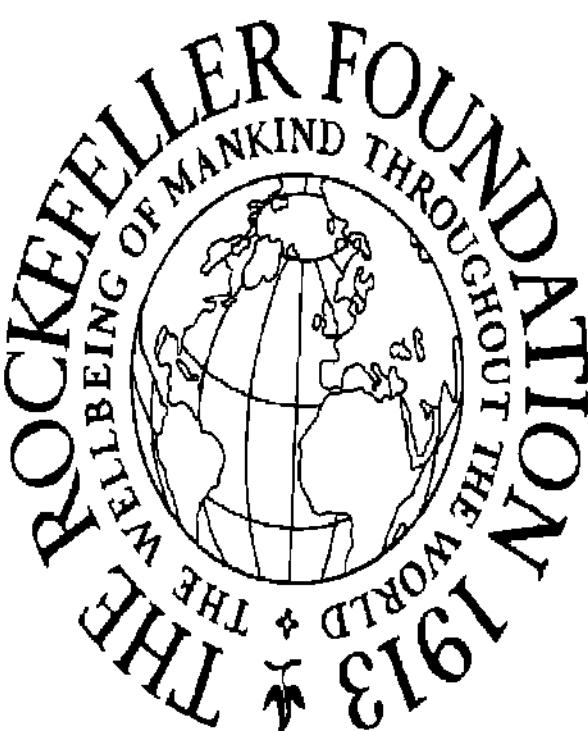


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Indian Agricultural Research Institute in New Delhi is major source of progress. Library (*above*), housing 160,000 volumes, is one of the best agricultural libraries in the East. Preparation of Institute's plots (*below*) is carried out by traditional and mechanical means as a first step to precise crop experimentation.



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Photograph Excised Here



Photograph Excised Here

Corn, grown on some 12 million acres in India, is becoming an increasingly important human food crop as improved varieties are being developed. A scientist (*below*) examines corn

stalk in constant study of diseases to which crop can be susceptible. Resistance can be developed through genetic manipulation; crops can also be protected through the use of chemical sprays.



Photograph Excised Here

Sorghum, a cereal like corn and wheat, is one of India's vital food and fodder grains because it can be produced in dry areas and has excel-

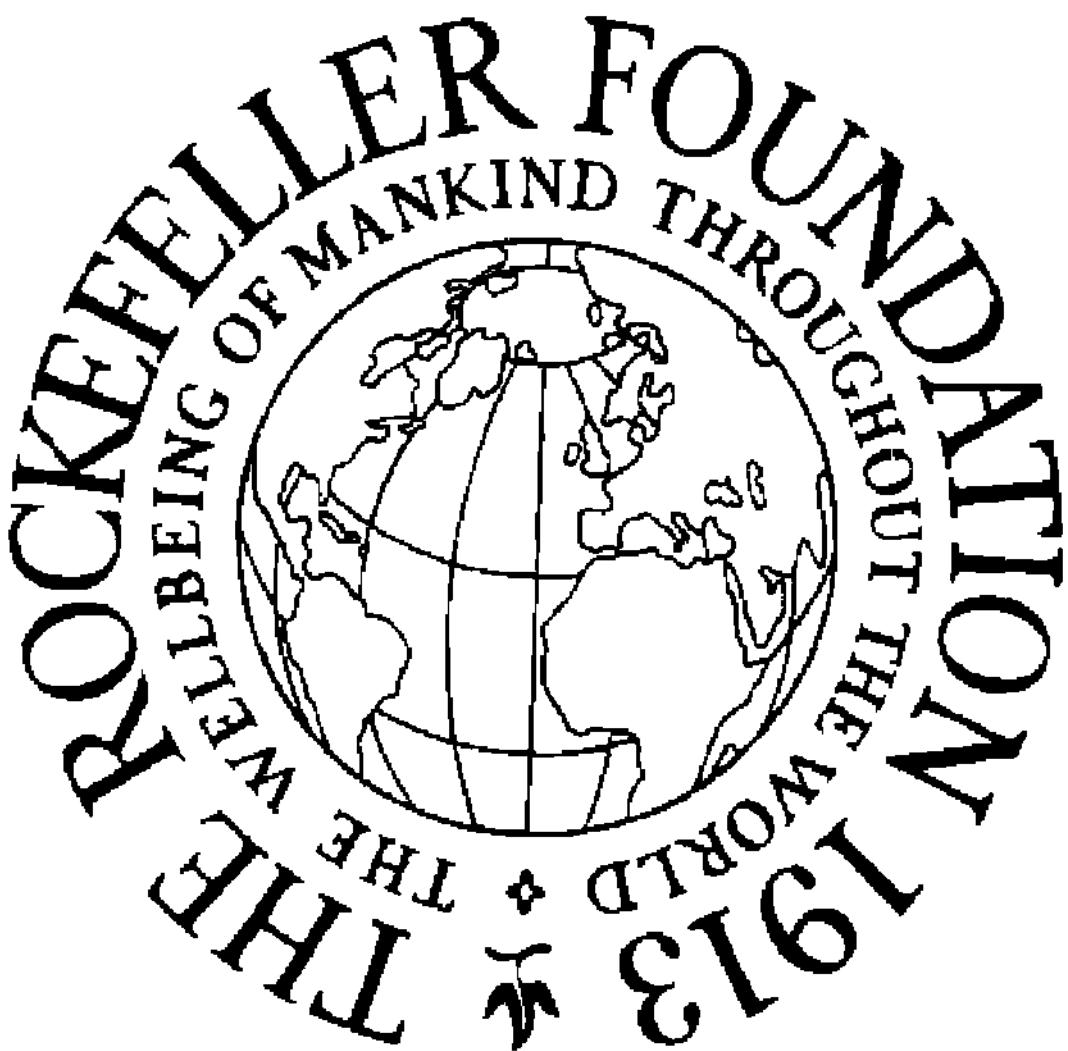
lent food qualities. Experiments with chemical insecticides point the way to maximum returns from newly developed varieties and hybrids.



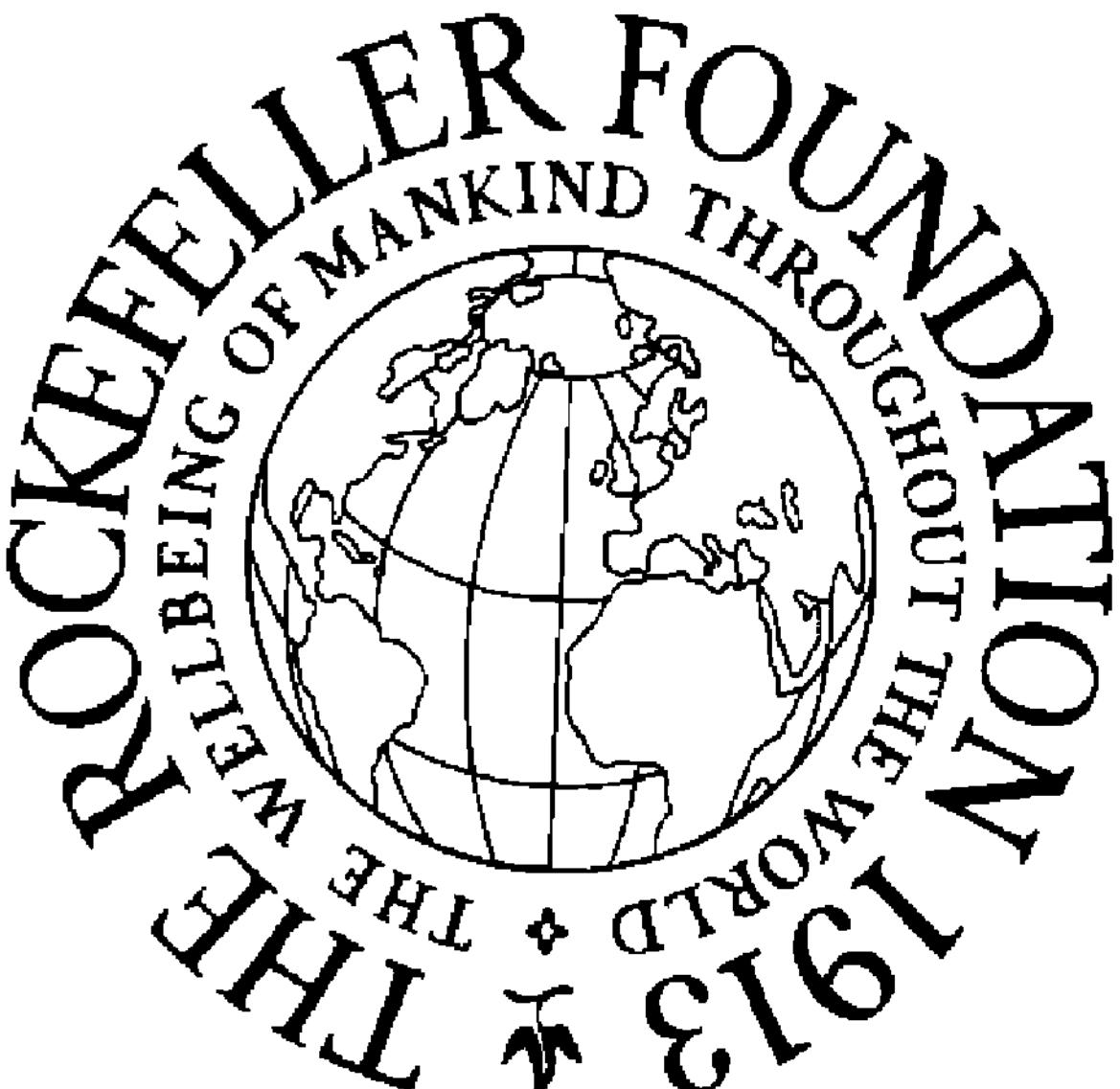
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An Indian scientist emasculates sorghum flower in cross-pollination experiment. Production of new varieties and hybrids for higher yields and

increased resistance to disease requires the meticulous care and strict attention to detail stressed at the Indian Agricultural Research Institute.



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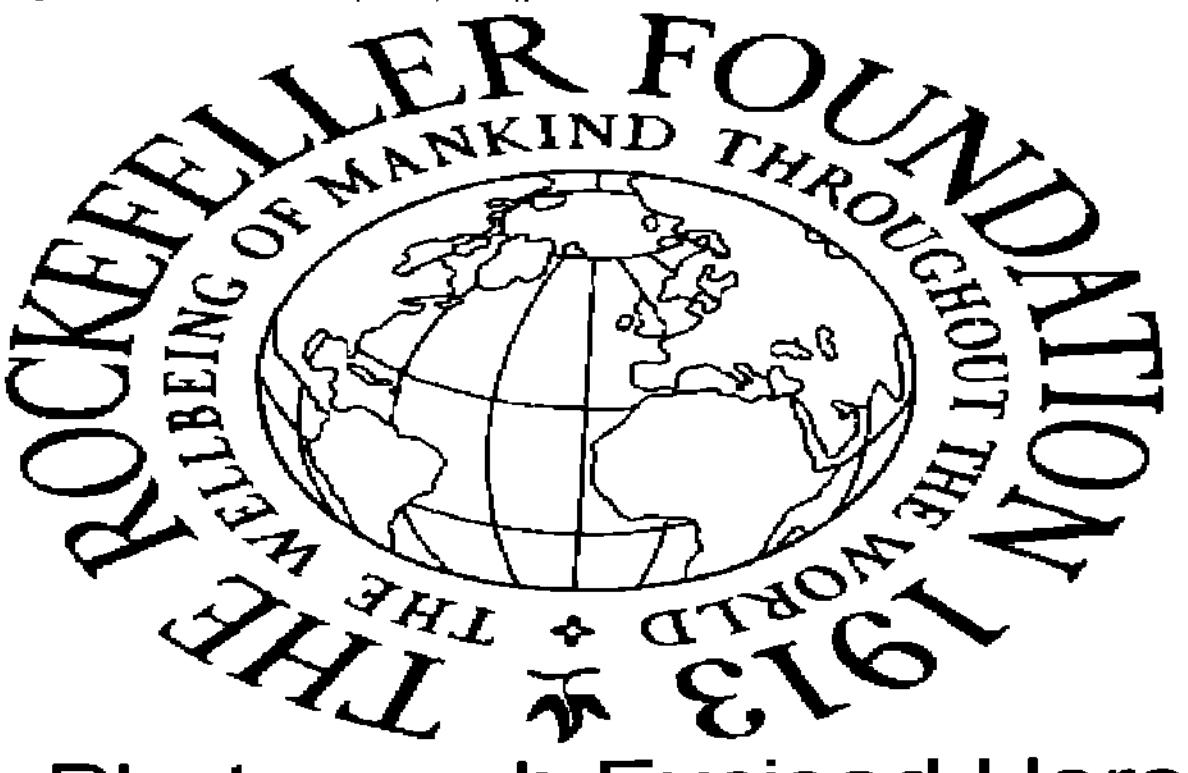
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Pearl millet (*left*) produces nutritious grain widely used throughout India: it is India's most drought-resistant cereal. A new hybrid now being introduced to farmers (*below*) has given

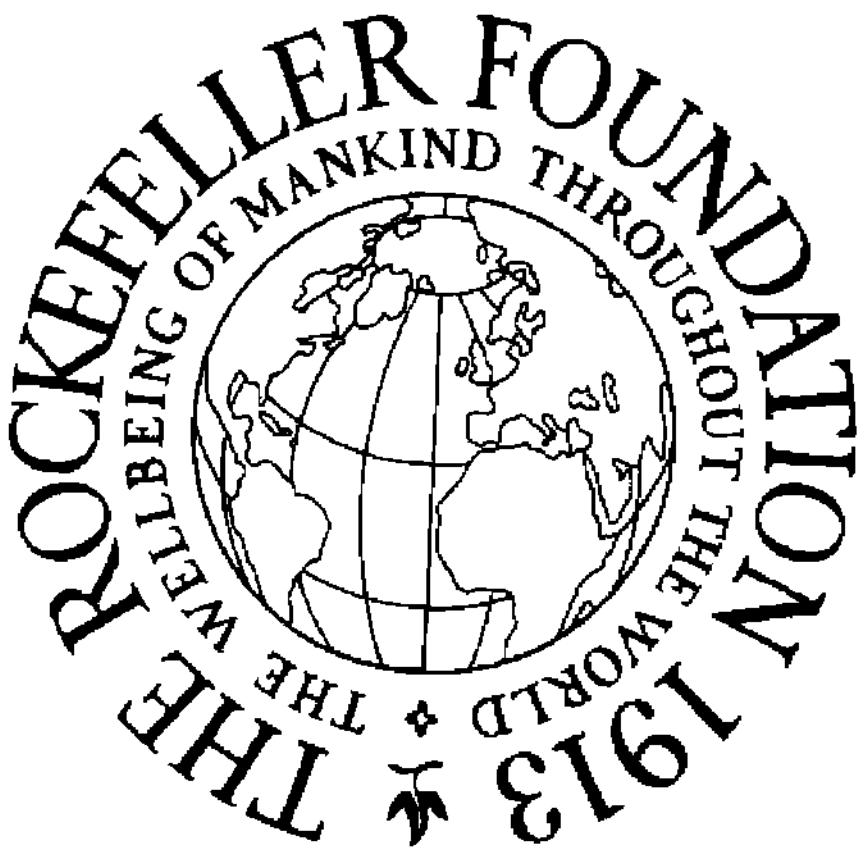
yields more than double those of the best local varieties. Finger millet (*above*), India's second most important type, figures importantly in southern areas as an alternate cereal to rice.



Photograph Excised Here

Rice is the most important staple food crop grown and used in India: 86 million acres planted to this crop produce about half of all

of India's cereal grain. The new variety IR 8 (*below*), developed in the Philippines, is finding an important place with Indian farmers.



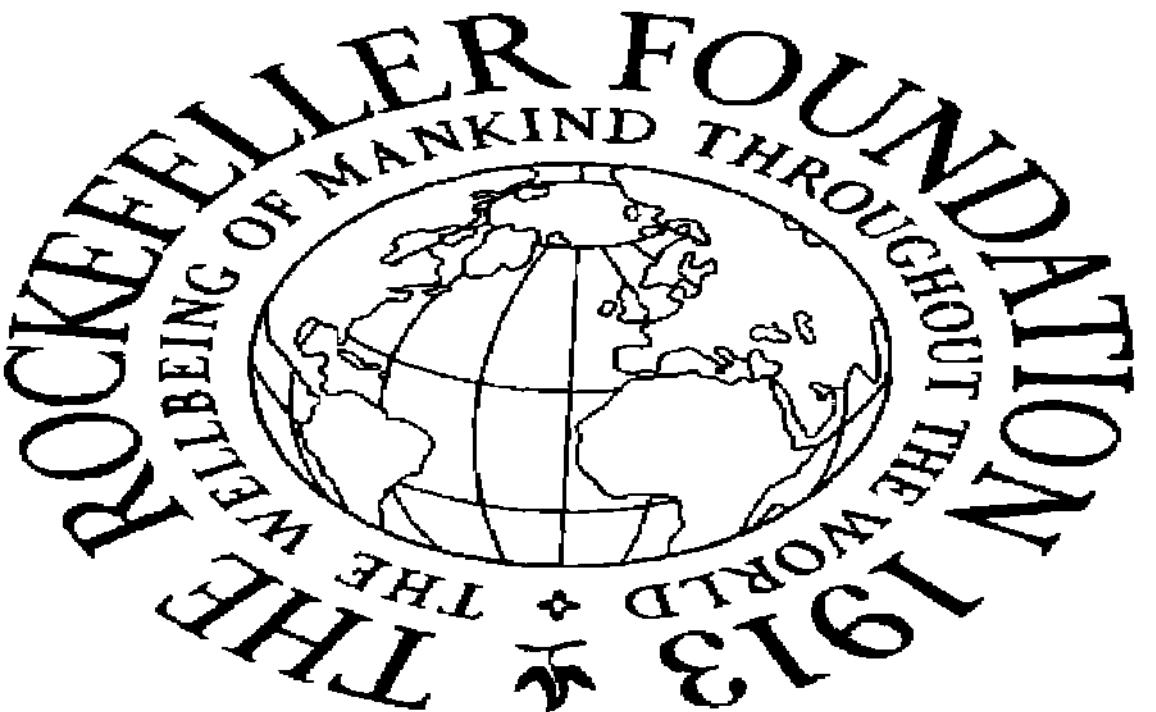
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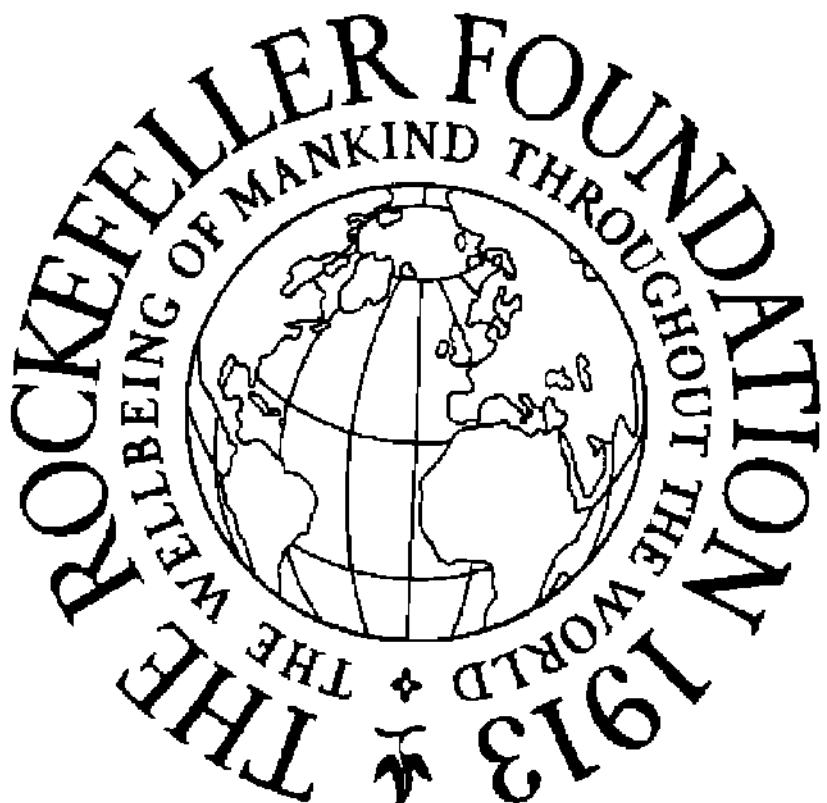
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Nets protect experimental rice fields from bird damage so that the relative performances of varieties can be accurately measured. *Below,*

scientists take precise measurements of light intensity in order to identify, as accurately as possible, the factors which limit rice production.



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Wheat is second only to rice as India's major food staple. In 1967 over five million acres were planted to high-yielding new varieties, in

part with seed developed in Mexico by Foundation scientists and their Mexican colleagues, and found to be adapted to conditions in India.



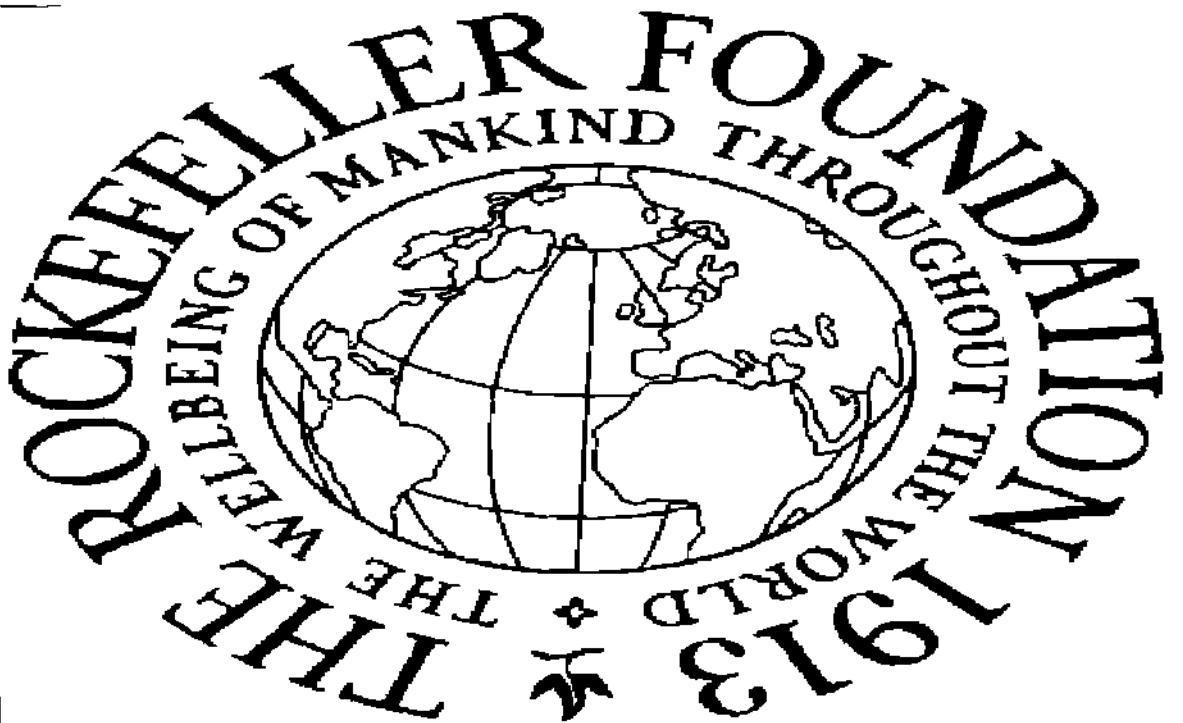
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devotion of Indian scientists to crop-oriented research (above, selecting plants for rust resistance) is paying off in larger harvests per

acre, and brighter prospects for Indian families. India is now technologically equipped to double her average wheat yield within a few years.



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GRANTS

TOWARD THE CONQUEST OF HUNGER

INTERNATIONAL

ROCKEFELLER FOUNDATION International Program in Agricultural Sciences:

Salaries, travel, and other expenses of Foundation field staff \$1,817,485

Programs

Colombian center	\$ 79,000
Indian Agricultural Program	382,000
Other regional activities	
Inter-Asian Corn Improvement Program—	
Thailand center	\$56,000
International Potato Improvement Project	24,000
Production and distribution of publications	80,000 125,000
TOTAL—Appropriations made in 1967	\$2,483,485

ROCKEFELLER FOUNDATION International Program in Field Research in Medical Sciences, Nutrition, and Population Problems:

Schistosomiasis research and control, St. Lucia, West Indies \$ 259,450

DR. MOHAMMED FAROOQ, retired World Health Organization official, Hyderabad, India; to participate in the Caribbean Bilharzia Committee meeting in January, 1968, in St. Lucia and to observe developments in schistosomiasis research and control there and in Puerto Rico; \$2,185;

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, Rome, Italy: toward provision of FAO liaison officers to India, Pakistan, and the Philippines, in connection with the Indicative World Plan for Agricultural Development; \$25,000;

INTER-AMERICAN INSTITUTE OF AGRICULTURAL SCIENCES, Turrialba, Costa Rica: toward operation of the permanent secretariat of the Inter-American Association of Agricultural Librarians and Documentalists; \$9,000;

DR. ALOIS MUDRA, Food and Agriculture Organization of the United Nations, Teheran: to visit wheat breeding research centers in North America and Europe; \$2,670;

WORLD ASSOCIATION FOR ANIMAL PRODUCTION, Rome, Italy: for use by its Organizing Committee toward support of the Second World Conference on Animal Production, to be held in July, 1968, at the University of Maryland; \$15,000 for an 18-month period;

ARGENTINA

ALBERTO LUIS CHABILLON, National Institute of Agricultural Technology, Paraná: to study wheat breeding techniques at wheat research centers in the United States and Canada; \$3,288;

BRAZIL

DR. KARL E. FEDERER, Pan American Foot-and-Mouth Disease Center, Rio de Janeiro: to study and identify major strains of foot-and-mouth disease virus at the Plum Island Animal Disease Laboratory, Greenport, New York; \$1,300;

DR. JOSE DE ALENCAR CARNEIRO VIANA and **DR. LEONIDAS MACHADO MAGALHAES**, Federal University of Minas Gerais, Belo Horizonte: to visit veterinary research centers in Peru and Colombia; \$2,700;

CANADA

UNIVERSITY OF MANITOBA, Winnipeg: program of research, in collaboration with the International Maize and Wheat Improvement Center, Chapingo, Mexico, on the development and utilization of wheat-rye hybrids; \$74,000 through October, 1970;

CHILE

FERNANDO ARANCIBIA, Agricultural Research Institute, Santiago: to observe seed certification organization and control systems in the United States and Mexico; \$2,770;

JUAN ESCUDERO BURROWS, Bank of the Republic of Chile, Santiago: to observe seed certification organization and control systems in the United States and Mexico; \$2,770;

UNIVERSITY OF CHILE, Santiago:

Research, under Dr. Fernando Mönckeberg, on malnutrition in infants and preschool children; \$15,000;

Equipment for nutrition research in the Department of General Biochemistry; \$7,200 for a two-year period;

UNIVERSITY OF CONCEPCION, Chillán:

University of California, Davis; appointment of Dr. Huib Toillenaar to assist with the plant pathology program; \$15,000;

Professor Guillermo Sims; to visit the International Rice Research Institute, Los Baños, Philippines, to explore possibilities of advancing the rice improvement program in Chile; \$2,475;

UNIVERSITY OF WASHINGTON, Seattle: development of a training program for staff members of the School of Fisheries of the Catholic University of Valparaíso; \$67,000 for a two-year period;

COLOMBIA

COLOMBIAN INSTITUTE OF AGRICULTURE, Bogotá:

Support of its teaching, research, and extension programs; \$920,350;

Dr. Guillermo Edmundo Gálvez-Enriquez; to obtain training in modern techniques of rice breeding at the International Rice Research Institute, Los Baños, Philippines, and to visit rice research centers in Thailand, Japan, and the United States; \$2,950;

Dr. Manuel Rosero; to obtain training in modern techniques of rice breeding at the International Rice Research Institute, Los Baños, Philippines; \$2,100;

ROCKEFELLER FOUNDATION International Program in Agricultural Sciences: Colombian program; *see International, above*;

TOWARD COSTS of establishing an International Center of Tropical Agriculture; \$110,000;

TOWARD COSTS of providing bibliographic support through George Washington University, Washington, D. C., to the International Center of Tropical Agriculture in Colombia; \$20,000 through December, 1969;

UNIVERSITY OF VALLE, Cali: purchase of an image intensifier for hemodynamics research in relation to nutrition; \$9,000;

COSTA RICA

UNIVERSITY OF COSTA RICA, San José: scientific equipment for bean virus research in the Faculty of Agronomy; \$20,730 for a two-year period;

ECUADOR

FABIAN PORTILLA ROCHA, National Institute of Agricultural Research, Quito: to visit centers of agricultural education and research in Latin America, the United States, the Far East, and West Pakistan; \$3,140;

GHANA

M. K. AKROSOE, Ghana Academy of Sciences, Kumasi: to study corn breeding at the International Maize and Wheat Improvement Center in Mexico and The Rockefeller Foundation's cooperative program in Colombia; \$3,000;

GUYANA

A. V. E. CHIN, Central Agricultural Station, Mon Repos, East Coast Demerara: to observe research in rice breeding and rice agronomy at the International Rice Research Institute, Los Baños, Philippines; \$2,325;

HARRY MADRAMOOTOO, Ministry of Agriculture and Natural Resources, Georgetown: to observe research in rice breeding and rice agronomy at the International Rice Research Institute, Los Baños, Philippines; \$1,840;

INDIA

CENTRAL RICE RESEARCH INSTITUTE, Cuttack:

Laboratory and field equipment; \$10,000;

S. Y. Padmanabhan; to visit plant pathology research centers in Japan and the Philippines; \$2,500;

DR. NALIN BANDHU DAS, Indian Agricultural Research Institute, New Delhi: to attend the Seventh International Congress of Biochemistry, in Tokyo, and to visit biochemistry laboratories in Japan and the International Rice Research Institute in the Philippines; \$1,665;

ROCKEFELLER FOUNDATION International Program in Agricultural Sciences: Indian program; see *International, above*;

DR. S. P. SINGH, Madhya Pradesh Agricultural University, Jabalpur: to visit centers of wheat research in Canada, Mexico, and the United States, and plant-breeding projects in Hawaii and the Far East; \$5,950;

CHIDANBARA SUBRAMANIAM, former Minister of Food, Agriculture, and Community Development, Government of India: to observe educational, scientific, and political institutions in the United States, Europe, and South Asia, supplementary to his trip to Mexico for the meeting of the trustees of the International Maize and Wheat Improvement Center, Chapingo; \$4,000;

TRAVEL EXPENSES for a team composed of the following Indian agricultural specialists to visit Sweden, the Netherlands, the United Kingdom, the United States, Japan, and the Philippines to review seed production and testing, and seed law enforcement; \$16,800:

Dr. H. R. Arakeri, Director of Agriculture, Government of Mysore;

B. R. Barwale, Maharashtra Hybrid Seeds Corporation, Jalna;

I. J. Naidu, Ministry of Food and Agriculture, Government of India;

C. G. Ramanathan, E. I. D. Parry & Company, New Delhi;

Dr. Anand Sawant, Maharashtra Hybrid Seeds Corporation, Jalna;

J. Veeraraghavan, National Seeds Corporation, New Delhi;

UTTAR PRADESH AGRICULTURAL UNIVERSITY, Pantnagar: construction of a hostel to accommodate international students training with the Inter-Asian Corn Improvement Program; \$20,000 for a three-year period;

JAPAN

HOKKAIDO UNIVERSITY, Sapporo: studies, under the direction of Dr. Akira Tanaka, on the physiology of corn; \$10,000 for a two-year period;

DR. HIROKO MORISHIMA OKINO, National Institute of Genetics, Misima: to study new methods in statistical biology at the University of Kansas and other United States institutions; \$2,550;

KENYA

A. Y. ALLAN, Maize Research Station, Kitale: to visit corn research centers in North America; \$1,600;

EAST AFRICAN COMMON SERVICES ORGANIZATION, Nairobi: toward expenses of the Director's Office, East African Agriculture and Forestry Research Organization; \$11,000 through June, 1969;

EGERTON COLLEGE, Njoro: toward appointments for African staff members; \$15,000;.

MINISTRY OF AGRICULTURE AND ANIMAL HUSBANDRY, Nairobi: support of an agricultural education commission; \$6,200;

UNIVERSITY COLLEGE, Nairobi (University of East Africa):

Research on the physiology and endocrinology of the tsetse fly; \$10,000;

Dr. Marcus S. Brooke, Glasgow, Scotland; to teach and assist in the immunology programs of the Faculty of Veterinary Science; \$2,615;

Dr. Don W. Fawcett, Harvard Medical School, Boston, Massachusetts; travel to Africa for lectures at the Faculty of Veterinary Science and professional consultations there and at Makerere University College, Kampala, Uganda; \$2,225;

Dr. W. I. M. McIntyre, University of Glasgow, Scotland; teaching and consultations at the Faculty of Veterinary Science; \$1,875;

Dr. G. M. Urquhart, University of Glasgow, Scotland; to serve as a consultant for the helminthology programs in the Faculty of Veterinary Science; \$1,675;

LEBANON

DR. JOSEPH HARAOUI, Agricultural Research Institute, Tel Amara, Rayak: to visit Rockefeller Foundation cooperative agricultural programs in North and South America; \$2,700;

MEXICO

INTERNATIONAL MAIZE AND WHEAT IMPROVEMENT CENTER, Chapingo:

Toward its 1968 operating costs and toward support of the Central American Corn Improvement Project during 1968; \$400,000;

Toward development of its headquarters, including site preparation, building plans, construction, and equipment; \$360,000;

Pilot program for the promotion of increased corn production in the State of Puebla; \$100,000 for a three-year period;

Toward interim support for a regional corn improvement program centered in Kenya; \$50,000;

NATIONAL INSTITUTE OF AGRICULTURAL RESEARCH, Chapingo:

Dr. Hermilo Angeles Arrieta and Aquiles Carballo Carballo; to present research papers at the Latin American Association of Plant Science meetings in Caracas, Venezuela; \$1,200;

Pablo Velásquez G.; to participate in a conference held in October, 1967, in Lima, Peru, on the Inter-American Program for Agricultural Library Development; \$575;

NATIONAL SCHOOL OF AGRICULTURE, Chapingo:

Dr. Oscar Brauer H.; to serve as consultant to the University of the West Indies, St. Augustine, Trinidad, and to participate in the Latin American Association of Plant Science meetings in Caracas, Venezuela; \$1,415;

Dr. Eduardo Casas Díaz; to present research papers at the Latin American Association of Plant Science meetings in Caracas, Venezuela, and at the American Society of Agronomy meetings in Washington, D. C.; \$1,090;

Jesús Martínez-Reding Jiménez; to participate in the Latin American Association of Plant Science meetings in Caracas, Venezuela; \$600;

Dr. Roberto Núñez Escobar; to present two research papers at the American Society of Agronomy meetings in Washington, D. C., and to visit the United States Department of Agriculture, Beltsville, Maryland; \$515;

ROCKEFELLER FOUNDATION International Program in Agricultural Sciences: International Potato Improvement Project; see *International, above*;

UNIVERSITY OF SONORA, Hermosillo: support of horticultural and agronomic crop research in controlled-environment greenhouses, in cooperation with the University of Arizona; \$145,000 through September, 1970;

NATIONAL REPUBLIC OF CHINA

JOINT COMMISSION ON RURAL RECONSTRUCTION, Taipei, Taiwan: study of the effect, on the children born to chronically undernourished women, of protein supplementation of the diet during pregnancy; \$25,000;

NIGERIA

DAVID ANDREWS, Ahmadu Bello University, Samaru: to visit sorghum research centers in India and East Africa; \$2,050;

NNAOKE OKERE ARUNSI, University of Nigeria, Nsukka: grant supplement to visit agricultural libraries in the United States and Europe and to take training at the library of Michigan State University, East Lansing; \$180;

UNIVERSITY OF IBADAN: toward costs of renal function studies on children infected with schistosomiasis, under Dr. A. O. Lucas and Dr. O. O. Akinkugbe, Department of Preventive and Social Medicine; \$25,000;

PERU

HUCO A. PACHECO, National University of Cuzco: to attend the Latin American Association of Plant Science meetings in Caracas, Venezuela, and to visit the Foundation's cooperative agricultural program in Colombia; \$910;

UNIVERSITY OF SAN MARCOS, Lima: toward the costs of an international graduate program in the Faculty of Veterinary Medicine; \$115,000;

PHILIPPINES

INTERNATIONAL RICE RESEARCH INSTITUTE, Los Baños:

Toward its operating costs during 1968; \$472,275;

Research on the protein quality of rice; \$40,000;

To enable eight Indian rice specialists to study in its research program and to visit Taiwan's rice research and production centers; \$12,000;

Training awards for four Indian scientists; \$10,000;

UNIVERSITY OF THE PHILIPPINES, Quezon City: toward establishing a schistosomiasis research laboratory, under the direction of Dr. Ernesto O. Domingo, in the College of Medicine; \$15,000;

DR. THEODORE WASSERMAN, Western Regional Utilization and Development Laboratory, Albany, California: to advise the Government of the Philippines on grain-drying facilities; \$6,400;

POLAND

POLISH ACADEMY OF SCIENCES, Warsaw: toward the purchase of an automatic amino-acid analyzer for the Institute of Animal Physiology and Nutrition; \$4,000;

ST. LUCIA

MINISTRY OF EDUCATION, HEALTH, AND SOCIAL AFFAIRS, Castries: training at the University of the West Indies, Jamaica, for a laboratory assistant from the Research and Control Department, Castries; \$1,450;

SENEGAL

CLAUDE ETASSE and DJIBRIL SENE, Center for Agronomy Research, Bambey: to visit centers of cereal crop research in India; \$4,680;

SUDAN

UNIVERSITY OF KHARTOUM:

Dr. Mohamed El Amin Abu Sineina; to visit livestock artificial insemination centers in North America, Europe, and Kenya; \$3,700;

Dr. Saad Ahmed Beshir Abbadi; to visit horticultural research stations in Ecuador, Honduras, Trinidad, and the United States; \$3,500;

SWEDEN

DR. THORE DENWARD, University of Lund: to visit potato research centers in North America; \$5,500;

THAILAND

MRS. RATCHANEE KAMCHANOMAI, Thai National Documentation Centre, Bangkok: to visit libraries and to receive in-service training in documentation techniques at institutions in the United States; \$4,610;

ROCKEFELLER FOUNDATION International Program in Agricultural Sciences: Inter-Asian Corn Program; see *International, above*;

SAINT LOUIS UNIVERSITY, Missouri: purchase of equipment and renovations for the Anemia and Malnutrition Research Center, University of Chiengmai; \$30,000 through December, 1969;

UNIVERSITY OF MISSOURI, Columbia: to enable Damrong Silapachai, Ministry of Agriculture, Bangkok, to continue his training in the ecology of food fishes; \$5,095 for a 14-month period;

TRINIDAD

UNIVERSITY OF THE WEST INDIES, St. Augustine:

Toward support of accelerated food crop research programs and of a postgraduate studies program in its Faculty of Agriculture; \$300,000 for a three-year period;

Toward the costs of an international symposium in the School of Agriculture on tropical root crops; \$10,000;

Dr. Nazeer Ahmad; to observe research in rice breeding and rice agronomy at institutions in the Philippines and India; \$2,260;

Professor Egbert A. Tai; to visit the University of Hawaii for consultation and work in tropical horticulture; \$1,025;

TUNISIA

MOHAMED-HABIB AOUNALLAH, Secretariat of State for Agriculture, Tunis: to observe wheat production and research at centers in the United States and at the International Maize and Wheat Improvement Center in Mexico; \$2,120;

PHILIPPE AURIAU and **ALI RIDHA MAAMOURI**, Institut National de la Recherche Agronomique de Tunisie, Ariana: to observe wheat production and research at centers in the United States and at the International Maize and Wheat Improvement Center in Mexico; \$4,240;

TURKEY

UNIVERSITY OF NEBRASKA, Lincoln: to provide a visiting teacher in nutritional science to the Hacettepe Science Center, Ankara; \$12,000;

UGANDA

MAKERERE UNIVERSITY COLLEGE, Kampala (University of East Africa):

Research on schistosomiasis under the direction of Dr. David J. Bradley and Dr. George Kinoti, Department of Preventive Medicine; \$12,500;

Richard S. Musangi; travel to England to complete his Ph.D. and to the United States to study teaching and research techniques in animal nutrition; \$3,740;

Dr. Willem Hendrix Boshoff; to visit universities and manufacturers of agricultural machinery in Germany, England, and the United States to investigate the possibilities of using small tractors in the tropics; \$3,020;

UNITED ARAB REPUBLIC

DR. T. M. ABDEL-HAK and **DR. S. M. DESSOUKI**, Ministry of Agriculture, Cairo: to visit wheat breeding research centers in North America and Europe; \$5,560;

UNITED KINGDOM

G. E. MARKS, John Innes Institute, Hertford, England: to work with wild *Solanum* species and collected material at the National Institute of Agricultural Research and the Graduate School of the National School of Agriculture, Chapingo, Mexico; \$630;

OVERSEAS DEVELOPMENT INSTITUTE, London, England: support of research on rural development; \$15,000;

UNIVERSITY OF READING, England: travel expenses of members of the steering committee for an international colloquium to assess agricultural programs in developing countries; \$2,500;

UNITED STATES

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, Washington, D. C.: toward an international conference on arid lands to be held at the University of Arizona in June, 1969; \$25,000 through December, 1969;

AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES, Washington, D. C.:

Toward the costs of the XI International Botanical Congress to be held in Seattle, Washington, in mid-1969; \$25,000;

Toward the costs of publication of the proceedings of the 17th International Horticultural Congress, held in the United States in mid-1966; \$4,700;

CROP SCIENCE SOCIETY OF AMERICA, Madison, Wisconsin: publication of a monograph, *Mutants of Maize*; \$6,000 for a two-year period;

DR. WARREN C. FOOTE, Utah State University, Logan: to assist in research and training programs relating to reproductive physiology in sheep and cattle in Peru and Colombia; \$1,355;

GEORGE WASHINGTON UNIVERSITY, Washington, D. C.: toward the costs of preparing selected bibliographies on corn and on wheat, to be carried out by the University's Biological Sciences Communication Project; \$100,300 through February, 1970;

GULF COAST RESEARCH LABORATORY, Ocean Springs, Mississippi: studies, under the direction of Dr. Walter Abbott, on inorganic nutrient assimilation rates in estuarine ponds; \$14,360;

NATIONAL ACADEMY OF SCIENCES—NATIONAL RESEARCH COUNCIL, Washington, D. C.: toward the cost of exploratory studies by the Agricultural Board of its Division of Biology and Agriculture; \$15,000 for a two-year period;

NATIONAL INDUSTRIAL CONFERENCE BOARD, New York: conference on "The World Food Problem: Private Investment and Government Cooperation"; \$15,000;

DR. OLIVER E. NELSON, JR., Purdue University, West Lafayette, Indiana: to participate in the 1967 Inter-Asian Corn Improvement Conference in Lahore, Pakistan, and to visit the Foundation's cooperative programs in India, Thailand, and the Philippines; \$2,450;

OKLAHOMA STATE UNIVERSITY, Stillwater: research in the Department of Animal Science on the nutrition of ruminant animals; \$15,000;

PURCHASE AND DISTRIBUTION of 2,000 copies of *Campaigns Against Hunger* by Dr. E. C. Stakman, Dr. Richard Bradfield, and Dr. Paul C. Mangelsdorf; \$9,400;

PURCHASE OF 800 copies of *The Sorghum Bibliography*, and distribution to research workers and agricultural institutions in the developing countries; \$4,160;

Grants—Conquest of Hunger

PURCHASE OF 500 copies of *Primer for Agricultural Libraries*, published by the International Association of Agricultural Librarians and Documentalists, and distribution to agricultural institutions and libraries in the developing countries; \$1,750;

RUTGERS, THE STATE UNIVERSITY, New Brunswick, New Jersey: research by E. Lee Husting on the epidemiology of schistosomiasis; \$10,000;

"STRATEGY FOR THE CONQUEST OF HUNGER" symposium: costs of meetings to be held in New York in April, 1968; \$57,000;

STUDY OF GENETIC VARIABILITY IN THE SORGHUM SPECIES and collection of samples, with particular reference to Ethiopian sorghums, to be undertaken by staff members of The Rockefeller Foundation and the Agricultural Research Service of the United States Department of Agriculture; \$10,000 for a three-year period;

TEXAS A & M UNIVERSITY, College Station: support of its research and training program in tropical veterinary medicine; \$430,000 for a three-year period;

UNIVERSITY OF ARIZONA, Tucson:

Support of research, in cooperation with the University of Sonora, Mexico, on a food-, water-, and power-production system for coastal desert areas and the development of a controlled-environment research facility for agricultural production; \$355,000 through September, 1970;

Carl Hodges; to visit the Far East, the Middle East, and Europe to present reports and to conduct seminars on the University's food-, water-, and power-production program; \$2,725;

UNIVERSITY OF CALIFORNIA:

Davis

Research in the Department of Agricultural Zoology on anatomical adaptation for cellulose digestion in herbivores; \$1,631;

Riverside

Dry-Lands Research Institute; toward development of its graduate and postdoctoral training program and of an international research program; \$280,000 through December, 1970;

San Francisco

Dr. Paul F. Basch and Dr. Lie Kian Joe, San Francisco Medical Center; to observe developments in schistosomiasis research and control in Puerto Rico and St. Lucia, and to attend a conference in New York; \$2,150;

UNIVERSITY OF MINNESOTA, Minneapolis: preparation of a book, by Dr. Clyde M. Christensen, on biological factors affecting the quality of stored grains and seeds; \$6,000 for a two-year period;

UNIVERSITY OF WISCONSIN, Madison:

Toward support of a research project, in cooperation with the Colombian Institute of Agriculture, Bogotá, on the nature of resistance to bacterial wilt in tuber-bearing *Solanums*; \$12,000;

Dr. J. C. Walker; to participate in a symposium on the virus diseases of rice, held at the International Rice Research Institute, Los Baños, Philippines; \$1,600;

Dr. P. R. Rowe; to visit the National Institute of Agricultural Research and the Graduate School of the National School of Agriculture, Chapino, Mexico, and the Colombian Institute of Agriculture, Bogotá, for consultations on the Inter-American *Solanum* Germplasm Project, and to participate in potato workers' group meetings in Caracas, Venezuela; \$1,430;

Douglas E. Yen, B. P. Bishop Museum, Honolulu, Hawaii: to visit institutions in the United States and Haiti to continue research on the sweet potato; \$1,150;

URUGUAY

Dr. Osvaldo L. Paladines, Inter-American Institute of Agricultural Sciences, La Estanzuela: to participate in the 4th Symposium on Energy Metabolism, in Poland, and to study recent developments in forage evaluation and energy utilization in Europe, Great Britain, and the United States; \$1,000;

WEST INDIES

COOPERATIVE PROJECTS in schistosomiasis research and control in St. Lucia; see *International*, above.

UNIVERSITY DEVELOPMENT

Throughout its history, The Rockefeller Foundation has maintained close relationships with a large number of universities overseas. In 1963 the decision was reached to select certain outstanding institutions in the developing world for broad, long-term support. It was thought that the Foundation, with relatively limited resources, could best aid higher learning on these continents by concentrating on a small number of institutions and helping to build them into centers where graduate studies, research, and training could have a significant impact on an entire region. Many approaches have been taken toward the development of these universities; one of the most valuable has been to make available visiting faculty to assist the strengthening of specific disciplines. Administrative consultants and other specialists to work with university officials on general organizational problems have also been provided when needed and requested. In most cases a Foundation representative attached to the university works with university leaders to establish priorities and to explore ways in which the Foundation's assistance can be most effective. Grants have then been made for such purposes as specific research projects, scholarship programs to enable junior faculty members to obtain advanced degrees abroad, provision of laboratory equipment, experimental-farm development, curriculum revision and designing of graduate degree programs, library development, and faculty exchange programs with British, Canadian, and United States institutions.

The Foundation's University Development Program is closely bound up with the economic and social development of each country. Considerable emphasis in Foundation support is therefore being given to food production, economic planning, population problems, and public health. In several of the university centers, programs initiated with Foundation funds are attracting financial support from local government or private sources, from international organizations, from United States Government agencies, or from other foundations. In many cases, Foundation-initiated projects have been absorbed by the universities themselves. Thus the very effective drama program at the University of Ibadan, Nigeria, will be taken over by the Department of Fine Arts in the University's next five-year plan. In Bangkok, where library development has been an aspect of the Foundation's program, the United States Operations Mission this year set up a fund for library purchases for Thai universities. In Colombia, the population program at the

University of Valle has attracted support from both private and University sources. The World Health Organization-Pan American Health Organization has designated the Department of Pathology at the University of Valle as part of a regional training center, and funds have been provided by the W. K. Kellogg Foundation. Economic research projects are undertaken at the University of East Africa's three constituent Colleges in cooperation with the Governments of Kenya, Tanzania, and Uganda and private industries within those countries. The research activities have also attracted support from the British, Norwegian, Danish, and West German Governments. In this way the Foundation's support has an accelerator effect far greater than the specifics of any given project, and once a program is attracting supplementary assistance, Foundation attention can be given to strengthening other disciplines and departments.

One long-range purpose of university development efforts is to enable nations to offer advanced-degree programs for their own most gifted scholars, so that they will not have to rely on foreign training for their future professional, government, and business leaders. Great concern has been expressed over the so-called "brain drain" in the developing countries, which is in part traceable to the fact that students who go abroad for advanced training often decide not to return home, where their talents are critically needed. Strong local or regional centers of postgraduate training may do much to alleviate this situation. In all of the institutions receiving support, graduate degree programs in different disciplines are gradually being built up, often with the help of visiting faculty appointed for that purpose.

Institutions receiving long-range support from the Foundation include the University of Ibadan, Nigeria; the University of Valle, Cali, Colombia; the University of the Philippines; a complex of universities in Bangkok, Thailand; a complex of institutions in Santiago, Chile; and the University of East Africa with its three constituent Colleges in Kenya, Tanzania, and Uganda.

UNIVERSITY OF IBADAN

The University of Ibadan in 1967 maintained an outstanding record by international academic standards, in spite of Nigeria's political conflicts. The Rockefeller Foundation continued to assist the overall development of the University and to furnish aid to specific projects. This year the Foundation provided a special consultant to the Academic Office to help with organization procedures and processing of student records. A chief accountant was also provided to help carry out recommendations made last year by a survey team which reviewed administrative and accounting procedures of the University.

The Computing Centre has proven to be an aid of increasing importance

to teaching and research programs throughout the entire University. Under the leadership of a visiting faculty member assigned by the Foundation, the Centre was reorganized this year and now is working at full capacity. In addition to training students in programming and in the use of computing and data processing equipment, the Centre provides an invaluable aid to research by staff and students in the fields of science, agriculture, and medicine, and in the Nigerian Institute of Social and Economic Research. With future development of graduate studies in mathematics and statistics, the University will be in a strong position to train systems analysts and other specialists in computer science who will be increasingly in demand with the advance of industrialization in Africa.

The Faculty of Agriculture, Forestry, and Veterinary Science continued to receive support specifically in the fields of animal nutrition, plant breeding, and related disciplines. This Faculty began to act during the past year on recommendations made by a Foundation team of consultants, to reorganize teaching and research and to build a more efficient physical plant.

Assistance continued in the Departments of Sociology and Geography, with the provision of visiting professors and support of faculty exchange. The Nigerian Institute of Social and Economic Research, which works closely with the Faculty of Social Sciences, received a grant for a conference on economic research in Africa, which was attended by directors of centers of economic and social research from several African countries. A wide range of subjects was covered, and extensive reports of the proceedings were published for distribution.

The fields of nursing and medicine were also aided in faculty development and research by new grants made this year.

The University is going forward with formulating its second five-year plan for future development—1969-1973. It intends to assume responsibility for maintaining and expanding projects launched with Rockefeller Foundation aid during the first quinquennium, several of which have been eminently successful. One such project, the Reading Centre in the Faculty of Arts, continued to operate under a grant made the previous year. It was created to help first-year students in all the faculties of the University improve their reading skills in English; it also has undertaken research to develop more effective methods of teaching reading, and is training reading specialists. The language laboratory, another Foundation-supported project, was established to facilitate the teaching of Arabic and Nigerian languages to beginners, and to improve spoken English.

During the University's first five-year plan, the Department of Fine Arts received major support for the development of its School of Drama, which has evolved an extremely effective program in the performing arts. It has

made important contributions to the development of the contemporary African theatre, as well as to radio and television; its Arts Theatre is Nigeria's first modern theatre, and, in addition, it is responsible for the creation of the popular Students' Travelling Theatre. The School has done much to develop Nigerian material for radio, television, and theatre and has prepared students for careers in the performing arts and the communications field.

The Institute of African Studies, founded in 1963 with Foundation aid, has done useful work in archaeology, anthropology, Nigerian languages, and oral literature and is participating in Northern and Eastern Historical Schemes. It has been instrumental in ensuring adequate coverage of African material in the curricula of various departments of the University.

Another Foundation-supported undertaking which has continued to grow in importance is the Ibarapa Project. It consists of the Igbo-Ora Health Centre and an associated medical students' campus. In addition to providing clinical services to surrounding communities, it is an important research center for gathering data on a great variety of rural health problems, and serves to train medical students oriented toward community health and social and preventive medicine. So important are these fields in Nigeria that all medical students at the University are required to spend two months in residence at the Centre. Summer courses in tropical medicine have attracted students from abroad, and plans are under way for expanding this program.

The virology program at the University is staffed by three Foundation members who are proceeding with research on the arboviruses, with emphasis on tick-borne viruses which are thought to be connected with livestock losses in West Africa. A laboratory was provided by the Foundation for the program, which is part of its worldwide investigations of the arthropod-borne viruses. This laboratory will eventually be available for other virus research projects under University or other auspices.

UNIVERSITY OF VALLE

One of the outstanding characteristics of the University of Valle is its concern and involvement with the problems of the city of Cali and the State of Valle. The Cauca River valley in southwestern Colombia is a rapidly developing area, both in agriculture and industry; it also has one of the fastest-growing populations in the world. The University is assuming responsibilities in many aspects of regional development—in health services both in the city and in rural areas; in population studies and family planning; in engineering, commercial, and agricultural consultation and services; in urban planning; and in upgrading pre-university education. It is also a pace-setter for Latin America in some aspects of university education and administration.

Its School of Medicine, though established less than 20 years ago, so rapidly assumed a position of potential prominence in medical education in Latin America that it attracted Foundation support as early as 1953. Like other Latin American universities, the University of Valle consisted of professional faculties into which students were admitted directly from secondary schools. With assistance since 1961 under the Foundation's University Development Program, the University of Valle has undergone a series of administrative and curricular reforms. An important element was the initiation in 1963 of a general studies program required of all entering students. Successful completion of basic studies in the humanities and sciences is now required before students are permitted to take course work in the professional faculties.

During the past year, a number of significant gains were made in the University's program. Dr. Alfonso Ocampo Londoño, former Minister of Education of Colombia, was appointed rector in late 1966 and has provided energetic leadership. Through Dr. Ocampo's efforts, support to the University from local private sources has been substantially increased. Plans have been developed for a new University City campus on the outskirts of Cali. Total enrollment, which is now 4,000 students, has increased 300 percent in the past two years. This year for the first time, students received degrees in education and in philosophy, letters, and history, and, for the first time in Colombia, in sanitary engineering. In the Faculty of Economics and Social Sciences, Foundation support is being directed toward strengthening agricultural economics and sociology, the latter through a collaborative program with the University of Florida. Augmenting previous similar assistance in economics, medicine, the sciences, and engineering, the Foundation is now providing visiting faculty requested by the Department of History in the Faculty of Philosophy, Letters, and History and by the Faculty of Architecture.

After five years of assistance, the Department of Linguistics has established itself as an integral element in the University's structure, and outside support is no longer necessary.

The Division of Health Sciences, comprising the Schools of Medicine, Nursing, and Medical Technology, is continuing to expand its community-oriented programs in disease prevention, medical care, and family planning. In these activities the Health Sciences faculty utilizes urban and rural health centers as well as the facilities of the University Hospital. Consideration is now being given to a research project to provide more adequate data as to how the health needs of the Cauca valley can best be met.

A grant made this year to the University of Tennessee continued support for an exchange program, in operation since 1961, between its College of

Medicine in Memphis and the University of Valle. This cooperative program, directed by Dr. Richard R. Overman, associate dean of Tennessee's College of Medicine, has proven to be one of the most successful of its kind. Designed to strengthen the teaching of the basic sciences at the University of Valle at both the undergraduate and graduate levels, the program represents an approach to medical education which is novel in much of South America, where the clinical tradition is predominant.

Primary attention was given to physiology. Three Colombian medical graduates undertook advanced training in the United States, one in neurophysiology, one in renal physiology, and one in physiology of the endocrine system. The University of Tennessee provided visiting professors to assist with curriculum development, teaching, and research at the University of Valle. When the Colombian physiologists returned to Cali, the Tennessee group turned their attention to developing pharmacology, following the same pattern of exchange. Three Colombians are now studying for doctoral degrees at Marquette University, and three senior appointments have been made to the University of Valle by the University of Tennessee. Assistance has also been provided in biochemistry, with two Colombian doctoral candidates currently studying in the United States. The Departments of Anatomy and Biology are also receiving attention. By the end of the year, most of the undergraduate science departments will be fully staffed, and the Tennessee professors will begin to concentrate on developing graduate training and research programs.

Construction started this year will provide expanded quarters for the University Library and for the Department of Microbiology.

UNIVERSITY OF THE PHILIPPINES

The University of the Philippines, founded in the first decade of this century, comprises 46 colleges, schools, and institutes. Its main campus is in Quezon City, and there are branches in Manila, Los Baños, Baguio, and Tarlac. The student body totals 18,000; the teaching staff numbers more than 1,000. Under the leadership of Carlos P. Romulo, the University has attempted to provide leadership in meeting the pressing developmental needs of the country, particularly in economics, public administration, agriculture, and public health. Central to President Romulo's thinking is the need for an educated electorate, able to exercise personal political responsibility and imbued with the values of a liberal society.

Situated in Los Baños, more than an hour's drive from the main campus at Diliman, but still considered a strong part of the central University, is the College of Agriculture. Recognizing the need to give massive support to improvement of agriculture, and to improve the economic condition of the

nation's farmers, the University has undertaken large-scale crop improvement programs in corn, soybeans, sorghum, and rice. The Rockefeller Foundation is assisting the University in these programs. The College is accelerating applied research and developing a training program to supply large numbers of production specialists who can carry out intensive field work.

In order to improve the efficiency of corn production, the College of Agriculture has projected an intensified corn production program, to be launched with Foundation aid. During the past half century yields of corn per unit area have remained virtually static. Recent progress in the development of improved seed, in assuring local sources of fertilizers, insecticides, and herbicides, and in effective dissemination of information and materials has encouraged the College to launch this program with the hope that significant improvement can be achieved. Up to 300 extension workers will be trained in a series of eight-week courses; provision will be made to assure them technical assistance on seed production and an opportunity to mount field demonstrations in major corn-producing areas.

Soybeans and sorghum are emerging as important new agricultural crops in the Philippines, but more research in agronomic practices and crop improvement is required before they can be produced economically on a large scale. The Foundation is supporting work in these and other upland food crops. A program is planned to train to the M.S. level a group of crop specialists drawn from agricultural colleges, the staffs of government agricultural agencies, and recent graduates in agriculture. With Foundation support, three experiment stations for adaptive research will be established in outlying districts, and a student hostel and instruction building will be built at the College, in close collaboration with the International Rice Research Institute located nearby, to provide housing and classroom space for trainees in the production of rice, corn, sorghum, and other crops. The Ford Foundation is also contributing substantially toward construction of this center.

In addition to collaboration on rice projects with IRRI, the College of Agriculture cooperates with the Foundation's Inter-Asian Corn Improvement Program, headquartered in Thailand, and with the International Maize and Wheat Improvement Center in Mexico. The sorghum program is being coordinated with Foundation-supported work in this field in India.

In the natural sciences the emphasis continues to be on providing opportunities for graduate study to promising members of the College of Arts and Sciences. Seventeen scholarships were awarded in 1967. In preparation for the expected return of scholars who have completed training, the Foundation has sought ways to assist the further development of the natural

sciences at the University. To this end, the Foundation provided the services of a distinguished American scientist as a consultant to assist University officials in determining developmental priorities for the natural sciences. His preliminary report has been received by the University, and a plan for orderly development in fields appropriate to the resources of the Philippines is being undertaken.

In the medical sciences, assistance was given to selected research projects in the College of Medicine, largely in the basic sciences, and to establishing research units. Thirteen scholarships and fellowships for advanced training abroad were awarded to faculty members of the College of Medicine and the Institute of Hygiene.

The Comprehensive Community Health Program of the College of Medicine, established with Foundation assistance, was formally inaugurated this year, and the first stage of the building program, consisting of a central clinic and residence quarters, has been completed. Located in the rural district of Bay, near Los Baños, the CCHP serves as a rural teaching and research center for the College of Medicine, and in addition is expected to provide an experimental model for provision of comprehensive health care in a rural area.

In the humanities and social sciences, four visiting faculty members served on the Diliman campus this year at the request of the University, teaching economics, anthropology, English and comparative literature, and philosophy. Their primary task is to strengthen the teaching and research through encouragement of the younger, less experienced faculty members who make up these departments. A regular Foundation field staff member is in residence, teaching in the Department of Political Science and assisting with research and curriculum development. Another staff member was assigned to the same Department in 1967 to serve as teaching assistant.

As in other disciplines, scholarships for graduate study in the humanities and social sciences constitute a major resource for strengthening the University's teaching staff. Young faculty members are enabled to study abroad, and a scholarship program for study at the M.A. level at the University is attracting young scholars, who otherwise could not afford it, into teaching careers in the nation's universities. The Foundation is also helping to support a graduate scholarship program in the School of Economics for promising scholars from other Southeast Asian countries. The Foundation has also helped equip a new Faculty Center, built by the University to bring together in one location the whole humanities and social sciences faculty and to provide needed seminar, library, and conference facilities. This center will be completed in mid-1968 and will make available space in other buildings for research facilities in the natural sciences.

UNIVERSITIES IN BANGKOK, THAILAND

The University Development Program in Bangkok was initiated in 1963, and aid has been provided to four outstanding Thai institutions: agricultural sciences projects have been assisted at Kasetsart University; the humanities and social sciences at Thammasat, Kasetsart, and Chulalongkorn Universities; and basic sciences and medical studies at the University of Medical Sciences. General support, administrative and planning assistance, and library development have also been provided.

1967 represented the culmination of several years' intense effort at the **Faculty of Medical Sciences**: the first class of medical students was received and the spacious new science building opened. The Thai Government appropriated approximately \$2,000,000 for construction of the new facilities on a site in central Bangkok and gave the school administrative and academic autonomy. Under the strong leadership provided by its new dean, Dr. Stang Mongkolsuk, the Faculty is launching an imaginative program of undergraduate and graduate teaching in the basic sciences with the help of visiting faculty provided by the Foundation. Plans for establishment of a program leading to doctoral degrees in basic medical sciences are well advanced, and a growing number of graduate students are enrolled. This new school is conceived as a center of research and training whose graduates will in time form the nucleus of other such programs throughout Thailand and the rest of Southeast Asia, so that these countries will no longer be forced to rely on foreign training for their scientific and medical leaders. By the end of 1967, Foundation staff assigned to the Faculty as visiting professors totaled 12, two of whom are assisting in the development of the new teaching hospital and its comprehensive rural health program.

At **Thammasat University**, the Foundation continued to support existing programs in the humanities and social sciences and added new ones which may help establish a more substantial base for long-range university development. Visiting professors were provided to the Faculty of Economics and to the Department of History in the Faculty of Arts, and a grant was made for library acquisitions in economics. An agricultural economist is dividing his time between Thammasat and Kasetsart Universities. Social sciences at all the Bangkok institutions were further strengthened by a grant to the Social Science Association of Thailand for translation and publication of texts in the Thai language.

Visiting professors in two faculties at Thammasat worked with their Thai colleagues in the development of a curriculum for a new department of political analysis in the Faculty of Political Science and cooperated in the reorganization of a Master's degree program, to be taught in English, for the Faculty of Economics.

In an effort to give Thai students a better command of English, the Foundation this year made a four-year grant to the University of Pittsburgh to send three teachers of English language and literature to Bangkok, two to Thammasat University and one to the University of Medical Sciences, to assist in the development of strong programs in English. Teaching of English in elementary and secondary schools in Thailand, suspended in 1941, has never regained its prewar standard, with the result that the present generation of university students does not have the requisite facility to use scientific, technical, and scholarly literature in English, only a small portion of which can be meaningfully translated into Thai. University graduates are further handicapped in many fields where a knowledge of English is necessary for graduate work. Five years ago, the English Department of Thammasat University was created in the Faculty of Liberal Arts to teach English to all first-year students on a modern scientific basis, and other universities in Bangkok have also been seeking means of introducing more effective studies in English for undergraduates. The University of Pittsburgh program will give attention to developing teachers and introducing new methods as well as to instruction in English. It is under the direction of Professor Edward M. Anthony, chairman of the Department of General Linguistics and one of the world's leading experts on teaching English as a foreign language.

Perhaps the most important contribution will prove to be the scholarship assistance given the young faculty members in the universities. Provision was made to enable two or three scholars to do graduate work in economics in the Philippines, in addition to other scholars studying in the United States, as part of a concerted effort to further the training of Asians in other strong Asian institutions. Scholarships were granted to teachers for graduate work in economics, English, literature, mathematics, philosophy, political science, and sociology. The first of the grantees returned to Thailand in the fall of 1967 and began teaching the subjects in which they had specialized.

The Foundation's university development efforts at Kasetsart University, its experimental farms, and Veterinary School are closely allied with assistance to the Thai Government's agricultural programs. Thailand is one of the few developing countries in Asia with an exportable surplus of food. However, yield-per-unit levels are still low. There is great hope that the application of scientific methods to agriculture and crop-oriented training of agricultural students will enable Thailand to keep pace with a rapidly growing population and still, for some time to come, be able to share a food surplus with other nations.

During 1966-1967, Foundation cooperative activities in the agricultural sciences were expanded from a one-man operation on corn improvement to an extensive program with six regular staff and two special staff members.

These scientists are assigned to assist the Ministry of Agriculture and Kasetsart University to increase the yields and production of the basic food crops—rice, corn, and sorghum. A headquarters base has been provided at Kasetsart University, with a major upland research station at Suwan, approximately 100 miles to the northeast of Bangkok.

Cooperative work on the upland crops is being carried out at four principal stations; 18 stations operated by the Rice Department are in use. The Departments of Rice and of Agriculture of the Ministry of Agriculture and Kasetsart University are pooling their resources and working largely together in these cooperative projects. The Thai agencies are providing most of the local costs, with Foundation resources going toward staff support, imported equipment, training programs, and linking this program with supporting projects in other Asian countries.

SANTIAGO, CHILE

The University Development Program in Santiago, Chile, involves three institutions—the University of Chile, the Catholic University of Chile, and the Agricultural Research Institute. Foundation support at the two Universities is mainly concentrated in the fields of history and economics. Crop and livestock programs as well as research and training in agricultural sciences are being supported at the Institute.

In 1967, the **Center of Research on American History** at the University of Chile completed the first year of a two-year graduate program on social and economic history. Basic courses were offered in demography and statistics and in the application of sociology and political science to historical research on Latin American problems. The Center now offers several courses on contemporary Latin America and is in a position to direct Master's degree theses concerned with the late 19th and 20th centuries. This concern for the recent past provides a counterbalance for the already well-established work on colonial economic and social history. Students come to the Center not only from Chile but also from the Andean countries, Argentina, and Brazil.

Course work in general United States history and research on United States-Latin American diplomatic relations continue to develop and to draw graduate students from the Catholic University and the University of Chile. The Foundation is supporting this curriculum, unique in South America, by making available modest research funds, visiting professors, and scholarships.

The Center is increasingly becoming a major base of operations for visiting scholars from other Latin American countries, Europe, and the United States. This can be attributed to the high level of research and graduate

training and to the recently improved library facilities, made possible in large part by Foundation assistance. In addition to its regular program, the Center conducted, in cooperation with the University of California at Los Angeles, a two-month advanced course of studies for United States college and high school teachers.

The programs for economic training at both the University of Chile and the Catholic University are recognized throughout Latin America for their importance in the preparation of university professors and specialists for both the public and private sectors. In their research activities, professors in the two economics faculties are examining such diverse national and Latin American problems as prices and resource productivity in the agricultural sector, urbanization, industrialization, monetary policy, trade and balance of payments problems, and economic integration. The Department of Agricultural Economics at the Catholic University has undertaken a joint project in economic analysis with the Agricultural Research Institute.

Both Universities are moving toward the adoption of course-credit systems which would permit the students of one to take courses at the other; this will make for greater flexibility in study programs and at the same time eliminate course duplication and allow joint utilization of visiting professors. The Graduate School of Economics of the University of Chile is commencing a formal Master's degree program in economics in March, 1968. The Foundation is continuing to support teaching and research activities in economics at both Universities, to provide fellowships for advanced training abroad for faculty members, and to sponsor visiting professorships in such fields as economic history, agricultural economics, labor economics, and political science.

The Agricultural Research Institute, the third component of the Santiago complex, received a grant this year to expand its program in animal sciences. Although Chile possesses extensive farm areas in the rainy southern region, with some of the finest pasture land in the world, there still are serious national shortages of meat and milk. Two visiting animal scientists helped to initiate the first cooperative research projects between the Institute and the School of Veterinary Medicine of the University of Chile. Research is now under way to provide a better understanding of the problems of sub-fertility in dairy cows and to expand the program in poultry husbandry.

An important recent advance is the development of the new agricultural campus of the University of Chile, adjacent to the modern research installations of the Institute's La Plata experiment station. Here the Schools of Agronomy, Forestry, and Veterinary Medicine will be housed side by side in a new physical plant now under construction, financed by a loan of \$5,000,000 from the Inter-American Development Bank. The University of

California, with Ford Foundation sponsorship, is collaborating in this effort.

A portion of the funds made available to the Agricultural Research Institute is earmarked for cooperative research with the Catholic University of Chile, complementing a similar arrangement initiated last year with the University of Chile. Cooperative work is in progress at both Universities in the areas of fruit diseases, seed production, weed control, soybean varietal testing, vegetable production, and fertilizer cost studies.

The Foundation is continuing its active scholarship and fellowship program: of the 138 researchers at the Institute, 68 have had advanced training abroad; of these, 20 have earned M.S. and five, Ph.D. degrees through Foundation study awards. At the present time 11 research staff members are abroad on study leaves.

UNIVERSITY OF EAST AFRICA

The **University of East Africa** continues to be an exciting experiment in higher education in a developing region. Comprised of three Colleges, one located in each of the three independent countries of Kenya, Tanzania, and Uganda, the University from its inception has encouraged the development of basic arts and sciences faculties at each of the three institutions and the sharing among them of expensive professional faculties such as medicine, law, veterinary science, agriculture, and engineering. The total enrollment of undergraduates in the three Colleges was 3,122 in 1966-1967, and in addition 386 postgraduate and diploma students were studying at the University. The student body during the present academic year (1967-1968) totals 4,331, and by 1969-1970 it is expected to grow to 6,280.

During 1967 important advances were made in a number of areas, notably the development of research programs in the social sciences, the publication of much-needed teaching materials, and an increase in the number of Africans occupying leadership positions in the three Colleges. New programs, initiated primarily with outside support, were incorporated into the established curricula of the Colleges, and efforts were expanded in the area of food production and research.

The Economic Research Bureau, **University College, Dar es Salaam**, reached a full staff complement of 12, engaged mainly in research projects which were worked out in close cooperation with various ministries of the Government of Tanzania. In pursuing its commitment to a program of policy-oriented research, the Bureau sought the advice and assistance of these ministries. As a result, a number of projects and publications dealing with such topics as education and educational planning in Tanzania, balance of payments, monetary policy, and rural development are under way or completed.

The Social Science Division of the Institute for Development Studies at the University College, Nairobi, and the Economic Development Research Project of the Makerere Institute for Social Research, Makerere University College, Kampala, have also made important contributions in economic research geared to the development needs of the Governments of Kenya and Uganda. Individual research studies have been valuable for specific areas—for example, the sugar industry in East Africa, the relation of taxation to development, or factors affecting employment. Gradually scholars have built up a composite picture of the total economy which has increasing significance for overall economic and social planning and for the teaching of economics and the social sciences.

In the area of research and teaching in political science, government, and history, there are well-established programs at Makerere; at Nairobi the new Department of Government has been strengthened in both teaching and research. East African scholars are increasingly assuming leadership of the various departments: at Makerere, Professor Ali Mazrui became head of the Department of Political Science and Public Administration, and at Nairobi, Professor Alan Ogot is chairman of the Department of History. In addition, the Colleges have added establishment positions to these departments. At the University College, Dar es Salaam, promising efforts to strengthen the Department of Political Science are moving ahead with the assistance of a visiting professor.

Under the direction of a Foundation field staff member on assignment as dean, the Faculty of Agriculture at Makerere University College has been reorganized and expanded to emphasize the importance of production in agriculture. The new departments are Crop Science and Production, Agricultural Engineering and Land Planning, Social Science and Agricultural Chemistry, and Rural Economy and Extension. The faculty will be placing major emphasis on research related to food production, giving primary attention to small tractor development, food crop processing and preservation, tillage techniques, dairy cattle feeding and management, crop protection, agricultural economics, and the improvement of sweet potatoes, pulses, and vegetables.

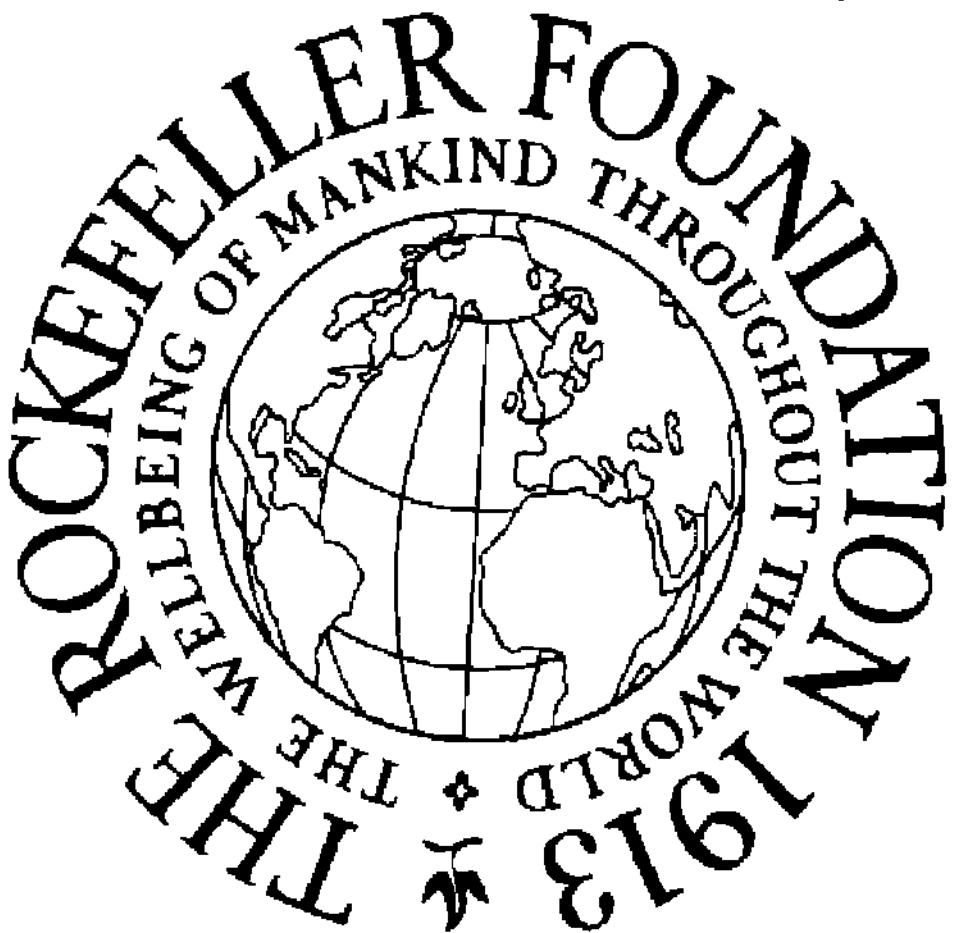
Support was given this year to new and ongoing programs at Dar es Salaam in geography and in training for management and administration.

The three University Colleges have sought to foster a special East African flavor in teaching, research, and all other aspects of academic life. Significant progress has been made in bringing more East Africans to the teaching faculties of the Colleges, primarily as a result of the Foundation-sponsored Special Lectureship Program. A grant was made this year for the continuation of the Program, which supports well-qualified African scholars in lec-

tureship posts with a view to transferring them to establishment positions as soon as these become available. Since this scheme was initiated in 1963, the overall percentage of East Africans on the teaching staff has increased from nine percent to nearly 22 percent; 65 percent of these first held special lectureship appointments financed by the Foundation. The increase in proportion of indigenous faculty is even more impressive when one considers that the total number of establishment posts will have more than doubled by the academic year 1969-1970: the faculty of the three Colleges in June, 1964, was 265; by 1967-1968 it had grown to 485; and a total of 589 posts in all three Colleges is planned by 1969-1970.

In all the programs described and others instituted in previous years, the Foundation has continued to give assistance through the provision of funds for staff, for research projects, for library acquisitions, and for equipment.

Thammasat University is one of four institutions in Bangkok, Thailand, evolving with Foundation assistance as strong research and training centers. Thammasat's Liberal Arts Building (*below*) houses such departments as Literature and History, which enroll increasing numbers of students each year, as their strength continues to develop.

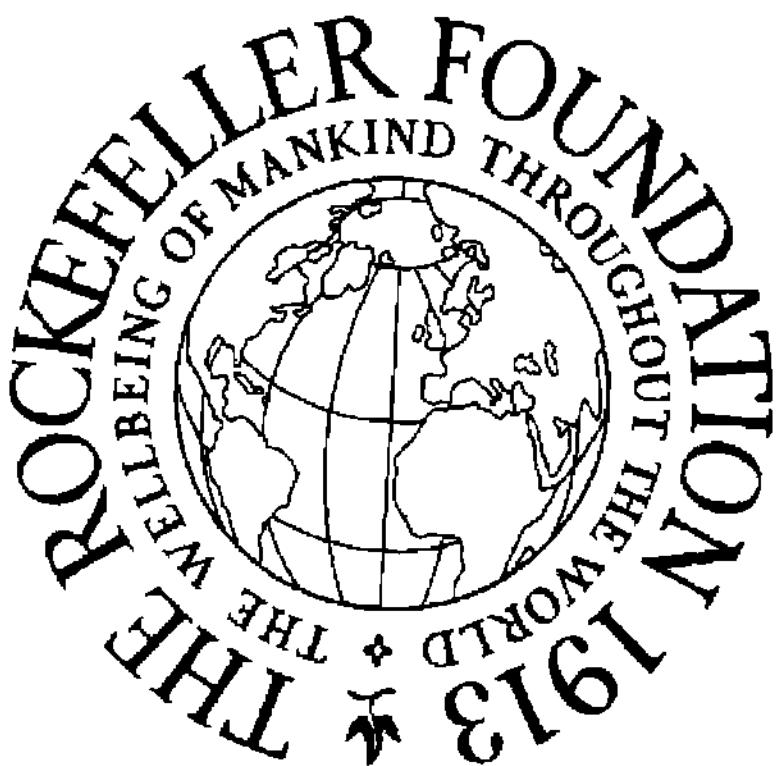


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BANGKOK: UNIVERSITIES LOOK AHEAD

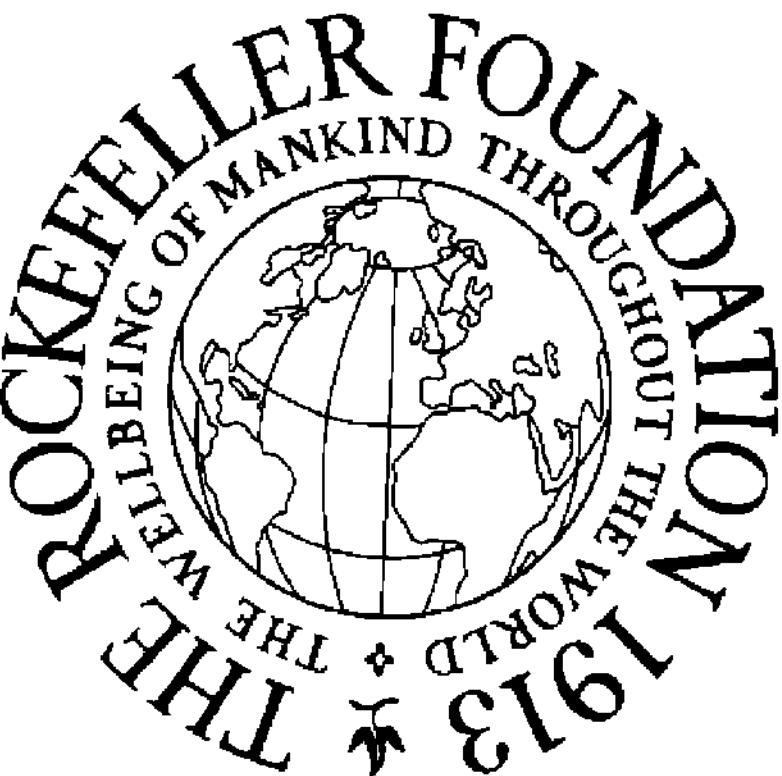


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To reduce the necessity of sending Thai students abroad, the Foundation is encouraging and helping Thai universities to develop their own advanced-degree programs. *Above*, an inter-university committee studies proposals to co-ordinate efforts of Thai universities offering graduate programs. *At right* are two members of the committee, General Netr Khemayodhin, Under Secretary of State for the Office of the Prime Minister, who is responsible for all higher education in Thailand, and Dr. James S. Dinning, the Foundation's representative.



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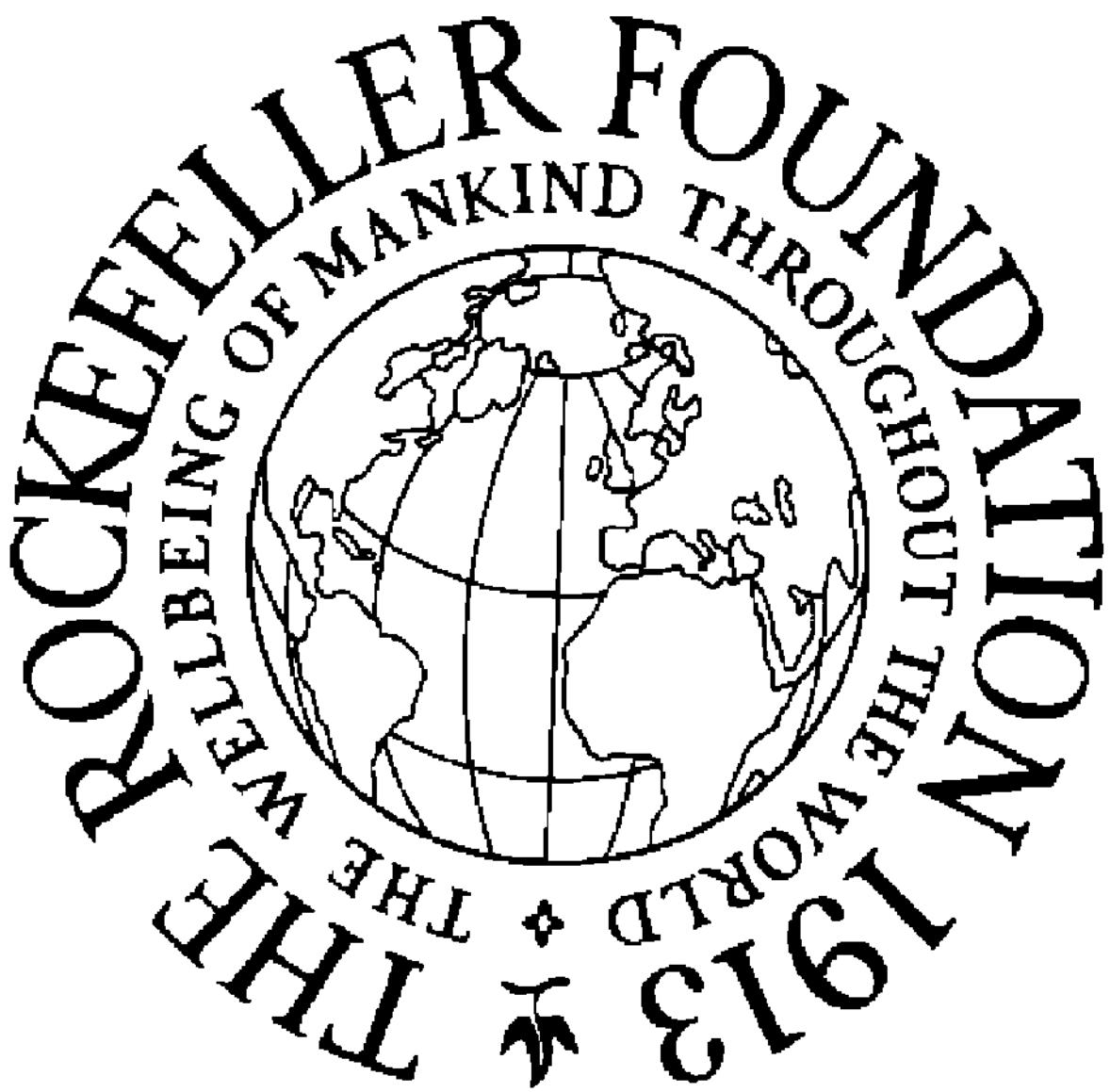
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Chulalongkorn University (*above*), established in 1916, grew out of a school for royal pages founded by King Chulalongkorn in 1902. Its

programs in the humanities and social sciences have received Foundation aid in the form of funds, scholarships, and a visiting professor.



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In 1967 the Foundation provided four visiting professors at the request of Thammasat University, one to the Department of History and

three to the Faculty of Economics. The visiting faculty program strengthens teaching while Thai faculty members seek advanced training.

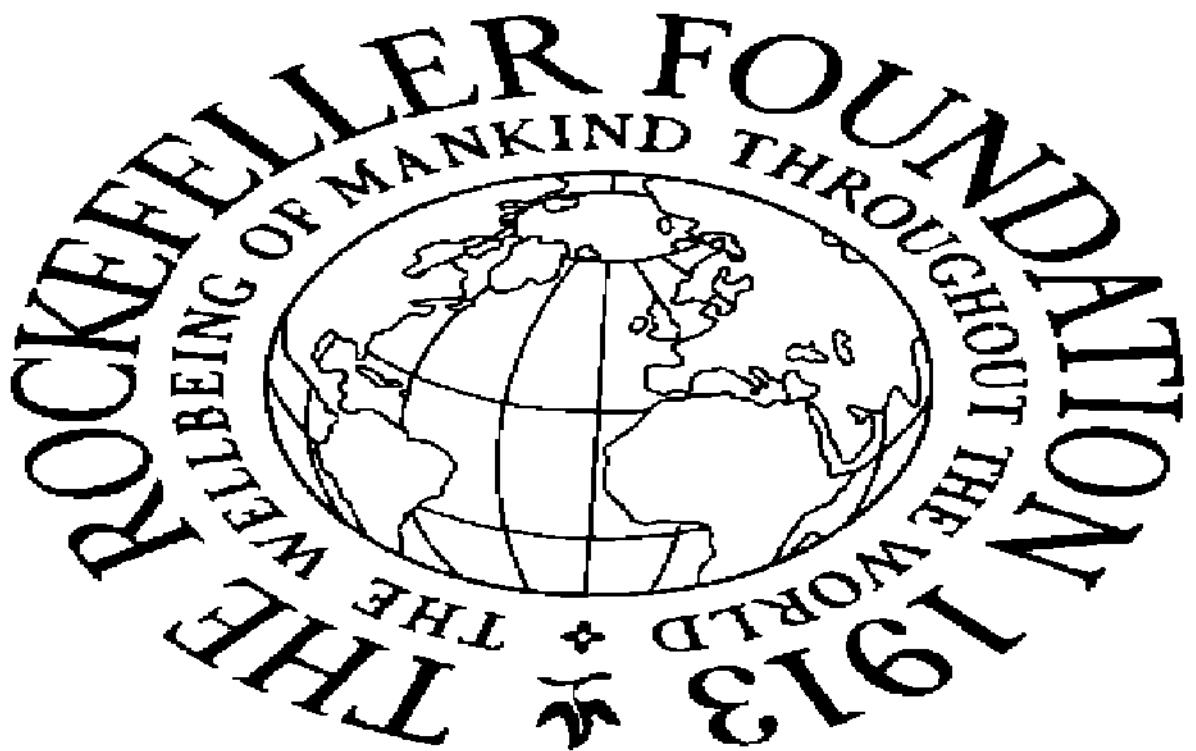


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As enrollments increase, pressures on facilities and staff mount. To help raise both the quality and quantity of undergraduate instruction, the Foundation provides scholarships for young faculty members and graduate students to study abroad. *Above*, a classroom doubles as a study for students preparing for the next day's classes at Thammasat University. *At right*, Professor Siri Sampatisiri teaches a crowded class in economic development to fourth-year students.



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The Faculty of Medical Sciences received approximately two million dollars from the Thai Government for construction of new facilities on a site in central Bangkok. *Above*, Dr. James S.

Dinning (*left*), Foundation officer, and Dr. Stang Mongkolsuk, dean of the Faculty of Medical Sciences, discuss the location of laboratories in the almost completed new buildings.



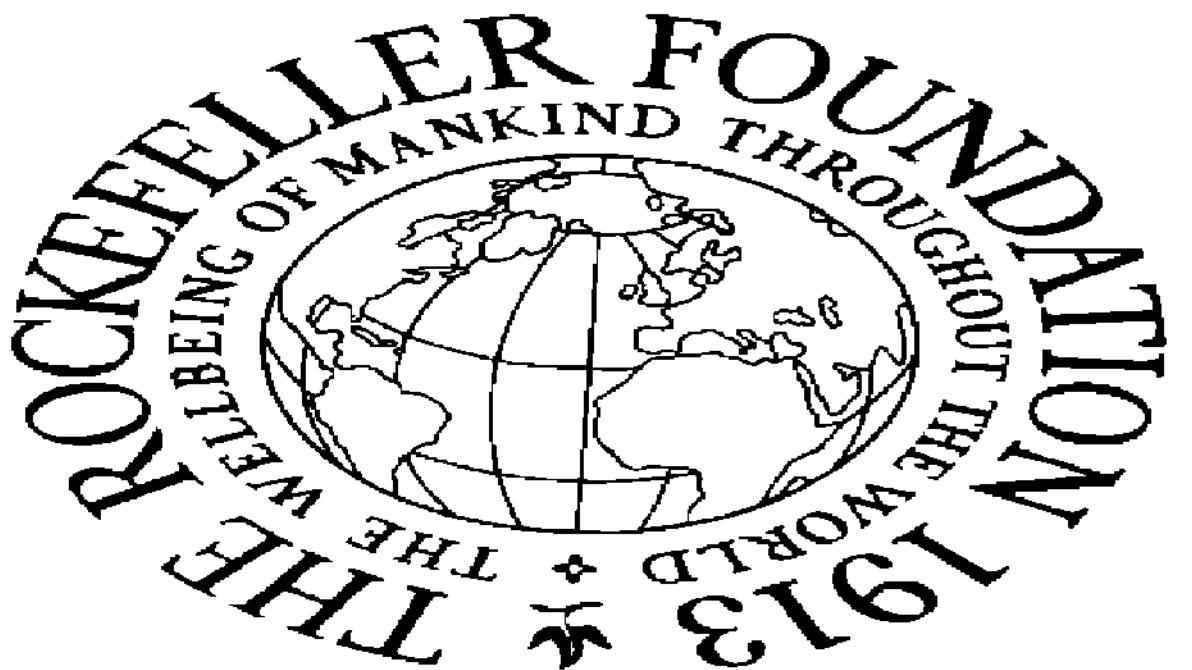
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A newly autonomous school, the Faculty of Medical Sciences is expected to become an important center of research and training. The Foundation has made available 12 specialists

as visiting professors there. *Above*, Dr. Dining explains techniques of enzyme isolation and identification to graduate students; *below*, a group of medical students examines a brain.



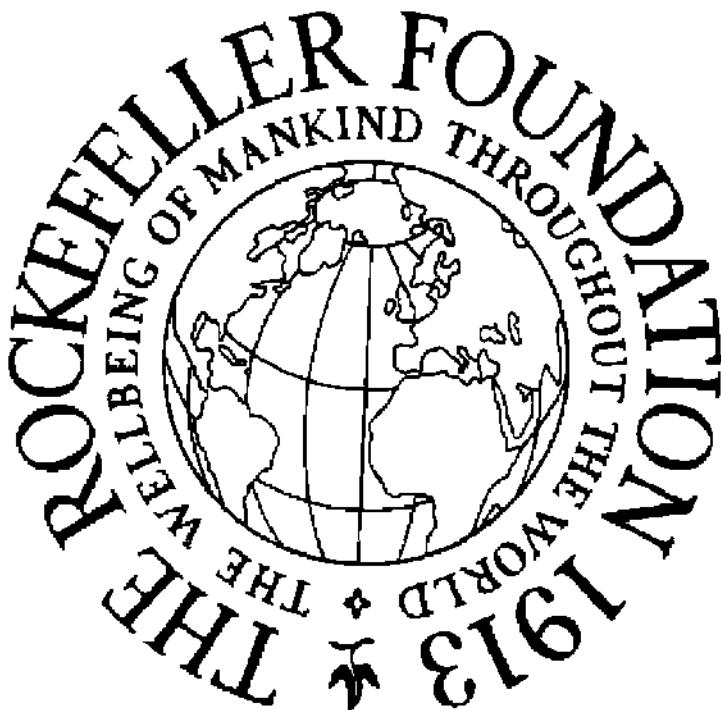
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Kasetsart University cooperates closely with the Thai Government's programs to improve agricultural production and increase yields of the basic food crops. In 1967 the Foundation increased its support of these efforts by providing

six regular and two special staff members. *Below*, Sala Dasananda (*at right*), who is the director general of the Rice Department of the Thai Ministry of Agriculture, conducts a tour of the Department's experimental rice plots.



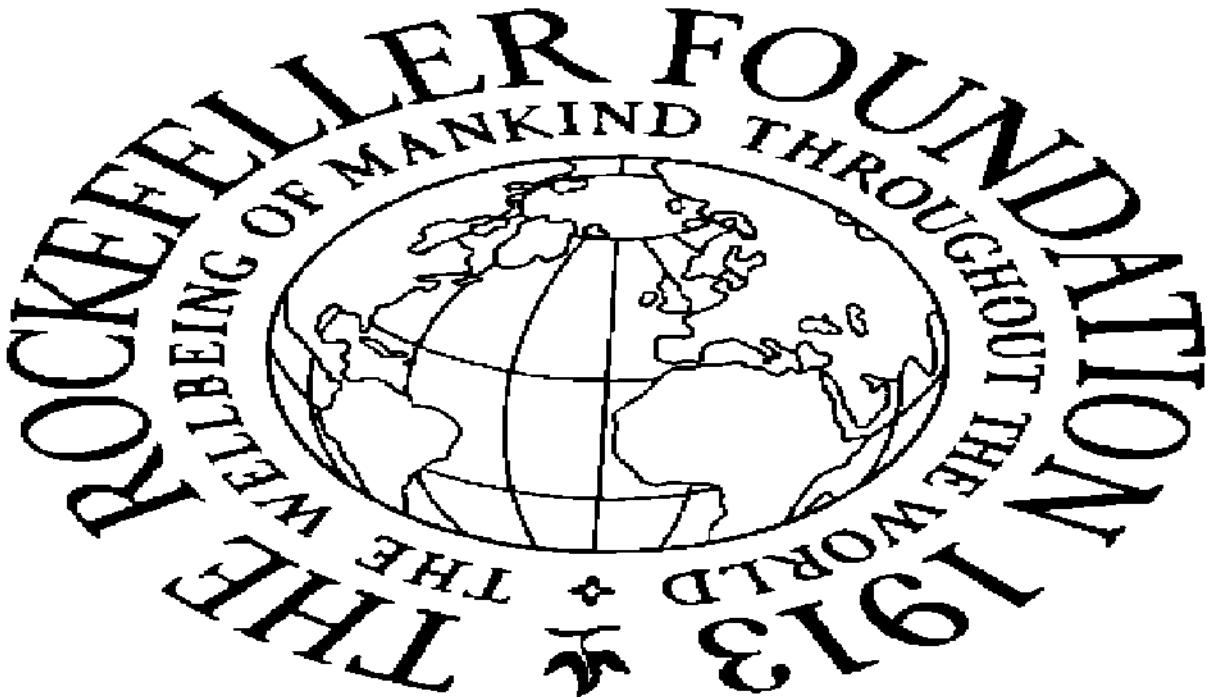
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In an effort to maintain its food surplus, Thailand is intensively training its own agricultural scientists. *Above*, students work in the

biology laboratory at Kasetsart, and *below*, Dr. Ernest W. Sprague, Foundation officer, discusses corn leaf problem with Kasetsart staff.



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GRANTS UNIVERSITY DEVELOPMENT

INTERNATIONAL

ROCKEFELLER FOUNDATION International Program in University Development:

Salaries, travel, and other expenses of Foundation field staff for 1968	\$ 576,470
Visiting faculty requested by universities abroad	679,620
Program centers — for 1968 expenses	
Chile	\$ 47,500
Colombia	75,700
East Africa	72,100
Nigeria	17,750
Philippines	48,800
Thailand	<u>173,000</u> 434,850
New University Development Program centers	10,000
Other developmental expenses for 1968	<u>98,000</u>
TOTAL—Appropriations made in 1967	<u>\$1,798,940</u>

BRAZIL

FEDERAL UNIVERSITY OF MINAS GERAIS, Belo Horizonte:

Teaching and research equipment for the Central Institute of Chemistry; \$55,000;

Research equipment for use by Dr. Angelo B. M. Machado in the Department of Morphology, Faculty of Medicine; \$5,900;

Dr. Truman O. Woodruff, Michigan State University, East Lansing; to observe developments in physics at the Federal University; \$2,165;

CHILE

INSTITUTIONS IN SANTIAGO:

Agricultural Research Institute

Rockefeller Foundation International Program in University Development; visiting faculty requested by the Agricultural Research Institute; see *International, above*;

Professor James McGinnis, Washington State University, Pullman; visiting poultry specialist;

Field and laboratory equipment and research, library development, and cooperative research projects with the Catholic University of Chile and the University of Chile; \$240,000;

Catholic University of Chile

Rockefeller Foundation International Program in University Development; visiting faculty requested by Catholic University of Chile; *see International, above*;

Dr. Oswald H. Brownlee, University of Minnesota, Minneapolis; visiting professor of economics for 25 months;

Dr. John L. Dillon, University of New England, Armidale, N.S.W., Australia; visiting professor of agricultural economics;

Support of the teaching and research program in economics of the School of Economics and Business Administration; \$48,300;

Equipment for the Laboratory of Neurophysiology and the Department of Biology; \$10,000;

Tufts University, Medford, Massachusetts; to enable Ricardo J. Moran to continue his teaching and research assignment at the Faculty of Economics and Social Sciences of the Catholic University of Chile; \$6,975;

Research equipment and supplies for use by Dr. Federico Leighton in the Laboratory of Physiopathology, Faculty of Medicine; \$5,700;

Books for the library of the Faculty of Economics and Social Sciences; \$2,000;

University of Chile

Purchase of equipment and library materials needed for the development of advanced undergraduate and graduate training programs in the Faculty of Sciences; \$125,000;

Graduate studies program in the Center of Research on American History; \$102,210;

Support of the program of the Institute of Economics and the Graduate School of Economics; \$47,000;

Tufts University, Medford, Massachusetts;

To enable Thomas C. Wright to accept a teaching-research assignment in American history at the University of Chile; \$12,450 for a 15-month period;

To enable Frederick Z. Jaspersen to continue his teaching-research assignment in economics at the University of Chile; \$2,531;

ROCKEFELLER FOUNDATION International Program in University Development: Chilean program; *see International, above*;

COLOMBIA

FUNDACION PARA LA EDUCACION SUPERIOR, Cali: maintenance expenses of vehicles; \$7,000;

ROCKEFELLER FOUNDATION International Program in University Development: Colombian program; *see International, above*;

UNIVERSITY OF VALLE, Cali:

Rockefeller Foundation International Program in University Development; visiting faculty requested by the University of Valle; *see International, above;*

Dr. Luis Arturo Fuenzalida A.; to continue as visiting economist in the Division of Social Sciences and Economics;

David Lloyd Clare; to continue as visiting economist in the Division of Social Sciences and Economics;

Franklin Maiguashca; to continue as visiting economist in the Division of Social Sciences and Economics;

Alberto Musalem; to continue as visiting economist in the Division of Social Sciences and Economics;

Support of the Division of Health Sciences; \$298,348;

University of Tennessee, Knoxville; exchange program, directed by Dr. Richard R. Overman, between its College of Medicine, located in Memphis, and the Departments of Physiological Sciences and Anatomy of the University of Valle; \$165,000 through December, 1970;

General support of the University; \$150,000;

Appointment of core personnel for undergraduate teaching and research in the Departments of Political Science and Sociology; \$90,000 for a three-year period;

Construction of a new addition to the Central Library; \$90,000 through December, 1969;

Library acquisitions; \$55,000 through December, 1969;

Research project on human resources of the State of Valle; \$49,610 through December, 1970;

Equipment for the Biology Department; \$39,215 through December, 1969;

Research program in the Faculty of Architecture on the effect of climate on architecture in Colombia; \$25,000;

Michigan State University, East Lansing; appointment of James McKenzie and Ralph Cotterill as research assistants in agricultural economics at the University of Valle; \$24,400;

Toward staff salaries in the Departments of History and Literature; \$20,000 through December, 1970;

Collection of basic data on Colombian politics, government, and administration for research and teaching programs in the Division of Social Sciences and Economics; \$19,900;

Equipment and supplies for the Faculty of Economics; \$15,000 through December, 1969;

Research in the Faculty of Economics on the development of regional accounts for the Cauca valley; \$15,000;

University of Florida, Gainesville; exchange program of nurses and doctors with the University of Valle; \$15,000;

Collection of data on farm management for agricultural economics research and teaching; \$12,370 beginning in January, 1968;

Support of a project on monetary theory, including research on monetary supply, demand for money, inflation, and short-run capital movements; \$10,275;

To enable Dr. Jacobo Ghitis to pursue studies in folic acid metabolism at the Hadassah Medical School, Jerusalem, Israel; \$10,000;

Equipment for the Central Library; \$9,700 through December, 1969;

Equipment for Central Administration; \$2,700; \$6,650 through December, 1969;

Equipment and supplies for the language laboratory; \$8,000 through December, 1969;

Space adaptation in the Biology Department; \$8,000 through December, 1969;

Faculty development in the School of Nursing; \$7,700;

To enable Miss Carmela Cavero to continue as visiting professor in the School of Nursing; \$7,500;

Equipment and supplies for the School of Nursing; \$6,100;

Three research projects in the Faculty of Philosophy, Letters, and History; \$6,000 through December, 1969;

Purchase of an automobile for Central Administration; \$3,000;

Toward further development of the Department of Music; \$3,000 through June, 1970;

Toward the costs of seminar programs on political orientation in Colombia and on university planning; \$2,500;

Evaluation of the University's English language courses; \$2,000;

Dr. Elmer Ellis, University of Missouri, Columbia; to observe administration and curriculum developments at the University of Valle; \$1,860;

Mrs. Sofy Arboleda de Vega; to pursue advanced studies in fine arts at Boston University; \$1,850;

Dr. Hernando Arellano Angel; to observe university administration at selected educational institutions in the United States; \$1,820;

Dr. Aurelio Chaux; to observe recent developments in cardiac surgery in the United States and to attend the 1967 annual meeting, in San Francisco, of the American Heart Association; \$1,700;

Mrs. Elizabeth de Góngora; to obtain training at Peter Bent Brigham Hospital, Boston, Massachusetts, in the function and management of a perfusion pump during cardiac surgery; \$1,390;

Toward costs of a seminar on educational administration conducted by the Faculty of Education; \$1,344;

Hernán Poveda; to attend an advanced summer course in library science at the University of Illinois, Urbana; \$1,200;

Appointment of Miss Eleanor F. Voorhies, Boston College School of Nursing, as visiting lecturer in public health administration and supervision during the summer of 1967; \$1,100;

Dr. Jorge Alonso Aragón Sarria and Dr. Jorge Antonio Cruz Buenaventura; to study electron microscopy at the Scientific Research Institute (IVIC) in Caracas, Venezuela; \$1,100;

Program of seminars in the Faculty of Philosophy, Letters, and History; \$900;
Toward costs of a history seminar conducted by the Faculty of Philosophy, Letters, and History; \$200;

KENYA

EAST AFRICAN COMMON SERVICES ORGANIZATION, Nairobi: for use by the East African Veterinary Research Organization toward support of an integrated teaching and research program with the Faculty of Veterinary Science, University College, Nairobi (University of East Africa); \$5,825;

ROCKEFELLER FOUNDATION International Program in University Development: East African program; *see International, above*;

UNIVERSITY COLLEGE, Nairobi (University of East Africa—*see also Tanzania and Uganda*):

Rockefeller Foundation International Program in University Development; visiting faculty requested by the University College; *see International, above*;

Dr. George E. Delehanty, Northwestern University, Evanston, Illinois; senior lecturer in the Department of Economics;

Dr. Pierre L. van den Berghe, University of Washington, Seattle; visiting professor in sociology;

Research in economics and related social sciences; 560,285 East African shillings (about \$79,000);

Books for the Department of Government; \$2,975;

Dr. Dunstan Ireri; to return to Kenya from the University of California, Davis, to accept a position as research fellow in the Institute for Development Studies of University College; \$2,165;

Dr. Peter C. Nderito; to attend the World Veterinary Congress in Paris, France, and to visit veterinary schools in Great Britain and Europe; \$1,490;

Rice University, Houston, Texas; to enable Alan R. Waters to teach economics at University College; \$747;

NIGERIA

Mrs. LORENE HELEN FISCHER, Wayne State University, Detroit, Michigan: to visit psychiatric nursing programs and health officials in Nigeria; \$1,740;

ROCKEFELLER FOUNDATION International Program in University Development: Nigerian program; *see International, above*;

UNIVERSITY OF IBADAN:

Rockefeller Foundation International Program in University Development; visiting faculty requested by the University of Ibadan; *see International, above*;

Dr. Archibald Callaway, Massachusetts Institute of Technology, Cambridge; associate member, Nigerian Institute of Social and Economic Research;

Dr. Kathleen M. Langley, Boston University, Massachusetts; visiting faculty member in the Department of Economics and the Nigerian Institute of Social and Economic Research;

Professor Max Boyd Rosselot, Miami University, Oxford, Ohio; consultant, Academic Office;

Dr. Edward W. Soja, Northwestern University, Evanston, Illinois; visiting professor, Department of Geography;

Support of the Institute of African Studies; Nigerian £35,460 (about \$100,000);

Support of the Department of Psychiatry, Neurology, and Neurosurgery; Nigerian £25,500 (about \$72,029);

Appointment of a chief accountant; Nigerian £10,000 (about \$28,500) for a two-year period;

Research, under the direction of Dr. V. A. Oyenuga, on the metabolism and nutrient requirements of tropical animals; Nigerian £8,420 (about \$24,000);

Support of six medical training posts in preventive and social medicine, pathology, chemical pathology, and microbiology; Nigerian £7,947 (about \$22,450);

For use by the Nigerian Institute of Social and Economic Research for a conference on economic research in Africa; \$12,500;

Appointment of an environmental engineer in the Department of Preventive and Social Medicine; Nigerian £2,313 (about \$6,590);

Support of two research projects—Q. B. O. Anthonio's "Supply and Price Fluctuations of Foodstuffs in Ibadan Markets" and R. O. Adegbeye's "Farm Tenancy in Western Nigeria"; Nigerian £2,215 (about \$6,310);

Research on pasture and fodder crops in the Department of Agriculture; Nigerian £1,500 (about \$4,275);

Appointment of an assistant technical officer in the maize research program of the Department of Agriculture; Nigerian £1,232 (about \$3,510) for a two-year period;

Mrs. Ebun Olufunke Afonja; to visit community mental health and occupational health research centers in Belgium, England, and the United States; \$3,055;

Dr. Samuel A. Oduntan; to observe recent developments in anesthesiology in medical centers in the United Kingdom and North America; \$3,050;

Dr. T. A. Lambo; to observe developments in psychiatry in England, the United States, and Colombia; \$3,010;

Research in its Department of Agriculture on the mineral nutrition of Nigerian plants; Nigerian £810 (about \$2,280);

Equipment for the Department of Pathology, Faculty of Medicine; \$2,000;

Toward the expenses of Professor Akin L. Mabogunje, Department of Geography, while he is teaching at Northwestern University, Evanston, Illinois; \$1,440;

PHILIPPINES

ROCKEFELLER FOUNDATION International Program in University Development: Philippine program; see *International, above*;

UNIVERSITY OF THE PHILIPPINES:

Los Baños

Toward the costs of constructing and equipping a hostel and instruction building at the College of Agriculture for trainees in the production of rice, corn, sorghum, and other crops; \$142,500 through June, 1969;

Support of a corn and sorghum training and research project in the College of Agriculture; \$75,000 through June, 1969;

Toward the scholarship program for Southeast Asian students in the College of Agriculture; \$6,000;

Manila

Research equipment and supplies for the Department of Physiology, College of Medicine; \$30,000;

Research equipment for the Department of Pharmacology, College of Medicine; \$15,000;

Research equipment and supplies for a histochemistry laboratory in the Department of Anatomy, College of Medicine; \$7,000;

Purchase of a portable cold room for the Department of Biochemistry, College of Medicine; \$5,000;

Equipment for the cytogenetics laboratory of the Department of Pediatrics, College of Medicine; \$4,500;

Quezon City

Rockefeller Foundation International Program in University Development; visiting faculty requested by the University of the Philippines; see *International, above*;

Dr. Charles W. Kegley; to continue as visiting professor, Department of Philosophy;

Dr. Herbert A. Krause; to continue as visiting professor, Department of English and Comparative Literature;

Dr. Melvin Mednick, Western Reserve University, Cleveland, Ohio; visiting professor of anthropology;

Dr. Dean A. Worcester, University of Washington, Seattle; visiting professor, Department of Economics;

Graduate scholarships in the College of Arts and Sciences and the School of Economics; \$40,000 through June, 1969;

Support for its rural comprehensive community health teaching and research service at Bay; \$15,000 through August, 1969;

To enable Ramon Tapales to conduct research on violin technique and pedagogy; \$9,600;

Professor Agustin A. Pulido; to observe graduate teaching programs in chemistry in Taiwan, Japan, and the United States; \$4,700;

Mrs. Josefina C. Lava; travel to pursue graduate studies in art history at Harvard University and to visit major art centers in Europe; \$3,600;

SUDAN

DR. M. S. BAYOUMI, University of Khartoum: to observe agricultural education programs and animal research centers in Africa; \$2,180;

TANZANIA

ROCKEFELLER FOUNDATION International Program in University Development: East African program; *see International, above*;

UNIVERSITY COLLEGE, Dar es Salaam (University of East Africa—*see also Kenya and Uganda*):

Rockefeller Foundation International Program in University Development; visiting faculty requested by the University College; *see International, above*;

Dr. Robert W. Kates, Clark University, Worcester, Massachusetts; research fellow in natural resources;

Support of economic research; 223,600 East African shillings (about \$31,530);

Michigan State University, East Lansing; agricultural economics research in Tanzania by Peter R. Walsh; \$14,788;

Support of experimental teaching-through-research programs in the Departments of Political Science and History; \$13,500;

Research and teaching in geography; 93,400 East African shillings (about \$13,263);

Toward costs of a program in management and administration; 74,880 East African shillings (about \$10,560);

Appointment of Dr. Bradford G. Martin as senior lecturer in history; \$6,725;

DR. CHRISTOPHER H. WOOD, Dar es Salaam School of Medicine: to visit departments of preventive medicine at universities in the United States, the West Indies, and Latin America, and to attend a meeting of the International Planned Parenthood Federation in Chile; \$2,400;

THAILAND

INSTITUTIONS IN BANGKOK:

University of Pittsburgh, Pennsylvania; toward the costs of a program of English language instruction at universities in Bangkok; \$460,000 through June, 1971;

Agricultural experiment station development in Thailand; \$75,000;

Social Science Association of Thailand; publication of Thai-language social science textbooks; \$10,000;

University of California, Los Angeles; to enable Dr. David A. Wilson to serve as informal advisor to scholars in the social sciences at universities in Thailand; \$5,361;

Kasetsart University

Equipment for its Veterinary School; \$25,000 for a two-year period;

Toward consultation expenses in the preparation of a master plan for a new campus and curriculum; \$10,000;

Chalerm Mahittikul; travel to St. Louis, Missouri, for training in setting up and operating wood-preserving equipment; \$1,855;

Thammasat University

Rockefeller Foundation International Program in University Development; visiting faculty requested by Thammasat University; *see International, above*;

Dr. John F. Cady, Ohio University, Athens; visiting professor of history;

Professor Robert G. Layer, Southern Illinois University, Carbondale; visiting professor in the Faculty of Economics;

Dr. Bevans D. Mabry, Bowling Green State University, Ohio; visiting professor, Faculty of Economics;

Study grants in economics for M.A. candidates in the Southeast Asian program at the University of the Philippines; \$10,000 for a three-year period;

Cornell University, Ithaca, New York; to enable Pramote Nakornthab to complete advanced training in political science; \$9,000 for a two-year period;

Acquisition and cataloging of library materials for the Faculty of Economics; \$7,500;

Dr. Dev Raj Chanana, University of Delhi, India; to serve as visiting professor in Indian civilization at Thammasat University; \$3,300;

University of Medical Sciences

Rockefeller Foundation International Program in University Development; visiting faculty requested by the University of Medical Sciences; *see International, above*;

Dr. M. R. Lakshmanan, Department of National Health and Welfare, Ottawa, Canada; research associate, Faculty of Medical Sciences, for two years;

Development of the Faculty of Medical Sciences; \$850,000;

Architectural consulting services for the Ramathibodi Teaching Hospital; \$10,000;

Graduate scholarships in the Department of Physiology, Faculty of Medical Sciences; \$10,000;

Dr. Prem Buri, Ramathibodi Faculty of Medicine; to observe rural health facilities in India, Africa, the United States, Jamaica, Colombia, and the Philippines; \$4,000;

Dr. Jit Waramontri; to observe animal care facilities in Japan, Europe, and the United States; \$3,875;

Miss Pranee Polpuntin, Siriraj Hospital; to visit schools of nursing in the United States; \$3,355;

Dr. William D. Sawyer, Johns Hopkins University, Baltimore, Maryland; to observe developments in microbiology at the University of Medical Sciences; \$3,250;

Honoraria for visiting scientists at the Faculty of Medical Sciences; \$3,000 for a three-year period;

Dr. Harold F. Hardman, Marquette University, Milwaukee, Wisconsin; to observe developments in pharmacology at the University of Medical Sciences; \$1,680;

ROCKEFELLER FOUNDATION International Program in University Development: Thai program; *see International, above*;

UGANDA

ROCKEFELLER FOUNDATION International Program in University Development: East African program; *see International, above*;

UNIVERSITY OF EAST AFRICA, Kampala (*see also Kenya and Tanzania*):

Africanization of academic staff at its three constituent colleges; 1,259,256 East African shillings (about \$177,555);

University of Sussex, Brighton, England; transportation for faculty members in the humanities and social sciences while on university development assignments with the University of East Africa; £3,000 (about \$8,460);

McGill University, Montreal, Canada; transportation for faculty members in the humanities and social sciences while on university development assignments with the University of East Africa; \$4,200;

To enable 12 of its scholars to attend the Second International Congress of Africanists at Dakar, Senegal, in December, 1967; \$2,500;

Professor David Apter, University of California, Berkeley; expenses in connection with a lecture tour of the three constituent colleges of the University of East Africa; \$2,450;

Dr. Richard L. Sklar, University of Zambia, Lusaka; to lecture in the Departments of Political Science at the three constituent colleges of the University of East Africa; 17,280 East African shillings (about \$2,440);

Dr. E. A. Brett, University of Sussex, Brighton, England; to complete field work for a study of political and administrative aspects of agricultural development in Uganda; \$1,700;

MAKERERE UNIVERSITY COLLEGE, Kampala (University of East Africa):

Rockefeller Foundation International Program in University Development; visiting faculty requested by Makerere University College; *see International, above*;

Dr. Kenneth W. Grundy, Western Reserve University, Cleveland, Ohio; visiting professor in the Department of Political Science and Public Administration;

Support of the Faculty of Agriculture; \$150,000;

Research on economic development problems of East Africa; 396,872 East African shillings (about \$55,959);

Research program in political science and public administration; 156,540 East African shillings (about \$22,000);

Support of graduate teaching assistants in the Faculty of Social Sciences; 60,000 East African shillings (about \$8,460);

Dr. Kenneth C. Prewitt, University of Chicago, Illinois; to assist in a study of education and citizenship in Uganda; \$3,665;

Andrew Sinclair MacDonald; to participate in an international symposium on tropical root crops in Trinidad and to visit corn and wheat research centers in North America; \$2,950;

Principal Y. K. Lule; visits in the United States, the West Indies, and Canada concerning programs at Makerere University College; \$1,825;

Dr. Peter John Arthur Rigby; travel expenses in connection with a temporary appointment for teaching and research in the Department of Anthropology, New York University; \$1,100;

To enable Chukuemeka P. Ezeife to travel from the United States to Uganda to accept a post in the Department of Economics; \$850;

Gabriel Hamlin Kiwuwa; to attend a course on animal breeding and genetics in Edinburgh, and to visit experiment stations in the United Kingdom; \$800;

Related Grants

UNITED STATES

INSTITUTE OF INTERNATIONAL EDUCATION, New York: for use by the Council on Higher Education in the American Republics for the expenses of five Latin American participants in its "Seminar on Political Science and the University" held in Buenos Aires, Argentina, in November, 1967; \$1,300;

DR. D. GALE JOHNSON, University of Chicago, Illinois: consultations on agricultural economics research with Rockefeller Foundation staff in India and Southeast Asia; \$3,175.

AIDING OUR CULTURAL DEVELOPMENT

THE PERFORMING ARTS—EXPANSION AND REVOLUTIONS

To judge by their exuberance, the arts in America seem to be in the midst of a period of expansion and revolution not unlike the early 17th century in Italy when public opera and theatre first made their appearance. The arts are laying claim to new experiences; they are speaking to and for segments of society previously ignored. Technological and aesthetic manifestations take place with astonishing rapidity. Electronic music, for example, is already being used to teach high school children the elements of composition. In theatre, new techniques in stage settings are fast changing our ideas of production and of a passive audience set apart from the players.

An important aspect of technological and artistic change is the progressive blurring of the lines that divide one art form from another. One finds a painter choreographing a dance work and a choreographer creating a ballet with multi-projected and distorted film, to a score by a folk-rock group using electronic sound. An interesting effect of this greater preoccupation with technology is a rapprochement of art and science: artists are challenged by the innovative possibilities of advanced technology and scientists find artists posing new problems for them to solve.

The expansion of technical possibilities linked with the revolution in our thinking about art as a part of everyday life has given us the environmental concept in the visual arts: forms that are designed to be touched, moved, even lived in, show the artist's intention to immerse the audience in a total experience of the work.

Expansion and revolution, while they are exhilarating to the creators and often to the younger segment of the public, have caused dislocations and dissatisfactions, not the least of which is conflict between the innovators and their audiences. This creates a dilemma for those who take seriously their professional responsibility to artist and audience. Artistic directors of theatres or symphony orchestras often find themselves caught between the desire to foster the creative imagination as it strikes out for new frontiers and their duty to their audiences, to whom the old frontiers are familiar territory and the new unthinkable.

Expansion of audience interest and community support of the arts has led to a proliferation of cultural centers, some of which have been criticized, with some justice, as reflections of cultural me-tooism and consumerism. With creative leadership, these complexes may well develop into important regional centers for the arts, providing they can skirt two major dangers:

The first is the superimposition of a supposed "higher culture" from without, to the detriment of authentic indigenous art. The history of the performing arts in America has shown how grass-roots art forms were suppressed and driven underground by the imposition of artificial standards based on European taste. Such present-day groups as the Free Southern Theater should do much toward creating a new approach to theatre which encourages involvement of the artist with the culture of a given area or environment, an involvement which in turn enriches his art.

The second danger is the parochialism that measures all art by its success in either New York or Los Angeles. Decentralization is already visible to a certain extent in the theatre centers and repertory companies in major cities, in the university-theatre movement, the performing ensembles in residence on campuses across the nation, the remarkable number of symphony orchestras of high quality, and the numerous summer festivals and institutes devoted to serious theatre, dance, and music.

Expansion and revolution in the arts, despite their inevitable excesses and anomalies, demonstrate that we are moving toward a goal that is peculiar to the 20th century and perhaps uniquely American—the achievement of cultural democracy. The arts by their very nature are both aristocratic and democratic. They celebrate the uniqueness of each man and woman, but they also allow people to participate together in the artist's individual vision. The arts are democratic in that we are not forced to accept only one idea of the good—they emphasize the diversity of life, just as they provide a place for the culturally satisfied and the culturally restless. Dissent is often the subject of new plays developed in the experimental theatre groups and the university theatre workshops; traditional themes of classic drama and comedy continue to be represented in the repertoires of established companies.

Grants to theatre groups such as the Free Southern Theater in New Orleans and the New Lafayette Theatre in New York's Harlem foster the development of Negro artists and the expression of their experience. The North Carolina School of the Arts and the summer theatre sponsored jointly by Southwestern at Memphis and the Front Street Theatre are examples of racially integrated groups of artists and apprentices whose standards are based primarily on respect for ability and accomplishment. Such programs not only encourage a diversified climate within the arts, but they can serve as a leaven of democracy within the larger society.

The Foundation in its programs toward cultural development tries to emphasize those aspects of both expansion and innovation in the arts which can contribute to the achievement of a cultural democracy—a society which makes the best accessible to all its members.

SYMPHONY ORCHESTRAS

The fact that American symphony orchestras customarily operate at a deficit has caused nationwide concern, and important measures, notably the Ford Foundation grants, have been taken to assure continued support. Less attention has been given to renewing their repertoires, which in large part tend to follow traditional patterns. High rehearsal costs and the conservatism of musicians and audiences alike discourage artistic directors from introducing new works or difficult modern classics into their performing schedules, and, unless commissioned, composers have hesitated to write for full orchestra because of the difficulty of getting a symphonic work performed.

This picture is slowly changing, however, particularly in university and college communities. The Rockefeller Foundation has been making grants since 1964 to foster the performance of works by major American composers and to develop new symphonic music. Audiences are also beneficiaries of this program, since they have a chance to hear the new music at its best, played by top-ranking orchestras.

Foundation awards made to develop symphonic music in America have taken two forms: one approach enables an orchestra to be in residence for a week on a college or university campus at the end of its regular season, the time to be devoted entirely to rehearsals, readings, and performances of new compositions and contemporary masterworks. Another grant device enables an orchestra to support a composer-in-residence for a year. To date 21 orchestras have participated in the university-orchestra program on approximately 50 campuses throughout the United States. Students from over 100 additional institutions were involved in the seminars, round tables, rehearsals, and concerts these grants made possible. Works by more than 200 composers were read and performed; the composers were present in most cases and obtained clear tapes of performances. Several comparatively unknown composers have emerged from the program with national status, and many younger composers have renewed their interest in symphonic forms.

The audiences, made up mainly of students and members of the college community, had a unique opportunity of hearing new and rarely performed works; broadcasts were arranged to bring the new music to the larger community; in one city the performances were televised. Considerable curiosity and enthusiasm were generated, both for the week-long music festivals and for certain of the new works presented. Some of the orchestras subsequently included works from the readings in their concert repertoires, thus giving their regular audiences a chance to hear and evaluate contemporary compositions alongside standard works. The impact of the programs cannot yet be assessed; in the long run they may well figure as a lever applied at a critical

moment in the history of American symphonic music. Orchestras that have benefited from this type of grant include the Baltimore, Indianapolis, San Francisco, Seattle, Utah, Phoenix, Houston, and St. Louis Symphony Orchestras and the Cleveland Orchestra.

The composer-in-residence program is designed to end the long estrangement between composer and orchestra: the composer gains a closer knowledge of the physical resources of his medium, and the musicians gain insight into the contemporary artist's directions and musical thinking. In 1966, four such appointments were supported. This year Lester Trimble was named composer-in-residence with the New York Philharmonic, and arrangements with other orchestras are in the planning stage.

CONTEMPORARY CHAMBER ENSEMBLES

Small performing ensembles dedicated to contemporary music often lead a precarious existence, and few could survive without subsidy. In the belief that colleges and universities can represent creative continuity for the arts and can furnish well-informed and sympathetic audiences, The Rockefeller Foundation has worked over the past few years to form a national network of university-based contemporary chamber groups. The host institutions benefit from the plan by having a group of professional musicians in their midst, usually teaching part time in addition to giving concerts; the artists' presence has consistently proven a stimulus to musical activity on the campus and in the surrounding community. Although the composition and performance of new music is their primary interest, most of the groups tend to vary their repertoires to include selections from all periods from medieval to modern; this is done so as not to isolate the contemporary works or treat them as eccentric but, on the contrary, to exhibit them as part of the continuing development of Western musical tradition.

By the end of 1966 this series of regional centers covered a good part of the East and the Midwest and was represented on the West Coast by two groups at Mills College in California and by the Group for Contemporary Music based at Portland State College, Oregon. In 1967 grants to the University of Washington, Seattle, and the North Carolina School of the Arts, Winston-Salem, extended this network still farther.

The Contemporary Performing Group was established at the University of Washington to give a series of concerts and recitals in the Seattle area and to repeat them in Spokane. Seven performing artists, two of whom are also composers, were appointed to the faculty of the School of Music to form the nucleus of the Group, and five graduate apprenticeships were created for student performers. The members of the Group will teach and coach students in addition to fulfilling concert engagements throughout the state.

The North Carolina School of the Arts, founded in 1965, this year received a grant for a collaborative project with the Winston-Salem Symphony, to form a group called the Piedmont Chamber Players. In addition to teaching at the School of the Arts and playing with the orchestra, the musicians will give a series of chamber concerts and participate in a program of recitals and demonstrations in the Winston-Salem—Forsyth County schools. They will also give readings of compositions by students and local professional composers.

Another major grant was made this year to continue and expand the work of the highly successful Contemporary Chamber Players, in residence at the University of Chicago. This group was created in 1964 with the aid of a Foundation grant and, under the direction of composer Ralph Shapey, has since won a name for itself and a sympathetic hearing for contemporary music throughout the Chicago area and the Midwest generally.

A grant in aid was made to the University of Pennsylvania to help support the residence of the Penn Contemporary Players, who have performed to enthusiastic audiences at the University and elsewhere in Philadelphia, offering extremely varied programs and featuring works by young American composers.

Previous Foundation grants are continuing to support several groups whose musical activities reach out to communities within a wide radius of their academic base. In the East several distinguished groups have been established: The Creative Music Associates of the State University of New York at Buffalo play throughout upper New York State and have performed at Carnegie Recital Hall in New York City. The Contemporary Chamber Players, in residence at Rutgers, the State University of New Jersey, play a mixed repertoire, with emphasis on contemporary music, in New Jersey and neighboring states. A typical program at Rutgers included works by Wagner, Bach, Milhaud, John Harbison, and Robert Moevs. (Mr. Moevs is composer-in-residence at Rutgers.) The Aeolian Chamber Players, in residence at Sarah Lawrence College, Bronxville, New York, include a violinist, flutist, clarinetist, cellist, and pianist. They perform unusual works of varied instrumental timbre, from forgotten baroque pieces to contemporary compositions, some written especially for them.

In addition to the University of Chicago group, two important ensembles play throughout much of the Midwest. One is the Lenox String Quartet, based at Grinnell College in Iowa under a three-year grant made in 1966. In addition to their programs on campus this year, the group played in Des Moines, Iowa, and at various locations in Illinois, Missouri, and Nebraska. About one third of the members' time is devoted to the instruction of music students at the College.

The other group, also located in Iowa, is composed of musicians attached to the Center for New Music in the University of Iowa's School of Music. The Center was founded with the aid of a Foundation grant to the University made in 1965. A group of gifted young people has been brought together at the Center, some of them both composers and virtuoso performers—a "new breed" of musician, according to the Center's director, Richard B. Hervig. The group on campus each year gives eight concerts and two composers' symposium concerts, the latter devoted solely to works by University of Iowa composers. They also perform on other college and university campuses in the Sioux City area.

At Mills College in Oakland, California, the Mills Performing Group of singers and instrumentalists combined forces last year with the San Francisco Tape Music Center, a group devoted to experimentation with new forms in music and related performing arts. The joint center is receiving support under a four-year grant made at the time of the merger.

SUMMER MUSIC ACTIVITIES

Summer festivals create a unique ambience for musical experience. The composers, professional performers, apprentices, teachers of music, and students who take part in them, the audiences who attend them, and those who later hear their performances on records or taped broadcasts all benefit from well-conceived programs. Four festivals of outstanding quality received Foundation support this past year: the Marlboro School of Music in Vermont, the Santa Fe Opera in New Mexico, the University of Illinois Summer Workshop for Contemporary Music in Urbana, and the Meadow Brook Festival in Rochester, Michigan.

The grant to the Marlboro School is earmarked for support of a composer-in-residence program. The School, a summer music program founded and directed by Rudolf Serkin, is attended by outstanding young musicians selected to study under master instrumentalists, most of whom are internationally known. In 1965 the Foundation sponsored the practice of inviting a composer-in-residence for the summer, and out of this experiment grew a contemporary music program operating within the context of the School's summer activities. Young composers are invited to spend the entire summer; a few well-known composers attend for shorter periods to supervise rehearsals of their own works; in addition, 20th-century masterworks are performed, further to familiarize instrumentalists with the technical problems of playing contemporary music.

The Summer Workshop at the University of Illinois is an intensive program devoted entirely to contemporary music. Young composers and performers from all over the country, most of them graduate students, participate

in seven weeks of rehearsals and performances. Several of the instrumentalists have subsequently been invited to join the Creative Music Associates in Buffalo, the Center for New Music in Iowa City, or the Contemporary Chamber Players in Chicago. Workshop performances at the University have attracted capacity audiences, largely made up of students.

In 1966 and again in 1967 the Foundation provided funds toward costs of a program to enable leading choral conductors from Latin America to attend Robert Shaw's master classes at the Meadow Brook Music Festival sponsored by Oakland University in Rochester, Michigan. Choral singing is relatively new in South America, and Mr. Shaw's tour of the continent in 1964 did much to excite enthusiasm for choral music and to broaden the outlook of leading conductors. At Meadow Brook about ten conductors each year had an opportunity to work in all areas of choral literature and to observe Mr. Shaw in rehearsals and performances with American singers.

Two grants were made this year in support of the Santa Fe Opera, which is widely known as a showcase for important contemporary operas as well as for imaginative presentation of classic works. The Rockefeller Foundation has given some support to the Opera's Apprentice Program for Young Singers since 1965, and this year made a grant continuing support for a three-year period. The apprentices are chosen in regional auditions held throughout the country, and they spend a summer, often two, at Santa Fe studying and performing with top-ranking professionals. This program is one of the few opportunities offered in America for firsthand experience in opera for young singers.

The Santa Fe Opera's outdoor theatre was destroyed by fire in the middle of the 1967 season, and much of the company's accessory equipment—sets, costumes, instruments, and stage apparatus—was burned. As rebuilding funds were being raised from other sources by a national musicians' committee headed by Igor Stravinsky and Goddard Lieberson, the Foundation made a grant to the Opera Association of New Mexico to cover the costs of replacing the lost equipment.

Summer programs devoted entirely to performer training are also receiving support. Grants made at the end of 1966 contributed to a program enabling young string players to study under master musicians at the East and West Coast branches of the Congress of Strings, based respectively at Saratoga Springs, New York, and Los Angeles. This program is co-sponsored by the American Federation of Musicians. A grant in aid made this year provided stipends to enable 11 young instrumentalists to study at the Aspen Music School in Colorado, where an intensive course in the techniques required for the performance of contemporary music is offered under the supervision of the distinguished composer Darius Milhaud.

MUSIC CRITICISM

Since 1964, a program to train music critics has been in operation at the University of Southern California, Los Angeles, with Foundation support. During the period 1964-1967, 20 candidates were graduated from the two-year course, which combines academic studies with newspaper experience under the supervision of a senior music critic. The courses were given by critics, composers, performers, and liberal arts scholars, and covered such subjects as aesthetics, art history, and literature, as well as music. All the graduates are now serving on large-city publications, such as *The New York Times*, the *Washington Star*, the *Chicago Sun-Times*, and the *Christian Science Monitor*.

This year a grant was made to extend the program through August, 1971, during which time 16 more music critics will be trained. The success of the pattern of regular course work followed by a period of apprenticeship has led educators to single out this method as a model on which to base training programs for critics in other fields of the arts.

THE THEATRE-UNIVERSITY MOVEMENT

Repertory theatres throughout the country, after a period of rapid development and high expectations, have found themselves faced with a series of difficulties, both financial and artistic. Dean Robert Brustein of the Yale School of Drama has publicly raised the question, "Does America want a theatre?" and the title of a widely publicized article by James N. Gardner asked, "Will No One Revive the U. S. Theatre?" Both called on the universities to take up the challenge, expressing a view that now is widely held by academic and professional people concerned with the crisis of theatre in America.

For the better part of a century, academic institutions have been sponsoring professional concerts and recitals, but until recently few ventured beyond the level of amateur or student productions in theatre. The Rockefeller Foundation, while continuing to encourage independent experimental troupes and creative repertory theatres, has been working to promote greater involvement of the universities in professional-level theatre. 1966 grants to New York University and Yale University supported the appointment of professional theatre artists to the faculties of their School of the Arts and School of Drama respectively; both Schools are developing vital programs in acting, directing, playwriting, and related theatre arts against a background of academic studies.

Cornell University, Columbia University, the University of Denver, and Oakland University in Rochester, Michigan, all received grants in aid in 1967 to help them establish professionally-oriented studies in theatre arts.

The Foundation has also made grants to support academic collaboration with independent theatre groups. This year the University of Washington, Seattle, received a grant to support actor training in collaboration with the Seattle Repertory Theatre. Candidates for the Bachelor of Fine Arts degree who are training for stage careers will spend their junior year as apprentices with the Repertory Theatre, or a similar professional troupe. A training program in all aspects of theatre, including choreography, costume design, improvisation, and scenic design, was supported for the second year at the University of Cincinnati in cooperation with the Playhouse in the Park. This approach, which combines liberal academic studies with conservatory-type training and firsthand experience, is gaining favor with educators and professionals alike.

Hunter College of the City University of New York has also established a working relationship with a local professional theatre group. The Chelsea Theater Center, a troupe of the off-Broadway type which concentrates on developing new plays and discovering new playwrights, has worked out an arrangement with the Hunter Graduate Division to cooperate in a playwrights workshop, with Foundation aid.

A slightly different formula, again emphasizing the playwright, was supported this year in two grants made for the Theater for Tomorrow series of the Milwaukee Repertory Theater. The Theater has strong ties with the Department of Theater Arts at the University of Wisconsin at Milwaukee and draws on university talent whenever possible. The Theater for Tomorrow project is designed to introduce new plays into the regular performance schedule, in alternation with traditional works, in an effort to develop contemporary drama in the context of a working repertory theatre rather than as an isolated experiment. The cultivation of audiences who are better attuned to contemporary modes of expression is a major concern; student interest in the new plays has grown measurably since the series began.

INDEPENDENT THEATRE GROUPS

Several independent groups devoted to serious theatre and to experimentation with new forms have been receiving Foundation support in recent years. Many have playwriting programs where readings as well as full productions of new plays and works in progress are presented to invited audiences. The American Place Theatre in New York, one of the best known and most successful of these, has been receiving Foundation aid since 1963 and this year was awarded a new grant extending support through 1970. Among its best-received productions have been Robert Lowell's *The Old Glory*, William Alfred's *Hogan's Coat*, and Ronald Ribman's *Harry, Noon and Night*. Other theatre groups which received Foundation aid this year included the Mark

Taper Forum in Los Angeles, the Theatre Company of Boston, the Long Wharf Theatre in New Haven, and three New York-based groups: the New Lafayette Theatre and Workshop, the La Mama Experimental Theatre Club, and the Repertory Theater of Lincoln Center, for the Forum Theater.

The Los Angeles group originated at the University of California at Los Angeles and was subsequently designated as the artistic unit for one of the two theatres in the city's new Music Center. The New Lafayette Theatre, located in Harlem, was created for the purpose of establishing a permanent professional theatre in the heart of the Negro community to seek out new material in the life of its people and to develop dramatic forms to which they respond and to which they can contribute. The La Mama Club concentrates on playwright development; it has produced early works by Sam Shepard, Jean-Claude van Itallie, Lanford Wilson, Megan Terry, and Leonard Melfi. After years of operating on a very slim budget in a loft in lower Manhattan, the Club recently acquired its own theatre. It is renovating the building and is making plans for a tour of United States universities and colleges interested in experimental theatre.

The Forum Theater, a 300-seat amphitheatre within the Vivian Beaumont Theater in Lincoln Center, has projected a program of activities serving repertory development and actor training; it will also serve as a showcase and proving ground for playwrights, actors, and directors in the greater metropolitan area. Young actors participating in the training program will also be involved in Vivian Beaumont productions and will have an opportunity to work closely with top-ranking professionals. The Forum Theater is making an effort to develop audience interest in serious theatre and to reach people, especially young people, from culturally deprived backgrounds who would not otherwise be able to see theatre at Lincoln Center. A number of tickets are being made available for each performance through neighborhood settlement houses, schools, and other agencies in disadvantaged sections throughout the city.

Grants made last year to independent theatre groups continued in 1967 to support the work of Albarwild Theatre Arts, New York, which is dedicated to presenting new and experimental plays; of Theater in the Street, which plays in disadvantaged New York neighborhoods; and of the Free Southern Theater, New Orleans, which tours rural Louisiana and Mississippi, bringing live theatre to many people who have never seen it before.

Several groups initially supported by the Foundation were selected this year by the National Endowment for the Arts for federal assistance; these included the American Place Theatre, Albarwild Theatre Arts, the Chelsea Theater Center, and the University of Minnesota's Office of Advanced Drama Research.

TEACHER TRAINING

A crucial area for development of the arts is the improvement of teaching at the secondary-school level. In both music and theatre the Foundation is focusing increasing attention on this important and relatively neglected cadre of educators.

Music teachers were involved in several grants made this year for support of summer institutes or festivals. Stetson University in DeLand, Florida, was host to 25 public school music teachers, who are also competent instrumentalists, at its Summer Institute held in conjunction with the Florida International Music Festival. For the second year, the Festival featured the London Symphony Orchestra. The teachers attended its rehearsals and performances; they also played in the Institute Orchestra and in chamber groups, where they received expert coaching from professionals, with the participation of members of the London Symphony Orchestra. Last year a grant enabled 20 teachers from Florida and neighboring states to attend the Institute, which represents one of the rare opportunities of this kind available to teachers in the Southeast.

A grant to Oberlin College Conservatory of Music supported a four-week summer workshop for public school music teachers, whose purpose was to emphasize performance ability and musicianship and provide an opportunity for the participants to gain familiarity with contemporary music. Two hundred and two teachers from 37 states attended the workshop last summer.

High school music teachers from Minnesota, chosen for their performing ability as well as their academic achievements, took part last summer in a similar music workshop sponsored by the University of Minnesota in conjunction with the Minneapolis Symphony Orchestra. The teachers' program was coordinated with a workshop for high school students, which included activities in band, orchestra, chamber music, and choral groups, recording sessions, and instruction in theory, composition, and music literature. Students and teachers participated in special reading sessions and were coached by members of the orchestra. Such programs as these do much toward raising the standards and broadening the scope of the musical education available in the nation's high schools.

Training of high school drama teachers is another area in which creative programs can have a very wide influence. Enrichment of secondary school drama courses is one of the main objectives of a summer program instituted by Wesleyan University in collaboration with the Eugene O'Neill Memorial Foundation. Their joint program in theatre, launched with Rockefeller Foundation assistance, offers summer courses in basic orientation, and in theatre history and theory, and provides workshop experience with all phases of theatre, including participation in a summer conference for playwrights.

About a dozen secondary school teachers participated in the course last summer, responding well to a rigorous schedule. This kind of firsthand experience gained from working alongside professionals is invaluable to the teacher of creative and performing arts.

HISTORY OF THE ARTS

We are approaching a time of introspection and recollection in the development of the arts in America, perhaps sparked by the creation of the National Endowments for the Arts and Humanities. Scholars deliberating the history of the arts in America could make important contributions to our self-knowledge as a rapidly developing culture as well as to self-awareness within the various fields they investigate.

A faculty group at Goucher College in Baltimore, Maryland, this year conceived an interdisciplinary forum on the history of the performing arts in America and, with the cooperation of the Peabody Conservatory of Music, launched a six-week summer institute to probe the subject from different points of view. Courses were taught by Goucher faculty members whose backgrounds included both academic and professional achievements in music, theatre, dance, and film, and in addition distinguished critics and historians of the performing arts were invited as guest lecturers. Registered participants were mainly high school teachers and graduate students, but several of the events were open to the public, including the guest lectures, a production of an early American play entitled *Mrs. Moffett's Manners*, exhibits, and concerts and recitals by the Baltimore Chamber Orchestra and the Claremont Quartet. The Foundation made a grant in aid to Goucher to support this Institute, in the hope that other groups might be encouraged to sponsor similar research.

Another grant for historical investigation enabled the playwright (*In White America*) and social historian Martin Duberman, of Princeton University, to complete research on the history of Black Mountain College, formerly located in Asheville, North Carolina. The College was a pioneer in the area of education in the arts between 1933 and 1956. Mr. Duberman is interested in advantages and deficiencies of unstructured education in programs aimed at fostering creativity. In the light of the current trend toward closer associations between academic centers and all of the arts—relationships which are believed by many to hold immense promise—the experience of Black Mountain College is of particular relevance.

EDUCATIONAL TELEVISION

Leaders in the field of educational television are constantly seeking new techniques and programming concepts to give this potentially effective

medium a more vital role in the creative arts as well as in audience development. In supporting experimental work in public television, the Foundation is currently focusing attention on bringing artists and writers into association with television production staffs to explore new ideas and experiment with technical novelties.

Two 1967 grants supported this kind of experiment, one at Station WGBH in Boston and the other at Station KQED in San Francisco. Both stations launched exploratory programs in which artists from various fields are invited to collaborate for short periods with the studio production staff in a workshop situation. Tapes are made for broadcast as "research-in-progress" reports, to elicit audience response and interest.

The Foundation has made grants in the past to the Educational Broadcasting Corporation of New York for development of cultural programming. The first grant was made in 1962; the latest, made late in 1966, supported a series of productions for Station WNDT, New York, featuring the rehearsals and final performances of four classical plays. In addition to raising the general level of television broadcasting, such programs serve to develop wider audiences for the creative and performing arts.

DANCE

Modern dance is one of the three original North American performing art forms (the others are films and jazz), and yet American dance companies are generally better known abroad than in the United States. This has been more a matter of circumstance than of cultural demand. American interest in dance is rapidly growing, especially in college and university centers. The Foundation is seeking to support the development of dance in various ways.

Last year an important grant to the University of Utah helped establish the first professional dance company ever to be in residence at a United States university, and the arrangement has proven to be successful. In 1967, a grant was made to support the creation by Eliot Feld of a new ballet, *At Midnight*, for the American Ballet Theatre. Another enabled the Merce Cunningham Dance Company to appoint a full-time administrator to survey dance programs in colleges and universities, for the purpose of establishing ties between professional dance companies and educational centers interested in dance.

CREATIVE WRITING

Three years ago the Foundation launched an experimental program in imaginative writing and literary scholarship designed to help individual writers pursue their creative work. Grants are based on the recipients' needs.

Some grantees have been freed from routine jobs, academic responsibilities, or commercial writing commitments to devote full time to work in progress; some were enabled to travel or to pursue research; others took university courses or explored new environments—Chicago's poverty program was one; the television industry another.

Flexibility is one of the underlying principles of the program, whose search for excellence and for promise covers a very broad range of literary pursuits. Nominators from all over the country are asked to name possible candidates for the awards; a central advisory committee composed of eminent men of letters then selects a roster of applicants, from which the grantees are finally chosen. The nominators are key figures in this search; they are scholars, editors, and writers known for their broad cultural interests and critical acuity. This year the number of nominators was doubled, and a special effort was made to include a wider spectrum of interests: natural scientists and social scientists, interested in literature generally and in good writing in their own specialties, were asked to propose candidates. As the program develops, more attention is being given to the essay form and to writing on social, political, and ethical problems. Most of the grants have been administered by a college or university.

The writers selected for the awards range from well-established novelists and poets of the highest reputation, such as Philip Roth, May Swenson, and Eudora Welty, to young and talented people who are all but unknown. A large number of the grantees have distinguished critical reputations but a limited public. In making the grants, the Foundation tries to offer its assistance—both financial aid and psychological support—at a time when it can make a significant impact on the artist's career. This may be when a young person's work first starts to appear; it may be at a point when personal or career responsibilities threaten to engulf a creative project long in germination; it may be at the height of a writer's productivity when a year's freedom to travel or do research can be crucial for the quality of his work. Such factors as these are taken into careful consideration both in selecting the grantees and in determining the amount and uses of the grant.

Since the program began, 61 writers have received awards, ranging in amount from \$14,000 to less than \$2,000, for periods as short as an academic semester or as long as two years. The grantees have come from all parts of the United States. Nearly every generation has been represented: a few writers were in their mid-twenties when they received their awards, and some were over 65; the largest number were in their middle years.

The results, as far as they can be assessed, are encouraging. For example, Ronald Milner, one of the youngest of the grantees, completed a play, which

was produced at the American Place Theatre, and a novel, soon to be published. In 1966, when the grant was made, he was a civil service clerk in Detroit; now he is on the faculty of Lincoln University. Philip Roth, one of America's most brilliant young writers, was assisted while writing his latest novel, *When She Was Good*; critics have called it his best work to date. Other grantees have published new poetry, fiction, or works of scholarship.

Playwrights constitute another group of writers being aided by the Foundation. Their needs are somewhat different from those of poets or novelists, since they must eventually work with a director, cast, and crew. A few individual awards were made this year to enable selected playwrights to devote full time to writing, to visit theatre centers in this country and abroad, or to experiment with new forms. Among the grantees were Leonard Melfi, Emanuel Peluso, and Douglas Taylor. A recent *Life* review hailed Melfi as a humanist, "the first serious contemporary playwright who is focused on real people in an effort to save themselves by reaching for one another."

A great many younger playwrights benefit from the Foundation-supported university theatre centers described above, most of which have playwriting units where works in progress receive staged readings or full productions under professional direction. Under a 1967 grant, a new playwriting program at Wesleyan University is training four graduate fellows in collaboration with the Eugene O'Neill Memorial Theater Foundation. The same program includes a summer playwrights' conference held at Waterford, Connecticut. An advanced training program for playwrights at Villanova University, which received a Foundation grant last year, is continuing to offer graduate work in playwriting at the post-M.A. level.

Salt flats are rehearsal stage for members of the University of Utah Repertory Dance Theatre, here rehearsing specially commissioned dance "Canticle." During 1967 the Repertory Dance Theatre established itself to critical acclaim as the nation's only repertory dance group to operate as a professional company within a university framework.



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UTAH: A UNIVERSITY DANCE THEATRE



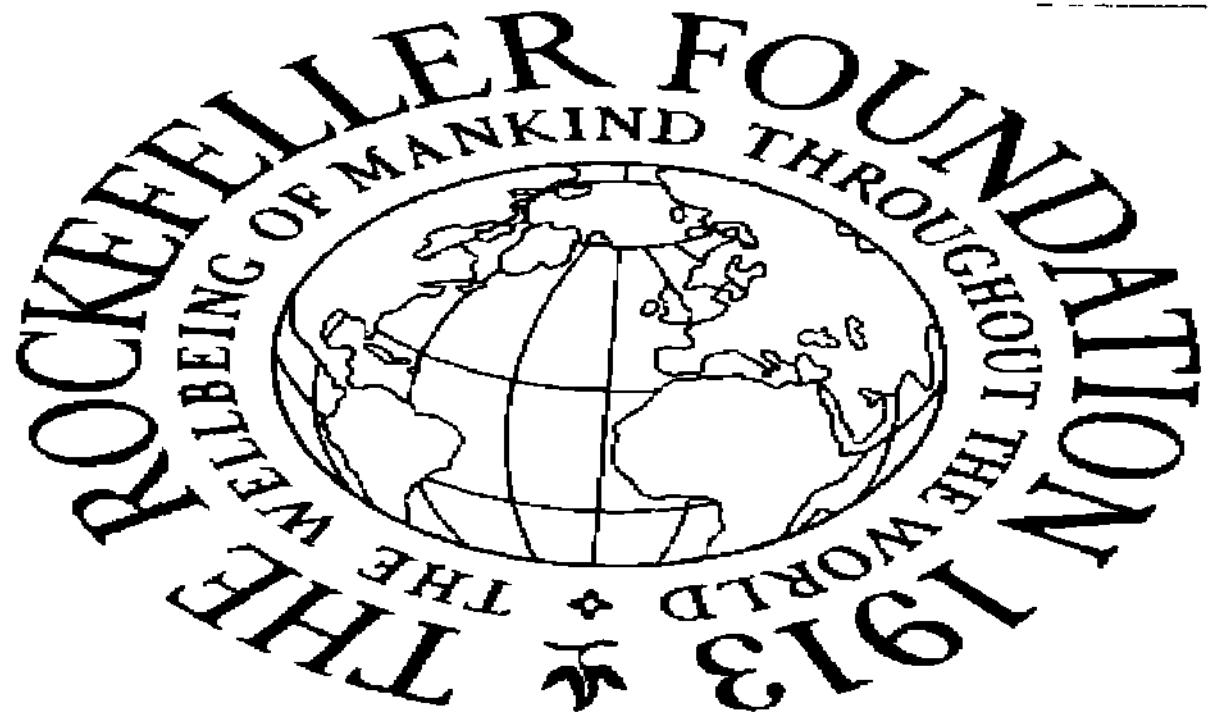
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Like professional dancers everywhere, Repertory Dance Theatre members spend long hours

every day in training and rehearsals. In addition, some dancers are taking graduate courses.



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After the group has gone through exercises, Utah faculty member Phillip Keeler (below) supervises rehearsal of "Danse Intime," a dance he choreographed to music by Igor Stravinsky.



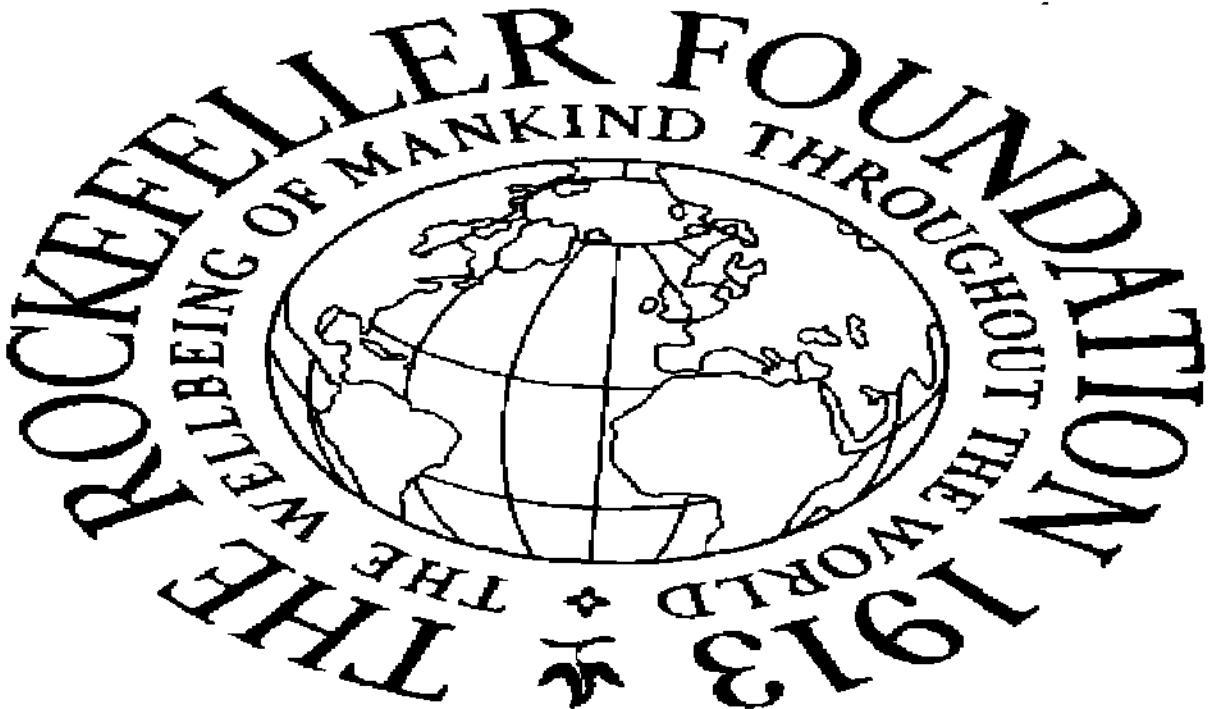
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Dancers meet frequently for group discussions. "Dancers can do anything with space," Artistic Director Joan Woodbury (right) tells group.

"They can touch it, box it up, mold it, jump over it, toss it, bounce it, kick it, slice it, stab it, bread-and-butter it, chew it; they indulge it."



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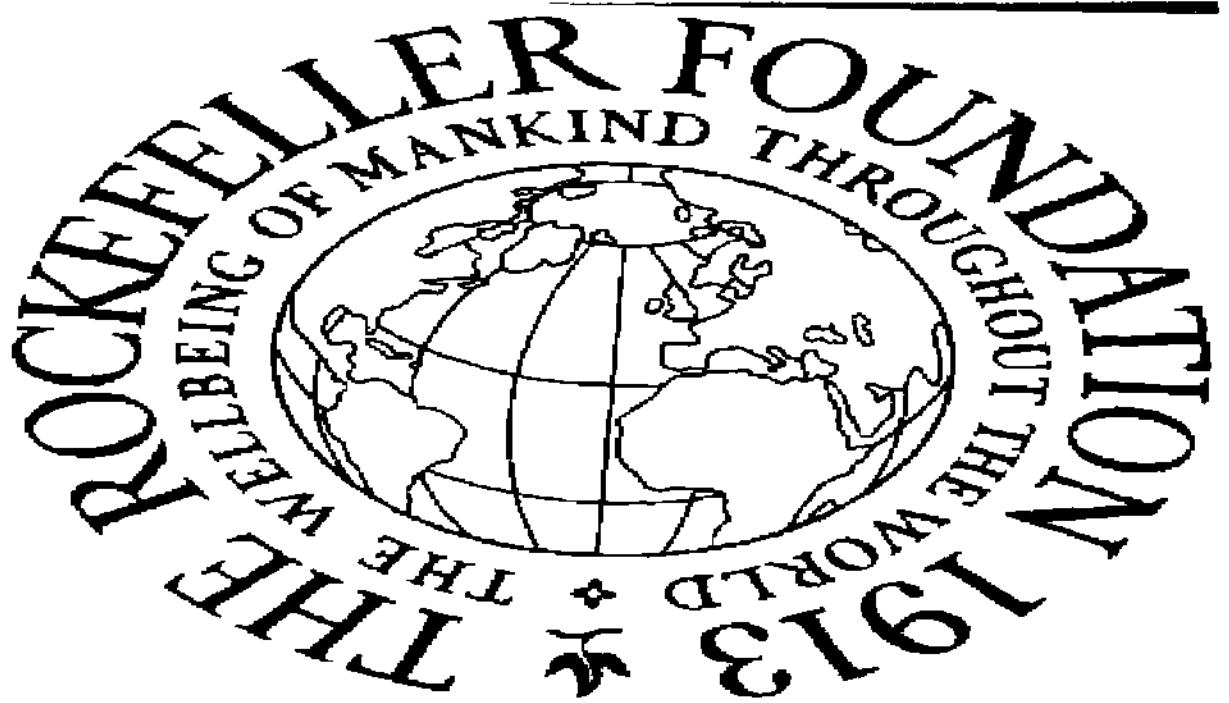


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On tour, group puts on dance demonstration in local high school. In its first year of existence, the University of Utah Repertory Dance Theatre has performed in concerts and demonstrations, and has conducted master classes for thousands of people in the intermountain west.



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One of most popular pieces in Dance Theatre's repertoire is "Chant" (below), performed to "sound" by John Cage and Lou Harrison and

choreographed by Tim Wengerd, a member of the company. *Above*, "Danse Intime," shown in rehearsal on page 131, in premiere performance.



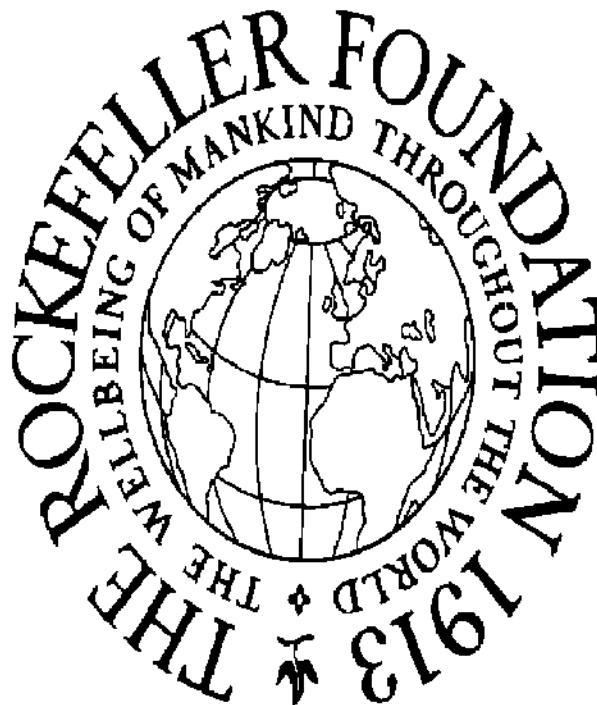
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After performance dancer Kathleen McClintock received congratulations from Edward Maryon, dean of the University's College of Fine Arts.

The opening night of "Dance '67" in Kingsbury Hall astonished critics, one of whom characterized evening as "nothing short of a triumph."



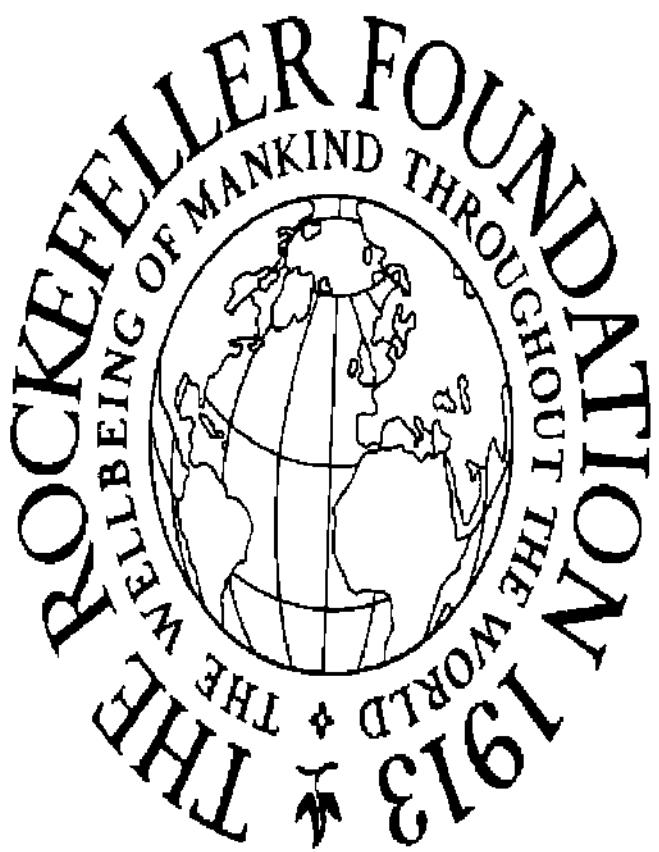
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The Children's Dance Theatre, which was founded 18 years ago by Virginia Tanner (*left*), has made appearances throughout the United States. Each year some 600 children from preschool to high school age are given near-professional training. Rockefeller Foundation support in the past enabled Miss Tanner to bring leading choreographers and dancers to the University to help prepare new dance works for public performance. Today the Children's Dance Theatre appears in some of the special programs presented by repertory dance group.

GRANTS

AIDING OUR CULTURAL DEVELOPMENT

UNITED STATES

AMERICAN PLACE THEATRE, New York: toward the costs of its creative, experimental, and operational activities; \$126,000 through June, 1970;

PROFESSOR WILLIAM ARROWSMITH, classics and humanities scholar, University of Texas, Austin: to devote full time to writing; \$12,000;

BALLET THEATRE FOUNDATION, New York: to enable choreographer Eliot Feld to prepare a new ballet, *At Midnight*, for the American Ballet Theatre; \$5,500;

BAY AREA EDUCATIONAL TELEVISION ASSOCIATION, San Francisco, California: toward the costs of an experimental workshop on cultural programming, television production techniques, and program concepts, involving cooperation between the production staff of television station KQED and groups of creative artists from various fields; \$150,000 for a two-year period;

LUCIANO BERIO, composer: to devote full time to creative activities in music during the summers of 1967 and 1968; \$4,500;

ADOLF JOHANNES "DOLLAR" BRAND, composer and performer: to study musical composition under the direction of Hall Overton; \$5,500;

ED BULLINS, playwright, New York: to devote full time to writing; \$4,900;

CENTER THEATRE GROUP OF LOS ANGELES, California: toward costs of the Mark Taper Forum playwright-directors development program; \$14,550;

MICHAEL COLGRASS, composer: to study and observe theatre activities at centers in the United States, Canada, and Europe; \$13,000;

COLUMBIA UNIVERSITY, New York: toward costs of a program of professional associates in theatre; \$10,550;

CONNECTICUT PLAYERS FOUNDATION, New Haven: toward a theatre-in-the-streets program of the Long Wharf Theatre; \$18,400;

CORNELL UNIVERSITY, Ithaca, New York: toward costs of planning the establishment of a producing ensemble in drama; \$6,250;

CUNNINGHAM DANCE FOUNDATION, New York: to enable Lewis L. Lloyd to serve as full-time administrator to survey dance programs in colleges and universities in the United States on behalf of the Merce Cunningham Dance Company and other American dance companies; \$12,000;

- FEREIDOUN M. ESFANDIARY**, New York: to devote full time to writing; \$4,700;
- TOM EVEN**, playwright, New York: to devote full time to writing; \$6,350;
- MARTIN GOTTFRIED**, drama critic, New York: to visit theatre centers in the United States, Canada, and Europe; \$2,500;
- SAUL GOTTLIEB**, New York: to complete research and writing on the Living Theatre; \$10,000;
- GOUCHER COLLEGE**, Baltimore, Maryland: toward the costs of a six-week institute in the history of the performing arts in America; \$15,000;
- FATHER RONALD L. HOLLOWAY**, film critic, Chicago, Illinois: to devote full time to writing, in Europe; \$11,800 for a two-year period beginning in January, 1968;
- HUNTER COLLEGE OF THE CITY UNIVERSITY OF NEW YORK**: toward costs of an experimental program in playwriting in cooperation with the Chelsea Theater Center; \$14,500;
- INTERNATIONAL GRAPHIC ARTS SOCIETY**, New York: toward establishing print loan collections at 15 predominantly Negro colleges and universities; \$14,500;
- PETER JAY**, poet and translator: to devote full time to his creative activities; \$2,000;
- ARTHUR KOPIT**, playwright, Sag Harbor, New York: to devote full time to his creative activities; \$6,000;
- LA MAMA EXPERIMENTAL THEATRE CLUB**, New York: toward the costs of its activities; \$65,000;
- MARLBORO SCHOOL OF MUSIC**, Vermont: toward the costs of a contemporary music program; \$50,000 through August, 1969;
- LEONARD MELFI**, playwright, New York: to devote full time to writing; \$5,850;
- MILWAUKEE REPERTORY THEATRE**, Wisconsin: toward the cost of its Theater for Tomorrow series; \$50,000;
- MUSIC ASSOCIATES OF ASPEN**, Colorado: to enable 12 skilled instrumental students to participate in the Aspen Music School during the summer of 1967; \$3,600;
- FREDRIC E. MYROW**, composer: to pursue creative work in musical composition; \$4,600;
- NEW LAFAYETTE THEATRE AND WORKSHOP**, New York: toward costs of establishing a permanent theatre company and workshop in Harlem; \$17,500;
- NEW YORK UNIVERSITY**: toward costs of the developmental program of *The Drama Review* under the direction of Richard Schechner; \$15,000;
- NORTH CAROLINA SCHOOL OF THE ARTS**, Winston-Salem: toward the establishment, in conjunction with the Winston-Salem Symphony Orchestra, of a group to be called the Piedmont Chamber Players; \$233,000 for a five-year period beginning in July, 1968;

OAKLAND UNIVERSITY, Rochester, Michigan:

Toward costs of developing the training program of its Academy of Dramatic Art; \$25,000;

Toward costs of inviting Latin American choral conductors to participate in master classes under the direction of Robert Shaw at the Meadow Brook Music Festival in the summer of 1967; \$7,500;

OPERA ASSOCIATION OF NEW MEXICO, Santa Fe:

Purchase of equipment, scenery, and costumes for the Santa Fe Opera; \$150,000;

Toward the expenses of the Santa Fe Opera's Apprentice Program for Young Singers; \$100,000 for a three-year period;

OPERA COMPANY OF BOSTON, Massachusetts: development, through its American National Opera Company, of nationwide programs for community support and audience education; \$25,000;

EMANUEL PELUSO, playwright, New York: to devote full time to writing; \$5,750;

PHILHARMONIC-SYMPHONY SOCIETY OF NEW YORK: to enable Lester Trimble to serve as composer-in-residence with the New York Philharmonic; \$7,800;

PORLTAND STATE COLLEGE, Oregon: to support a program of concert-demonstrations at academic institutions in Oregon by its Group for Contemporary Music, under the leadership of David Bloch; \$24,000;

PRINCETON UNIVERSITY, New Jersey: to enable Martin Duberman, playwright and social historian, to complete research on the history of Black Mountain College; \$13,000;

DAVID RECK, composer: to continue musical composition and to study improvisational aspects of Indian music; \$12,400 for an 18-month period;

REPERTORY THEATER OF LINCOLN CENTER, New York: toward costs of experimental theatre projects and a new play and training program at the Forum Theater; \$25,000;

ALAN SCHNEIDER, theatre director, Hastings-on-Hudson, New York: to study theatre developments in Eastern Europe; \$1,425;

SEATTLE REPERTORY THEATRE, Washington: to enable Pirie MacDonald to strengthen his abilities as a professional stage director through study at Harvard University and observation of theatre activity in the United States and Canada; \$8,300;

SAM SHEPARD, playwright, New York: to devote time to writing and to visit drama centers in Europe; \$6,800;

SPELMAN COLLEGE, Atlanta, Georgia: in support of the founding of an intercollegiate chorus, under the supervision of Robert Shaw, composed of students and faculty from institutions in the Atlanta University Center complex and neighboring universities and colleges; \$5,000;

STATE UNIVERSITY OF NEW YORK AT STONY BROOK: to enable Nam June Paik to serve as consultant in communications research in its Instructional Resources Center; \$13,750;

STETSON UNIVERSITY, DeLand, Florida: to enable public school music teachers to participate in a summer institute in conjunction with the Florida International Music Festival and the London Symphony Orchestra; \$11,000;

DOUGLAS TAYLOR, playwright, New York: to devote full time to writing; \$6,250;

MISS MEGAN TERRY, playwright, Georgetown, Connecticut: to devote full time to writing; \$6,000;

THEATRE COMPANY OF BOSTON, Massachusetts: toward costs of its program of new plays; \$21,000;

THEATRE INCORPORATED, New York: toward costs of a training program in voice, movement, and acting for members of the Association of Producing Artists Repertory Company; \$25,000;

UNIVERSITY OF CALIFORNIA, Los Angeles: toward developing the actor training program of its Department of Theater Arts; \$15,000;

UNIVERSITY OF CHICAGO, Illinois: toward the costs of continuing and expanding the musical activities of the Contemporary Chamber Players under the direction of Leonard B. Meyer and Ralph Shapey of the Department of Music; \$150,000 through June, 1971;

UNIVERSITY OF CINCINNATI, Ohio: toward costs of continuing an experimental theatre program with the Playhouse in the Park; \$15,000;

UNIVERSITY OF DENVER, Colorado: toward costs of developing the training program of its Department of Theatre; \$14,875;

UNIVERSITY OF ILLINOIS, Urbana: toward costs of the 1967 Summer Workshop for the Performance of Contemporary Music; \$14,650;

UNIVERSITY OF MASSACHUSETTS, Amherst: to enable Dr. John S. Harris to undertake research in the United Kingdom on government support of the arts; \$2,400;

UNIVERSITY OF MINNESOTA, Minneapolis: toward costs of the 1967 High School Music Teachers' Workshop in conjunction with the Minneapolis Symphony; \$13,700;

UNIVERSITY OF NOTRE DAME, Indiana: for use by its Center for the Study of Man toward an evaluation of the University's Freshman Introduction to the Humanities Seminar; \$9,500 for a three-year period;

UNIVERSITY OF PENNSYLVANIA, Philadelphia: toward costs of maintaining the Penn Contemporary Players as a performing ensemble-in-residence; \$16,650;

UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles: toward the continuation by its School of Performing Arts of a training program for music critics; \$280,000 through August, 1971;

UNIVERSITY OF WASHINGTON, Seattle:

Support of the activities of the Contemporary Performing Group of its School of Music; \$190,000 for a five-year period;

Toward the costs of a cooperative program in actor training between the University's School of Drama and the Seattle Repertory Theatre; \$54,000 for a three-year period;

WESLEYAN UNIVERSITY, Middletown, Connecticut: toward the costs of a developmental program in theatre involving playwrights and high school drama teachers in cooperation with the Eugene O'Neill Memorial Theater Foundation; \$233,000 through June, 1970;

WGBH EDUCATIONAL FOUNDATION, Boston, Massachusetts: toward the costs of an experimental workshop on television program concepts and production techniques for cultural programming; \$275,000 for a three-year period;

ANDRZEJ WIRTH, author and theatre critic: to enable him to continue research and writing on a book on theatre; \$1,200;

YALE UNIVERSITY, New Haven, Connecticut: toward salaries of a core professional acting-teaching group at the University's School of Drama; \$300,000 through September, 1972.

University—Symphony Orchestra Program

The following universities or symphony orchestras have received grants enabling the orchestras to lengthen their regular seasons, spending the extra time on university campuses performing works primarily by young, less-known American composers:

GOUCHER COLLEGE, Baltimore, Maryland: Baltimore Symphony Orchestra; \$19,500;

INDIANA STATE SYMPHONY SOCIETY: Indianapolis Symphony Orchestra in association with Indiana University and Indiana State University; \$19,200; in association with Butler University and Indiana State University in the 1967-1968 season; \$16,350;

OAKLAND SYMPHONY ORCHESTRA ASSOCIATION, California: Oakland Symphony Orchestra in association with the University of California, Berkeley, in the 1967-1968 season; \$20,000;

SAN FRANCISCO SYMPHONY ASSOCIATION, California: San Francisco Symphony Orchestra; \$20,000;

SOUTHERN ILLINOIS UNIVERSITY, Edwardsville: St. Louis Symphony Orchestra in the 1967-1968 season; \$12,500;

SOUTHERN ILLINOIS UNIVERSITY FOUNDATION: St. Louis Symphony Orchestra; \$20,000;

SEATTLE SYMPHONY ORCHESTRA, Washington, in association with the University of Oregon, the University of Idaho, and the University of Montana; \$15,875;

SPELMAN COLLEGE, Atlanta, Georgia: Atlanta Symphony Orchestra in the 1967-1968 season; \$18,925;

UNIVERSITY OF UTAH, Salt Lake City: Utah Symphony Orchestra in the 1967-1968 season; \$12,500;

UNIVERSITY OF WASHINGTON, Seattle: Seattle Symphony Orchestra in the 1967-1968 season; \$17,470;

UNIVERSITY OF WISCONSIN, Milwaukee: Milwaukee Symphony Orchestra in the 1967-1968 season; \$8,000.

Creative Writing and Literary Scholarship Program

In support of creative writing and literary scholarship, a total of \$174,460 was appropriated. The following individual awards were made, in many cases administered by a college or university:

RICHARD BANKOWSKY (Sacramento State College, California);

ROBERT BLY, Madison, Minnesota;

EVAN S. CONNELL, JR., San Francisco, California;

FRANK CONROY, New York;

STANLEY ELKIN (Washington University, St. Louis, Missouri);

LOUISE GLUCK (Mrs. Charles Hertz, Jr.), New York;

SIDNEY GOLDFARB (Massachusetts Institute of Technology, Cambridge);

ROBERT HIVNOR, New York;

RICHARD HUGO (University of Montana, Missoula);

MADISON JONES (Auburn University, Alabama);

GALWAY KINNELL, Sheffield, Vermont;

DR. JOHN KNOEPFLE (Saint Louis University, Missouri);

THOMAS W. MOLYNEUX (University of Delaware, Newark);

STANLEY Moss, New York;

CHARLES NEWMAN (Northwestern University, Evanston, Illinois);

JAMES PURDY, New York;

PETER RODGERS (Columbia University, New York);

HARVEY SHAPIRO, New York;

WILFRID SHEED, Leonia, New Jersey;

MAY SWENSON, New York;

R. G. VLIET, Hampden, Massachusetts;

RICHARD YATES (University of Iowa, Iowa City);

JOHN YOUNT (University of New Hampshire, Durham).

TOWARD EQUAL OPPORTUNITY FOR ALL

The direction of the Foundation's work in 1967 moved from largely higher-education-oriented efforts to projects dealing more directly with poverty and discrimination in urban and rural America.

This move reflects not only a sense of urgency to come to grips with crisis situations, but also the Federal Government's rapid and wide support of programs previously demonstrated by the Foundation. As a consequence, The Rockefeller Foundation began an intense examination of new approaches which, with the investment of the relatively modest funds available, might lead to demonstrable improvements in the condition of disadvantaged minorities. Of considerable interest therefore are grants for the development of Negro leadership in public service and business; for the easier and more effective transition of the Negro into the world outside the ghetto; and for legal and educational assistance to the underprivileged, particularly in the South.

An attempt both to increase the number of leaders and improve the quality of leadership in the ghettos was reflected in a three-year grant renewal for the National Urban League's Leadership Development Program. The change in the Program's direction was significant. Whereas the intent of the original Program had been to draw on upper- and middle-class Negroes, the effort is now aimed increasingly at development of neighborhood leaders and local civic leaders.

In its first 18 months of operation, some 950 Negroes participated in programs organized by the Urban League in ten cities. Of this number, 200 persons are now listed as members of community boards, welfare councils, and other public and private agencies.

The Foundation underscores the importance of this program, which seeks out grass-roots leaders whose responsibility to the community welfare will be reflected upwards, while they reflect their guidance down.

In this regard, a Foundation grant also went to the Washington Urban League to enable it to expand its problem-oriented program that deals with schools and housing, employment and job training. An innovative feature of the Washington Urban League's operations was the Police-Community Alert Council. This provided communication between the ghetto and authorities; young men on the Alert Council field staff circulated through the streets and kept contact with liaison representatives at police offices. The purpose was to stabilize or prevent incidents, to channel young people into recreational activities, and to advise them on job training opportunities.

The Foundation made two grants in 1967 to help pioneering efforts to hasten the reduction of discrimination against Negroes while advancing their careers. The first of these grants enabled Economic Opportunity Program, Inc., in Miami, Florida, to undertake a Management Internship Program that is designed to establish some 60 Negro college graduates in supervisory and management positions with a good future in corporations and in government and public service agencies in the Miami area. EOPI has charge of a wide range of activities including child development programs, neighborhood centers, legal services, family planning clinics, credit unions, and job development programs. The difficulty of finding qualified and experienced Negro administrators for these services, a difficulty encountered by other prospective employers in the area, first led to the idea of initiating such a program. Training which includes a period of supervised internship is proving to be helpful to both employers and employees, and is expected to reinforce prospects of success. EOPI officials believe that this project can serve as a pattern-setting demonstration in the South, by showing how supervisory and management positions in business and industry as well as in public service and government agencies can be opened to Negroes on a wider scale. It will also help broaden the range of career possibilities open to Negro college graduates, many of whom are seeking alternatives to their traditional occupational opportunity of teaching.

The second of these grants is helping the Greater Cleveland Associated Foundation with two projects that are likely to uncover additional opportunities. One is a program to identify and train Negro executives in Cleveland. The other is a survey of citizens of the Hough area, a Negro slum district, to determine their views about major problems of the neighborhood and programs needed to deal with them.

The school dropout problem was the focus of grants to the Friends Neighborhood Guild, Philadelphia, and to the Higher Education Opportunity Committee, Detroit. The projects will work with slum boys, mainly Negroes, who through apathy or hopelessness and inability to keep up with regular school work are on their way to quitting school.

The Friends Neighborhood Guild is concentrating on youths who cannot be aided through regular educational or welfare channels. With the help of a previous Foundation grant, the Guild is carrying out a project called "Threshold Program," which undertakes to persuade and help these boys either to stay in school and go on to college or post-high-school vocational training, or to take and hold jobs under supervision until their demonstrated dependability permits their placement with firms that will employ them and train them on the job. With the cooperation of the public and parochial schools in the large disadvantaged neighborhood served by the Guild, a

staff of specialized educators, counselors, and social workers is attempting to guide young people toward rewarding careers. The first year of the program has been successful in starting a number of young people on the road to further training or college; it has been most effective with girls, however, who account for two thirds of those helped by the program. The Guild is now making a special effort to reach Negro boys who are actual or potential school dropouts. For this purpose a guidance unit is being set up in a large public housing project, with recruiting stations at other selected sites. Additional staff members will work with the boys and help place them with firms which will provide on-the-job training; for young people of exceptional ability, the Threshold Program has arranged for a college preparatory year at one of several cooperating independent day schools.

A grant to the Higher Educational Opportunity Committee in Detroit will enable a group of civic-minded Negro and white citizens, in cooperation with Wayne State University and other local institutions, to improve and enlarge a program to keep pupils in Detroit's inner-city schools on the road to better education or vocational training. An unusual counseling program in junior and senior high schools in the ghetto areas is aimed at overcoming student apathy or hopelessness. Referral to government-supported vocational training programs, or help to get into college and to secure necessary financial aid, are measures designed to assure young people that persistent effort on their part will not be futile.

Grants in aid to the Southern Education Fund and to the University of Wisconsin indicate the Foundation's exploratory interest in the importance of earlier levels of education for improving minority-group opportunities.

The Southern Education Fund will stimulate introduction of kindergartens in public school systems in the South—especially in school districts in poorer areas—and encourage training of teachers of both races for work with kindergarten and preschool children.

The grant to the University of Wisconsin will help to provide special training for elementary school teachers in disadvantaged urban and rural school districts. The program will include a summer laboratory school on the Madison campus for pupils from culturally diverse backgrounds. Most of the pupils are American Indians from impoverished rural areas and Negroes from urban ghettos.

A pioneering effort to hasten the reduction of discrimination against Negroes, while advancing their access to equal opportunity, was supported through a grant enabling the NAACP Legal Defense and Educational Fund to develop a Community Service Division and to expand its program in Southern communities. The NAACP aims to aid citizens through education, counseling, and assistance, rather than litigation, to achieve the equality of treat-

ment that the law promises in public education, employment, welfare, and the processes of government. The program will exert a major effort in rural areas in the deep South.

The Federal Government has moved rapidly, through the Office of Economic Opportunity and the Office of Education, to support on a national scale programs to improve the opportunities for higher education for disadvantaged citizens. This has permitted the Foundation to begin phasing out certain aspects of its support. A few initial grants were made this year for educational programs, however, in response to special considerations.

A grant to Bowdoin College, in Brunswick, Maine, was made in recognition of students' initiative and participation in recruiting and assisting Negro applicants. Bowdoin's willingness to commit its own resources and its readiness to take over and continue the program after the termination of the Foundation's tapering grant was also a strong factor.

A similar grant to Cornell University took into account its interest in experimenting with the admission of academically risky minority-group students, and its concern with the effectiveness of special measures to overcome their academic difficulties. In addition to financial aid, these measures included tutoring, counseling, modified academic programs, and summer reinforcement courses, as dictated by individual needs. This group showed a markedly lower rate of academic dismissal, dropout, and transfer than the student body as a whole.

Cornell's experience will undoubtedly be of value to other institutions in helping to establish guidelines for judging applications from culturally disadvantaged students. Here, too, the Foundation's support was based on the University's readiness to accept responsibility for a major and increasing share of the cost of the program and for its continuation.

The Foundation's Equal Opportunity grants to help college students are open to all minority groups, but Negroes have naturally received the primary benefits. Two initial grants were made this year to institutions of higher education in southern California where Mexican-Americans are the largest minority group.

One grant will enable the Claremont Colleges to launch a joint program of Special Directed Studies for Mexican-American and other economically and socially disadvantaged students in the area. Under this program staff members from the five Claremont Colleges will work closely with high school counselors to select underachieving students of high potential and to stimulate their interest in going to college. When these students are enrolled, they will enter the Special Studies program for the first year or two, will be helped to overcome their educational problems, and then will move into regular college programs as promptly as they are prepared to do so.

A grant to the University of California at Los Angeles will enable its Educational Opportunities Program to give greater attention to Mexican-American students. The University is making a special effort to recruit and maintain students from minority groups and low-income families in southern California. Funds contributed by the University's faculty, staff, and students and by the local community are matched on a five-to-one basis by the University Regents.

The Foundation's grant will enable the University to add a staff member who will give major attention to schools, students, and families in Mexican-American neighborhoods, in an effort to bring a larger number of Mexican-American high school students into its Upward Bound Program and to help them attend the University.

As part of the phasing-out of primary emphasis on educational opportunities for minorities, grants were made to Antioch, Grinnell, Oberlin, and Reed Colleges to extend for a second three-year period support of their programs of special recruitment of minority-group students and assistance, both academic and financial, during their undergraduate years.

The renewal of these grants allows these institutions to make the most effective use of available government funds and to raise additional funds from private sources to enlarge and continue these programs.

Similar renewal grants were made to Oberlin College and Princeton University for continuation of their summer programs for disadvantaged secondary school students with college potential.

The Hotchkiss School, in Lakeville, Connecticut, received a supplementary grant to meet increased costs in its summer program, begun in 1965, for 100 promising boys from urban slums.

A second grant to Western Washington State College, Bellingham, assisted continuation—with substantial federal and state government support anticipated—of its summer and follow-up program for rural junior high school pupils. A special feature of this program is its emphasis on American Indian and Mexican-American pupils, of whom there are many in the area.

The Associated Colleges of the Midwest, comprising ten coeducational liberal arts schools, are recruiting and assisting disadvantaged students, mostly from minority groups, using their own funds and those available under Federal Government programs and from private sources. A Foundation grant is supporting a trial program in which these colleges are cooperating in a transitional academic year on one or another of their campuses. This program permits each of the colleges to admit students of high promise whose academic preparation for college is insufficient and to place them in the special program for the first year. The students will take some regular freshman courses in addition to necessary make-up and remedial courses. They will

receive extra counseling and tutorial assistance as needed and, as soon as they are ready, will move into full college work. This year the program is located at Coe College, Iowa.

In summary, during the first three years of the Foundation's program *Toward Equal Opportunity*, attention was focused chiefly on strengthening higher educational opportunities for minority groups, primarily Negroes. The Foundation's long-range objective was to accelerate institutional changes in America's educational system that would result in the training of Negro leaders and facilitate their entry into the mainstream of American life.

A series of grants to colleges and universities, in both the North and the South, helped start programs to recruit and assist students from minority groups. Another series of grants enabled a few institutions to launch summer programs designed to identify potentially outstanding minority-group students in junior or senior high schools and help them get started on successful preparation for college.

During 1967, the fourth year of the program, the Foundation began to modify its original emphasis on higher educational opportunities and started to explore a wider range of possibilities raised by the country's war against poverty and discrimination.

Staff members of the Management Internship Program in Miami work to recruit and prepare Negro college graduates for both middle- and high-level jobs in business and government. They lead discussion groups and preliminary training sessions for management interns, and they regularly act as a liaison between employers and trainees.



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MIAMI: BREAKTHROUGH TO A CAREER



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Edna Mingo works as a draftsman trainee with Miami architect Arthur L. Breakstone. She was placed by the Program about three months after her graduation from Hampton Institute.

William Latimore (*below right*), of the Economic Opportunity Program, Inc., which administers the internship project, checks in with Miss Mingo's employer about once every month.



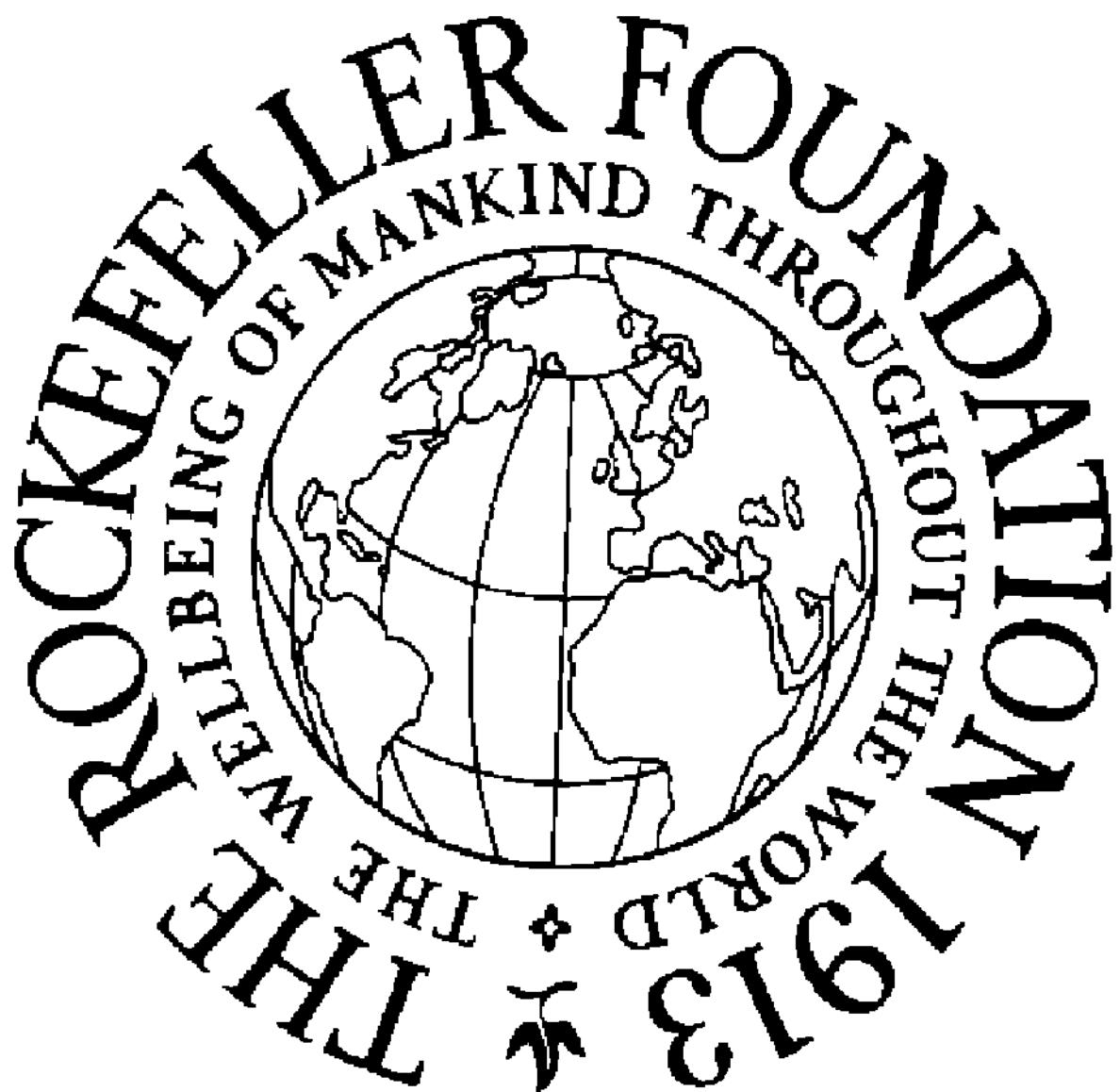
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On-the-job training lasts anywhere from six to ten months, during which interns are paid full salaries. Employers receive partial reimbursement from Economic Opportunity Program.

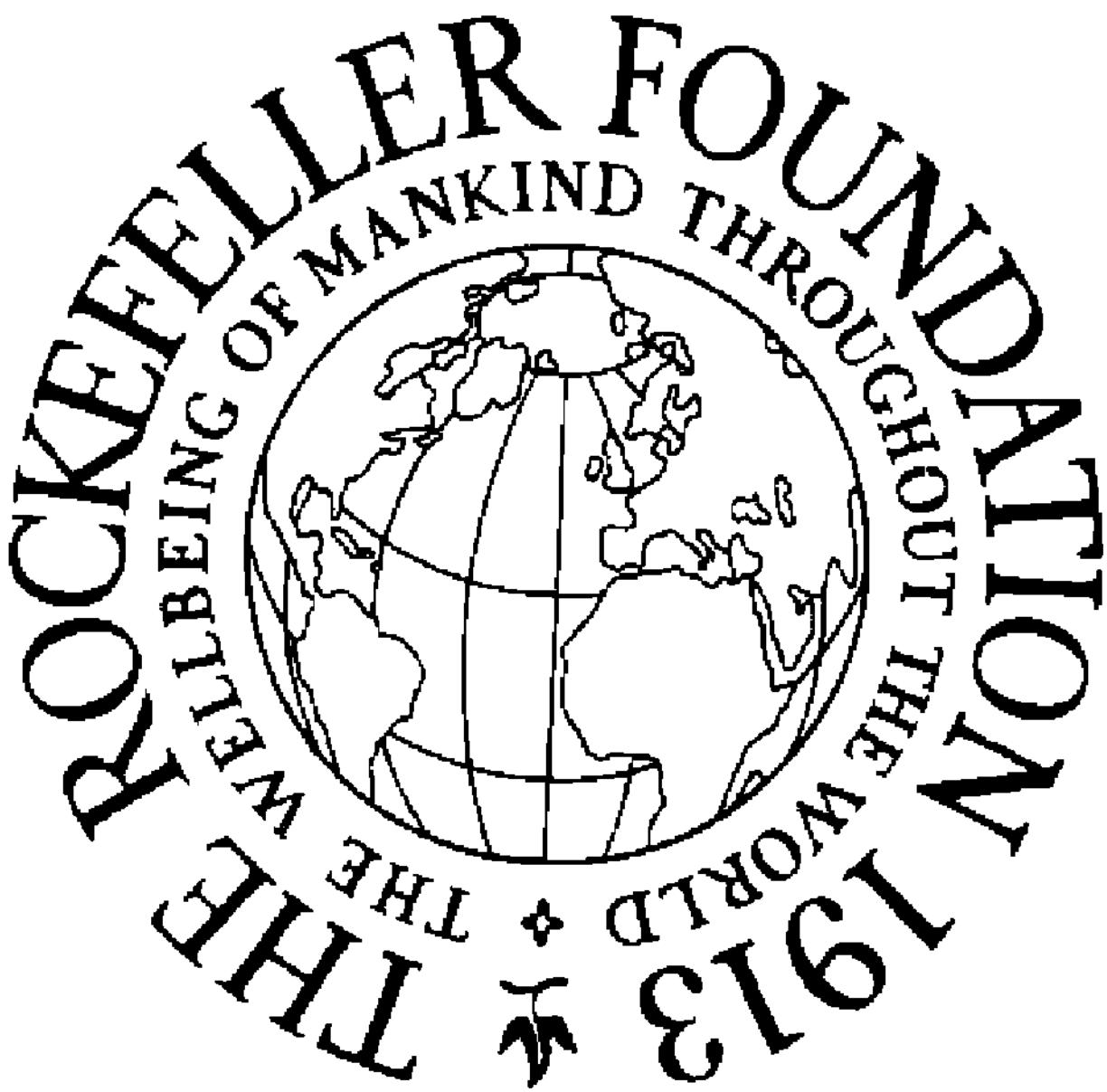
A graduate in architecture from Hampton, Miss Mingo takes additional night course in rendering at Miami Dade Junior College, hopes to become a certified architect in two years.



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Donnie Carter, junior executive sales trainee at Burdine's Department Store, began as a salesman in men's furnishings, went from there to the College Shop in less than three

months. Patrick Eugene, his infant son, was born in November, 1967, shortly after Carter received his second promotion, to manager of the Student Shop in Burdine's Dadeland branch.



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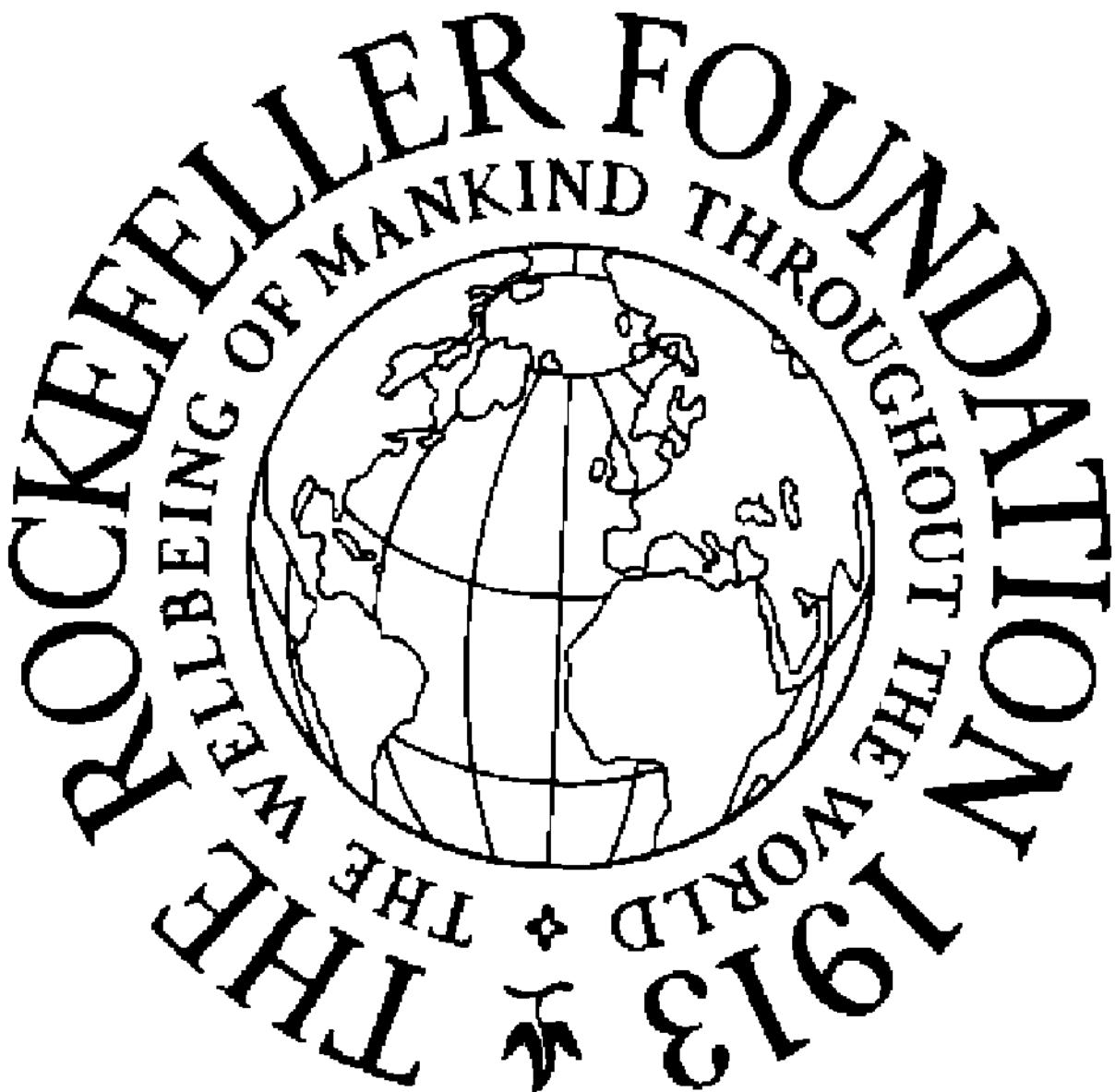
After Earl Fisher received his degree in accounting from Florida A & M, he got in touch with William Latimore, who arranged for a job

interview at Jackson Memorial Hospital. He was immediately hired as a general-accounting trainee, placed on a six-month training program.



Frank Mulick, supervisor of the General Accounting Department and Fisher's immediate superior, works closely with trainee, gives day-

to-day supervision and advice. In addition, he regularly discusses his general progress with Economic Opportunity Program representatives.



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Earl Fisher plans to stay on permanently at Jackson Memorial after training program ends in Spring '68. His department has over 15 people, handles all the hospital's payments and

expenses. Mr. Fisher will soon begin working toward a Master's degree in accounting; at present he studies on his own in the evenings, and often brings extra work home with him.



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GRANTS

TOWARD EQUAL OPPORTUNITY FOR ALL

UNITED STATES

ANTIOCH COLLEGE, Yellow Springs, Ohio: discovery and recruitment of talented Negro and other minority-group students and the improvement of their undergraduate education; \$275,000 through December, 1974;

ASSOCIATED COLLEGES OF THE MIDWEST, Chicago, Illinois: toward the costs of a transitional year program for disadvantaged high school graduates; \$200,000 for a three-year period;

ATLANTA UNIVERSITY CENTER CORPORATION, Georgia:

Massachusetts Institute of Technology, Cambridge; to enable Dr. C. P. Kindleberger to serve as visiting professor of economics at the Atlanta University Center; \$27,500;

Study of library resources and needs of the Atlanta University Center; \$15,000;

AUGSBURG COLLEGE, Minneapolis, Minnesota: for use by its Social Science Research Center in measuring the effectiveness of a program involving mass media, educational institutions, civic organizations, and religious communities in changing attitudes within and outside urban ghettos; \$14,600;

BOSTON UNIVERSITY, Massachusetts: for use by its School of Nursing toward the cost of a remedial program for high school students planning to prepare for nursing careers; \$163,000 for a three-year period;

BOWDOIN COLLEGE, Brunswick, Maine: toward the costs of a program for the recruitment of talented Negro and other minority-group students and assurance of necessary financial assistance for their undergraduate education; \$150,000 through June, 1975;

THE CLAREMONT COLLEGES, California: toward the costs of their Program of Special Directed Studies for Mexican-American and other economically and socially disadvantaged students; \$650,000 as an outright grant on or before June 30, 1968;

COLUMBIA UNIVERSITY, New York: to enable Ronald H. Coleman to continue his studies, primarily in mathematics, in the School of General Studies; \$2,180;

CORNELL UNIVERSITY, Ithaca, New York: toward the costs of a program for the recruitment of talented Negro and other minority-group students and assurance of necessary financial assistance for their undergraduate education; \$250,000 through June, 1973;

ECONOMIC OPPORTUNITY PROGRAM, INC., Miami, Florida: toward the costs of its Management Internship Program; \$235,000 through December, 1970;

Grants—Equal Opportunity

FISK UNIVERSITY, Nashville, Tennessee:

Faculty appointments; \$217,540;

Program in sociology in cooperation with Vanderbilt University; \$150,000 for a five-year period;

Library development; \$50,000;

FRIENDS NEIGHBORHOOD GUILD, Philadelphia, Pennsylvania: toward the costs of a program of educational counseling and assistance for youth in a disadvantaged neighborhood; \$60,000 through June, 1972;

GRINNELL COLLEGE, Iowa: toward the costs of a program for the discovery of talented Negro and other minority-group students and the improvement of their undergraduate education; \$275,000 through June, 1975;

HIGHER EDUCATION OPPORTUNITIES COMMITTEE, Detroit, Michigan: toward its program of counseling students in inner-city schools and providing them with necessary assistance to attend college; \$200,000 through December, 1975;

HOTCHKISS SCHOOL, Lakeville, Connecticut: toward the cost of its experimental summer school program for talented disadvantaged high school students; \$43,500;

INDEPENDENT SCHOOLS FOUNDATION OF MASSACHUSETTS, Braintree: toward its operating expenses; \$25,000;

MOREHOUSE COLLEGE, Atlanta, Georgia: to enable President Emeritus Benjamin E. Mays to prepare a social history of race relations in the South; \$19,000;

NAACP LEGAL DEFENSE AND EDUCATIONAL FUND, New York: to develop a Community Service Division; \$300,000 on a tapering basis for a three-year period;

NATIONAL URBAN LEAGUE, New York: toward the costs of its Leadership Development Program; \$600,000 through December, 1971;

OBERLIN COLLEGE, Ohio:

Discovery and recruitment of talented Negro and other minority-group students and the improvement of their undergraduate education; \$275,000 through December, 1973;

Experimental summer school program for talented disadvantaged high school students; \$130,000 through December, 1971;

To enable Dr. Albert J. McQueen to study the adjustment problems of minority-group students at Oberlin and similar colleges and how they deal with these problems; \$11,000;

PENNSYLVANIA STATE UNIVERSITY, University Park: research, under the direction of Professor Muzafer Sherif, on performance and achievement goals of disadvantaged youth; \$15,000;

PHELPS-STOKES FUND, New York: toward costs of completing the initial volume of its projected biennial publication, *Negro Facts and Figures*; \$25,000;

PRINCETON UNIVERSITY, New Jersey: experimental summer school program for talented disadvantaged high school students; \$150,000 through December, 1971;

REED COLLEGE, Portland, Oregon: toward the costs of a program for the discovery of talented Negro and other minority-group students and the improvement of their undergraduate education; \$240,000 through June, 1975;

SARAH LAWRENCE COLLEGE, New York: to investigate the possibility of establishing an educational institution for disadvantaged students, which would combine the last two years of high school with the first two of college; \$7,760;

SOUTHERN EDUCATION FOUNDATION, Atlanta, Georgia:

Activities in the field of early childhood education in the South; \$25,000;

To enable Bruce N. Robinson to continue his studies in economics at the University of Oklahoma; \$5,100;

UNITED STATES COMMISSION ON CIVIL RIGHTS, Washington, D. C.: toward the expenses of participants in the "Conference on Equal Educational Opportunity in American Cities" held in Washington; \$10,000;

UNIVERSITY OF CALIFORNIA:

Berkeley

Toward a national conference on patterns of American prejudice; \$25,000;

Los Angeles

Toward the costs of its Educational Opportunities Program, particularly as it relates to Mexican-American students; \$200,000 through June, 1973;

UNIVERSITY OF TEXAS, Austin: to enable Benjamin Daise to continue his studies in philosophy; \$2,500;

UNIVERSITY OF WISCONSIN, Madison: summer laboratory for elementary school pupils from culturally diverse backgrounds; \$25,000;

WASHINGTON URBAN LEAGUE, Washington, D. C.: appointment of additional staff members to deal with fundamental urban problems in the Washington area; \$240,000 through December, 1970;

WESLEYAN UNIVERSITY, Middletown, Connecticut: prefreshman and freshman reinforcement programs; \$24,465;

WESTERN WASHINGTON STATE COLLEGE, Bellingham: toward a program of educational stimulation and reinforcement for socially disadvantaged junior high school students from small towns and rural areas; \$100,000 through December, 1972;

YALE UNIVERSITY, New Haven, Connecticut: toward the costs of its summer high school program to help make college a feasible goal for boys from culturally deprived backgrounds; \$100,000 through June, 1970.

ALLIED INTERESTS

VILLA SERBELLONI RESEARCH AND CONFERENCE CENTER

The effectiveness of much of the Foundation's international work results from the collaboration of scholars and scientists in many parts of the world on matters of common interest. To further such collaboration it is desirable to have person-to-person discussions between specialists of varying backgrounds working on the same problems. The Foundation is fortunate in having available a strategically located facility for such meetings—the Villa Serbelloni on Lake Como, Italy. The Villa came into the possession of the Foundation in 1959 in a bequest from the American-born Princess Ella Della Torre e Tasso, who wished the historic house and grounds to be used for purposes contributing to international understanding. The Princess also gave a substantial amount toward the costs of maintaining the property.

Actually, the Villa serves a dual purpose: its location near the crossroads city of Milan makes it a natural gathering place for scholars and specialists from new and old nations; its seclusion makes it ideal for individual study and thought. Since 1960, well over a hundred small meetings have been held under diverse auspices: the Villa has served both as a conference center and as a retreat where creative people may work privately, away from the pressures of ordinary routine.

Many individual and group projects at the Villa involve research and study on particular Foundation interests: all are concerned with scholarly or scientific endeavors. In 1967, 18 conferences were held at the Villa; their subjects ranged from international balance of payments problems to family planning programs and from administrative reforms in developing states to the needs of universities in the future. Other groups were concerned with the future development of biological theory, with the impact on member states of decisions of international organizations, and with the convergence and divergence of economic systems in the process of economic development. Forty scholars who took up residence at the Villa in 1967 had professional interests as diverse as music, medicine, literary criticism, and political philosophy. A prominent American composer continued work on a major composition; an outstanding young composer, resident in Paris, completed a commissioned work for a leading symphony orchestra; an outstanding British medical specialist completed work on a new edition of his book which is a standard work in medicine; and a leading Israeli sociologist completed significant writing on problems affecting developing countries. Those invited

into residence at the Villa Serbelloni enjoy the hospitality of the Foundation. They have the facilities and privacy to continue individual work along with the opportunity to engage other outstanding senior and younger creative individuals in stimulating discussion.

ENVIRONMENTAL STUDIES

The progressive deterioration of our environment, particularly in and around great cities, is now so evident that the quality of life has become a matter of general concern. A relatively few scientists and conservationists have long warned of the disastrous consequences of rashly exploiting our natural resources, of poisoning air and water, of allowing cities to decay, of tampering with ecological balances we do not fully understand. The danger is now more widely acknowledged, but we confront unfamiliar problems with few scientific, technological, or organizational precedents for dealing with them. New analytical approaches are needed to throw light on the total man-environment relationship as a prerequisite to realistic social, political, and economic attitudes. In order to marshal the resources of different disciplines—biology, psychology, economics, political science, history—for a concerted attack on the problem, Williams College in Massachusetts this year founded a Center for Environmental Studies. The Rockefeller Foundation made a grant to the College to support the Center's work toward an integrated program of research, education, and action on environmental problems.

Berkshire County in northwestern Massachusetts makes an ideal site for this program. It lies between the Hudson and Connecticut Rivers and borders on two other states, New York and Vermont. Still predominantly rural, with deep-rooted traditions, it is situated in the hinterland of the great urban-industrial belt that stretches along the Atlantic seaboard from Washington to Boston, an urban interlock which is profoundly and perhaps irreversibly changing the human and natural environment. The County shows much variation among its institutions and thus represents a rich experimental field for social science research as well as the investigation of the biological factors involved in environmental change.

In 1963, Williams College purchased Mt. Hope Farm, a 1000-acre tract of land of unusual ecological significance, which provides a natural laboratory for biological research and which in addition has excellent facilities for seminars and conferences. Faculty members on full- or part-time leave from the College, visiting scholars and experts, and full-time Center staff will participate in the programs.

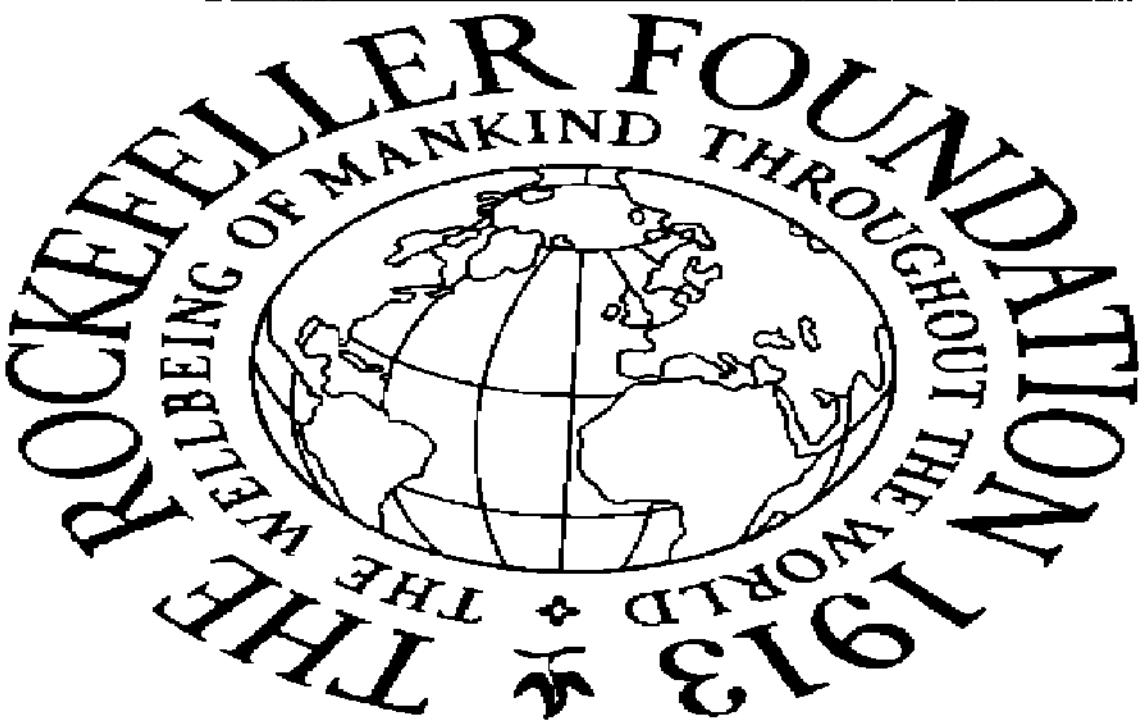
The first step will be a critical evaluation of existing research materials, a review of the experience of comparable programs in other parts of the country, and extended seminars looking toward better definition of environ-



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The Villa Serbelloni on Lake Como, Italy (*above*), provides an ideal setting for international conferences and individual study. In 1967, 40 scholars and artists took up residence

at the Villa and 18 conferences were held. *Below*, members of the Steering Committee for the International Seminar on Change in Agriculture gather informally on the Villa's terrace.



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mental problems and their solution. One of the early projects to be undertaken will be an evaluation of governmental organization as it affects environmental planning in Berkshire County, in the hope of creating a "demonstration county" project patterned after the model cities program. Another plan is to bring together leaders from industry, government, and community organizations to analyze all possible means of conserving the total environment from the detrimental effects of a rapidly expanding industrial society.

THE VIRUS PROGRAM

The long-standing interest of The Rockefeller Foundation in arbovirus investigations has been adequately summarized in previous Annual Reports. What at one time were Foundation field laboratories in Trinidad, Cali (Colombia), Ibadan (Nigeria), and Vellore (India) are now investigation and training units functioning within local universities; the California laboratory is now associated with the State Department of Public Health. The central laboratory, formerly at the Rockefeller Institute, in New York, has become the nucleus of the Yale Arbovirus Research Unit, in New Haven, Connecticut. The laboratories in Poona (India) and Belém (Brazil) are active in training personnel and function under the aegis of their respective governments; it has not been possible, however, to establish close university relationships for them. For all of these centers, the year 1967 has been an exciting one both in the field and in the laboratory.

The Cali group has been carrying out brilliant field epidemiological studies on Pichindé virus, a newly recognized member of the Tacaribe group of viruses. Two members of this group are of great importance as causative agents of human disease—Junín virus of Argentine hemorrhagic fever, Machupo virus of Bolivian hemorrhagic fever. The natural history of these viruses is still poorly understood. Pichindé virus has been found to be prevalent in small rodents of the genus *Oryzomys* in high Andean valleys near Cali. Only one rodent species, *O. albicularis*, is affected, but there is accumulating evidence that this species may be infected over a considerable portion of its extensive range in South America. These studies in Cali have been paralleled by equally brilliant work of the Belém group on Amapari virus, another member of the Tacaribe group, recovered from rodents of two species in lowland forested regions of Amapá district, north of the Amazon. Again, there is a high proportion of infected animals. Field epidemiological work on these two agents should help to unravel the mysteries associated with their more virulent relatives, Junín and Machupo.

While the Cali group was thoroughly engrossed with Pichindé studies, its investigations were diverted by a large outbreak of Venezuelan equine encephalitis in the immediate environs of Cali. There have been many

equine deaths and many cases in humans, with, however, no reported deaths thus far. The epidemic is still in progress, and there is evidence that the disease may be widespread in Colombia. The outbreak near Cali, in the semidesert region of the upper Dagua valley, has yielded rich epidemiological returns. The usual vectors, mosquitoes, were virtually absent. Black flies (*Simuliidae*) were abundant. Venezuelan equine encephalitis virus has been isolated from each of the five local species of black flies. Particular interest attaches to this observation, since black flies have thus far been incriminated only very marginally in arbovirus transmission cycles. The observation will spur many investigators to a reexamination of the transmission potential of these insects, found in many parts of the world, temperate and tropical, lowland and mountain.

The Belém group was heavily involved in investigations of the second large epidemic of Oropouche virus infection of humans, this time in Bragança, not Belém. Where the virus came from and what insects served as vector remains a mystery. Yellow fever reappeared, with a fatal case diagnosed in an unvaccinated Japanese immigrant working in the jungle a few miles outside Belém. A more ominous overtone to this jungle yellow fever case was the finding that Belém was infested with *Aedes aegypti*, a mosquito vector of yellow fever which presumably had been eradicated in Brazil several decades earlier.

The Trinidad laboratory has been gathering additional information on the epidemiology of eastern equine encephalitis and Venezuelan equine encephalitis on the island. Both of these dangerous viruses apparently can be present in a region for long periods of time with no overt manifestations of their presence in man or animals. The same is true for yellow fever, diligently sought by the Trinidad workers, and last seen in Trinidad in 1959.

The Ibadan team continues to accumulate baseline virological information for Nigeria and has explored widely in the Western and Northern regions. The unit is just moving from the accumulative to the synthetic stage; the slow work of identifying dozens of new viruses is being carried out gradually in Ibadan and at Yale. Indigenous viruses must first be identified and their serological cross-relationships determined before work can progress toward more definitive epidemiological studies, including the interpretation of survey serological findings and the unravelling of host and vector relationships. It is already evident that tick-associated viruses are a much more prominent feature of the virus population in West Africa than, for example, in Belém. The Ibadan group is alert to the danger of yellow fever epidemics in West Africa at this time when normal preventive programs might be interrupted.

The Poona group has made an exceedingly important contribution: it has established several mosquito cell lines (from *Aedes* and *Anopheles* mosquitoes) in continuous culture, in a medium free of insect hemolymph. In the pioneering work of Grace and Day in this field, and later efforts of other investigators, the mosquito cell culture techniques required the use of hemolymph from one of several large species of Saturniid moths. Dr. K. R. P. Singh has successfully eliminated the hemolymph requirement and has also demonstrated that several arboviruses grow readily in his mosquito cell cultures.

The Vellore workers have established the basic pattern of several important arbovirus diseases in south India—Japanese encephalitis, dengue, and West Nile, as well as Chikungunya.

At the Yale Arbovirus Research Unit in New Haven, which is also the World Health Organization's International Reference Centre for Arthropod-borne Viruses, an important technological breakthrough has been achieved by Dr. Pierre Ardoine of Paris, working in collaboration with a Foundation staff member. Using techniques of ultrasonic and enzyme treatment of virus antigens, it has been possible to prepare hemagglutinins for many arboviruses for which it had not previously been possible and to raise appreciably titers of hemagglutinins for many arboviruses. This will greatly facilitate studies of virus interrelationships. The role of a mysterious substance found in fresh serum of certain animals (referred to as "accessory factor") in facilitating virus neutralization was extensively explored in the tissue culture section of the Yale Unit. Comprehensive studies of two arbovirus subgroupings—arboviruses isolated from bats and arboviruses isolated from ticks—are in progress.

The basic jobs of preparing immune reagents to many arboviruses, of identifying viruses submitted by many laboratories, and of correlating findings with known viruses continue uninterruptedly; these are functions almost taken for granted but nevertheless of vital importance. When in 1967 laboratory workers in Germany handling *Cercopithecus* monkeys from Africa were struck with a deadly, unidentified disease, the Yale laboratory early provided definitive information that the illness was not caused by any known arbovirus of Africa or Asia. The batteries of viruses and immune sera available at the laboratory were indispensable for this job.

The live-virus vaccine for western equine encephalitis developed by a Foundation staff member in California has passed all tests with flying colors and will undoubtedly be proven as one of the very few highly effective, long-term immunizing, modified live-virus vaccines in existence.

Short- and long-term training has become an established part of the program in all of the laboratories. The Yale laboratory is concentrating par-

ticular attention on the medical student group at Yale and each year attracts several candidates for special studies in connection with graduation thesis requirements. Each summer several students, already prepared by training in basic techniques, have gone to overseas laboratories. A special grant from The Rockefeller Foundation to Yale has provided support for this training venture. A grant of \$2,000,000 was made to Yale University this year for general support of the Arbovirus Research Unit.

Collaboration between the several laboratories and other national and international laboratories and organizations, as well as individual workers, has continued at a high level.

GRANTS ALLIED INTERESTS

*MNS: Medical and Natural Sciences; AS: Agricultural Sciences;
HSS: Humanities and Social Sciences; IP: Inter-Program*

INTERNATIONAL

ROCKEFELLER FOUNDATION International Program in Virus Research:

Salaries, travel, and other expenses of Foundation field staff	\$435,975
Virus laboratories	
Belém, Brazil	\$63,230
Berkeley, California	38,200
Cali, Colombia	<u>88,785</u> 190,215
TOTAL—Appropriations made in 1967	<u>\$626,190 (MNS)</u>

ROCKEFELLER FOUNDATION International Program in Field Research in Medical Sciences, Nutrition, and Population Problems:

Salaries, travel, and other expenses of Foundation field staff	\$962,170
TOTAL—Appropriations made in 1967	<u>\$962,170 (MNS)</u>

ROCKEFELLER FOUNDATION Inter-Program Centers:

Indian Program Center, New Delhi	\$ 98,500
Villa Serbelloni Research and Conference Center	<u>249,000</u>
TOTAL—Appropriations made in 1967	<u>\$347,500 (IP)</u>

ROCKEFELLER FOUNDATION unallocated contingency reserve for International Programs

\$350,000

BOTSWANA

PURCHASE OF A COLLECTION of basic reference works in international relations for the Department of External Affairs, Gaberones; \$4,500; (HSS)

BRAZIL

FOR PROJECTS IN GENETICS research and training at Brazilian institutions:

Brazilian Society of Genetics, São Paulo: toward development of research and training in genetics in Brazil; \$9,700; (MNS)

Grants—Allied Interests

Federal University of Minas Gerais, Belo Horizonte: research and travel expenses for the Institute of Biology; \$1,300; (MNS)

University of Bahia, Salvador: support of the Laboratory of Human Genetics, Faculty of Medicine; \$11,250; (MNS)

University of Paraná, Curitiba: support of the Laboratory of Human Genetics; \$2,800; (MNS)

University of Rio Grande do Sul, Pôrto Alegre: support of the Laboratory of Human Genetics; \$3,000; (MNS)

University of São Paulo

Ribeirão Preto

Library materials, research equipment, and supplies for the Department of Genetics of the Faculty of Medicine; \$21,500 for a two-year period; (MNS)

São Paulo

Support of the Laboratory of Animal Genetics; \$16,400 through February, 1969; (MNS)

Support of the Laboratory of Human Genetics; \$8,000; (MNS)

ROCKEFELLER FOUNDATION International Program in Virus Research: Belém Virus Laboratory; *see International, above*;

UNIVERSITY OF SAO PAULO, Ribeirão Preto: equipment for immunopathology research in the Department of Clinical Medicine, Faculty of Medicine; \$5,700; (MNS)

COLOMBIA

COLOMBIAN ASSOCIATION OF FACULTIES OF MEDICINE, Bogotá: toward the costs of its general program; \$188,000 for a five-year period; (MNS)

ROCKEFELLER FOUNDATION International Program in Virus Research: virus studies at the University of Valle; *see International, above*;

CONGO

LOVANIUM UNIVERSITY, Kinshasa: toward the development of a program of tutorial teaching and the further Africanization of staff; \$160,000 for a three-year period; (IP)

GUYANA

PURCHASE OF A COLLECTION of basic works in international relations for the Ministry of External Affairs, Georgetown; \$4,500; (HSS)

INDIA

DR. R. O. DRUMMOND, United States Department of Agriculture, Kerrville, Texas: to serve as adviser to the Virus Research Centre, Poona, on the possibilities and methodology of tick control; \$3,600; (MNS)

INDIAN COUNCIL OF MEDICAL RESEARCH, New Delhi: equipment for research projects in various Indian institutions; \$15,000 for a two-year period; (MNS)

MISS UPOT P. MADHAVI, Boston University, Massachusetts: to visit centers of nursing education in England and Lebanon and to return to India for eventual assignment to the All India Institute of Medical Sciences; \$1,350; (MNS)

ROCKEFELLER FOUNDATION Inter-Program Center: Indian Program Center, New Delhi; *see International, above;*

KRISHNASWAMI SUBRAHMANYAM, Ministry of Defence, New Delhi; to visit centers of strategic studies in the United States; \$1,495; (HSS)

UNIVERSITY OF DELHI:

Visiting faculty in humanities and social sciences requested by the University of Delhi; Herbert Haslam; to continue as visiting professor in the Department of Music; (HSS)

Dr. Donald F. Lach, University of Chicago, Illinois; visiting professor, Department of History; (HSS)

To enable Dr. Daleep Singh to complete research on economic development in selected African countries; \$6,200; (HSS)

Gaurisankar Raychaudhuri; travel in connection with advanced study and research in economics at Stanford University, California; \$1,450 for a three-year period; (HSS)

Professor Max Beloff, All Souls College, University of Oxford, England; reimbursement for expenses incurred while serving at the University of Delhi; \$620; (HSS)

ISRAEL

HEBREW UNIVERSITY OF JERUSALEM: to enable Dr. Samuel N. Eisenstadt to continue a comparative analysis of the processes and problems of modernization; \$5,000 for a three-year period beginning in January, 1968; (HSS)

ITALY

VILLA SERBELLONI, Bellagio: Research and Conference Center of The Rockefeller Foundation; *see International, above;*

JAMAICA

UNIVERSITY OF THE WEST INDIES:

Kingston

Dr. Robert Cruickshank; to observe recent developments in teaching and research in departments of preventive medicine in South America; \$2,150; (MNS)

Mona

Continuation of the appointment of Dr. Maurice Waters as visiting professor in international relations, and reimbursement of travel expenses; \$24,655; (HSS)

Wayne State University, Detroit, Michigan; research on foreign policy problems of newly independent Caribbean states by Dr. Maurice Waters, visiting professor in international relations at the University of the West Indies; \$2,500; (HSS)

Conference on political and economic relations of the Caribbean and Latin American states; \$2,000; (HSS)

KENYA

MUSEUM TRUSTEES OF KENYA, Nairobi: toward the costs of research in the Centre for Prehistory and Palaeontology, under the direction of Dr. Louis S. B. Leakey; \$25,000; (IP)

LEBANON

NEAR EAST EMERGENCY DONATIONS, New York: toward emergency costs of continued enrollment of expatriate refugee students from the Arab nations at the American University of Beirut; \$250,000; (IP)

LESOTHO

PURCHASE OF A COLLECTION of basic reference works in international relations for the Ministry of Foreign Affairs, Maseru; \$4,500; (HSS)

NIGERIA

UNIVERSITY OF IBADAN: support of the arbovirus research program in the Faculty of Medicine; \$78,000; (MNS)

SENEGAL

UNIVERSITY OF DAKAR: support of research, under the direction of Professor René Masseyeff, in the Laboratory of Medical Biochemistry, Faculty of Medicine and Pharmacy; \$5,500; (MNS)

TRINIDAD

DEREK WALCOTT, poet and playwright, Port-of-Spain: to devote full time to writing; \$10,000 for a three-year period; (HSS)

TURKEY

TRUSTEES OF ROBERT COLLEGE OF ISTANBUL: training of Turkish personnel for the faculties of Robert College and the American College for Girls, Istanbul; \$15,100 through June, 1969; (HSS)

UNITED KINGDOM

UNIVERSITY OF SUSSEX, Brighton, England:

Toward support of its Institute for the Study of International Organisations; \$70,000 for a five- to seven-year period; (HSS)

To enable two participants from Africa, selected by the Institute for Development Studies, to attend a conference on economic development at the Villa Serbelloni Research and Conference Center, Bellagio, Italy; \$2,525; (HSS)

UNITED STATES

ASSOCIATION OF AMERICAN MEDICAL COLLEGES, Evanston, Illinois: toward the costs of operating its Division of International Medical Education; \$75,000 for a three-year period; (MNS)

DR. FATIMA BEGUM, University of Maryland, Baltimore: to spend up to six weeks at the Yale Arbovirus Research Unit, New Haven, Connecticut; \$915; (MNS)

DR. ROBERT K. CARR, president, Oberlin College, Ohio: to consult with Rockefeller Foundation staff in India and to visit Indian institutions; \$6,000; (IP)

COLUMBIA UNIVERSITY, New York: studies in environmental pollution by the School of Engineering and Applied Science in connection with a survey by the New York City Council on Science and Technology; \$25,000; (MNS)

EDUCATION AND WORLD AFFAIRS, New York: study of the international migration of talent; \$250,000 for a two-year period; (IP)

HARVARD UNIVERSITY, Cambridge, Massachusetts: advanced training program in its Law School for selected African students; \$110,000 through June, 1972; (HSS)

INSTITUTE OF CURRENT WORLD AFFAIRS, New York: to enable Chancellor George W. Beadle and Professor Theodore W. Schultz of the University of Chicago to participate in the Middle North survey planned by the Institute; \$6,000; (IP)

JOHNS HOPKINS UNIVERSITY, Baltimore, Maryland: for use by its School of Advanced International Studies for a program of seminars for young foreign service officers from developing countries stationed in Washington, D. C.; \$40,000 through December, 1969; (HSS)

FATHER JAMES J. KORTENDICK, Catholic University of America, Washington, D. C.: to visit Latin American centers of library science; \$1,590; (IP)

NATIONAL ACADEMY OF SCIENCES, Washington, D. C.: support of its programs; \$1,000,000 as an outright grant; (IP)

NEW YORK UNIVERSITY MEDICAL CENTER: production of an English-Spanish correlation index to biomedical library classification schemes; \$15,000; (MNS)

NORTHWESTERN UNIVERSITY, Evanston, Illinois: research and writing by Professor L. S. Stavrianos on a technological study of world history; \$15,000; (HSS)

DR. ATHOL JAMES PATTERSON, Tulane University, New Orleans, Louisiana: to visit schools of public health in Southeast Asia and the Middle East; \$4,350; (MNS)

PREPARATION by the Oral History Research Office of Columbia University of the memoirs of Dr. Robert Briggs Watson, a retired officer of The Rockefeller Foundation, and Dr. J. Curtis Dixon, formerly director of the Southern Education Foundation; \$6,000; (IP)

ROCKEFELLER FOUNDATION International Program in Virus Research: virus studies in Berkeley, California; see *International*, above;

STATE UNIVERSITY OF NEW YORK AT STONY BROOK: to enable Professor Stanley R. Ross to update his documentary history of 20th-century Mexico; \$6,840 for an 18-month period beginning in January, 1968; (HSS)

U. S. Philanthropic Foundations, by Dr. Warren Weaver: purchase and distribution of copies to selected government and business leaders; \$15,000; (IP)

UNIVERSITY OF MICHIGAN, Ann Arbor: continued publication of *Language and Language Behavior Abstracts* by the University in collaboration with the Bureau pour l'Enseignement de la Langue et de la Civilisation Françaises à l'Etranger; \$15,000; (HSS)

WESLEYAN UNIVERSITY, Middletown, Connecticut: toward program expenses of the Special Committee on Liberal Studies; \$15,000 for a two-year period; (HSS)

WESTERN MICHIGAN UNIVERSITY, Kalamazoo: toward a meeting, under the direction of Dr. Charles O. Houston of the University's Institute of International and Area Studies, of the planning committee for a projected organization of scholars concerned with the Philippines; \$1,500; (HSS)

DR. JEROME B. WIESNER, provost, Massachusetts Institute of Technology, Cambridge: toward a study of legislative reforms in the educational system of the Commonwealth of Massachusetts; \$2,000; (IP)

WILLIAMS COLLEGE, Williamstown, Massachusetts: toward planning an integrated program of research, education, and action on environmental problems in its Center for Environmental Studies; \$75,000 through June, 1969; (IP)

YALE UNIVERSITY, New Haven, Connecticut:

Toward support of arbovirus research at the Yale Arbovirus Research Unit in the Department of Epidemiology and Public Health of the School of Medicine; \$2,000,000 as an outright grant on or before June 30, 1968; (MNS)

Toward the costs of Rockefeller Foundation participation in the Yale Arbovirus Research Unit in the Department of Epidemiology and Public Health of the School of Medicine; \$308,000; (MNS)

To enable Dr. Pierre Ardoine, University of Paris, France, to continue collaborative work and research in arbovirology at the Yale Arbovirus Research Unit; \$10,000; (MNS)

Virology training program for medical students; \$5,000 through April, 1969. (MNS)

STUDY AWARDS

STUDY AWARDS

The Rockefeller Foundation's study awards are integrated with its main areas of interest. Through its fellowships and scholarships, the Foundation seeks to train personnel and to advance knowledge in the medical and natural sciences, the agricultural sciences, the humanities and social sciences, and the arts, with the aim of bringing highly trained human resources to bear on the basic problems which limit man's well-being. Awards are made on an international basis to outstanding men and women who have shown promise of making important contributions to their fields of study in their native countries.

During 1967 a total of 646 persons held Foundation fellowships and scholarships; 461 awards that began in previous years continued active in 1967, and 185 new awards became active during the year. Their distribution by program is as follows:

	Study Awards from Previous Years Continued into 1967	New Awards in 1967	Number of Awards Active in 1967
Agricultural Sciences	206	71	277
Medical and Natural Sciences	109	59	168
Humanities and Social Sciences	145	55	200
Arts Program	1	—	1
	<hr/> 461	<hr/> 185	<hr/> 646

In addition to the fellowships and scholarships awarded and administered directly by The Rockefeller Foundation, several organizations have awarded similar fellowships with funds contributed in 1967 and previous years by the Foundation. The organizations administered a total of 65 fellowships provided for by Foundation funds during 1967:

Population Council	
Demographic	16
Medical	4
Technical Assistance	8
Social Science Research Council	
Research Training Fellowships	37
	<hr/> 65



Photograph Excised Here

Dr. Rodrigo Guerrero (*below*), from the University of Valle, Cali, Colombia, receives advanced training in population problems for Ph.D. from Harvard School of Public Health.

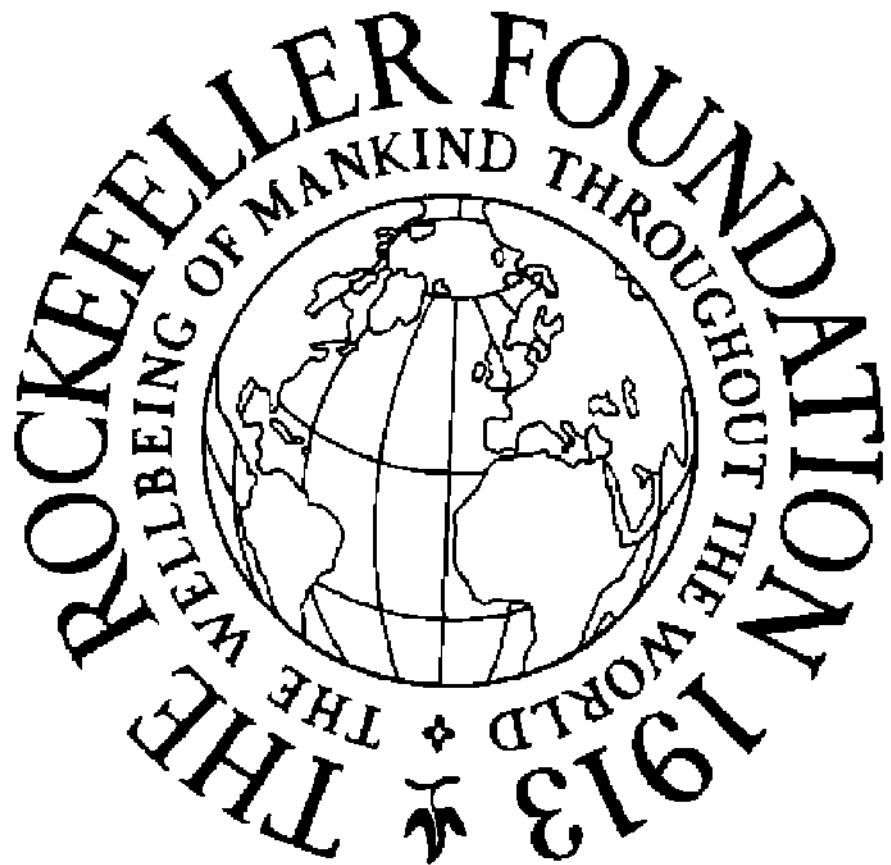
Mahar Mangahas (*above*), appointed from the University of the Philippines, is a candidate for the Ph.D. in economics at the University of Chicago, expects to write thesis on rice industry.



Photograph Excised Here

Charan Chantalakhana (*left*), now a graduate student in the Department of Animal Husbandry at Iowa State University, discusses problems of animal breeding with Dr. J. L.

Lush, professor of animal science. Mr. Charan was appointed from Kasetsart University in Bangkok, Thailand, where he was for four years the head of an agricultural experiment station.



Photograph Excised Here

Rockefeller Foundation fellows and scholars in 1967 came from 35 countries:

	Previous Awards	New Awards		Previous Awards	New Awards
Argentina	2	1	Malaysia	3	—
Bolivia	1	—	Mexico	45	9
Brazil	17	8	Nigeria	31	15
Ceylon	—	3	Pakistan	1	—
Chile	41	19	Peru	9	12
Colombia	55	28	Philippines	78	25
Congo, the Republic of the	2	1	Rhodesia	2	—
Costa Rica	2	1	Sudan	19	2
Ecuador	4	2	Taiwan (National Republic of China)	5	—
Ethiopia	5	—	Tanzania	4	2
Ghana	1	—	Thailand	50	37
Guatemala	6	—	Trinidad	—	1
Honduras	2	3	Uganda	13	6
India	38	3	United Arab Republic	2	—
Iran	1	—	United States	5	1
Israel	1	—	Uruguay	1	1
Japan	—	1		461	185
Kenya	12	3			
Lebanon	3	1			

For its fellowship and scholarship activities The Rockefeller Foundation made available a total of \$4,150,000 for allocation during 1967 and \$4,050,000 for allocation during 1968. From these funds allocations totaling \$454,000 were made in 1967 in the form of unrestricted grants to 92 institutions in the United States and foreign countries where Foundation fellows and scholars are engaged in study and research. Recognizing that the disparity between universities' expenses and their income from tuition and fees is most apparent at the level of postgraduate study, the Foundation, since 1958, has made available funds to be disbursed in units of \$1,000 for each full year a fellow spends at a university and \$500 for each half year. The grants are in addition to tuition and other fees paid by the Foundation through its fellowship and scholarship awards.

Fellows and scholars whose awards became active in 1967 are listed by name and country on the following pages.

FELLOWS AND SCHOLARS

FELLOWS AND SCHOLARS

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

ARGENTINA

ALEJO WENDT P. R. von der PAHLEN M.S., University of California, Davis, 1961. Plant Science—Genetics. Appointed from Institute of Plant Science. Place of study: U.S.A. s-AS

BRAZIL

ANUAR ABRAS B.S., Federal University of Minas Gerais, 1959. Physics. Appointed from Federal University of Minas Gerais. Place of study: U.S.A. s-MNS

HELIO MORAIS BARBOSA B.S., Rural University of the State of Minas Gerais, 1963. Plant Science—Genetics and Breeding. Appointed from Rural University of the State of Minas Gerais. Place of study: U.S.A. s-AS

FRANCISCO CESAR DE SA BARRETO B.S., Federal University of Minas Gerais, 1966. Physics. Appointed from Federal University of Minas Gerais. Place of study: U.S.A. s-MNS

JOSE PEDRO DA FONSECA B.A., Federal University of Minas Gerais, 1960. Mathematics. Appointed from Federal University of Minas Gerais. Place of study: U.S.A. s-MNS

JOSE ALBERTO GOMIDE M.S., Purdue University, 1964. Animal Science—Nutrition and Physiology. Appointed from Rural University of the State of Minas Gerais. Place of study: U.S.A. s-AS

JOSE MARIA LAMAS DA SILVA D.V.M., Federal University of Minas Gerais, 1957. Animal Science—Animal Pathology. Appointed from Federal University of Minas Gerais. Place of study: U.S.A. s-AS

EUCLER BENTO PANIAGO B.S., Federal University of Minas Gerais, 1960. Chemistry. Appointed from Federal University of Minas Gerais. Place of study: U.S.A. s-MNS

JOAO Bosco GUEDES PINTO M.S., University of Wisconsin, 1965. Sociology. Appointed from Rural University of the State of Minas Gerais. Place of study: U.S.A. s-HSS

CEYLON

BODDERAGAMAGE CECIL GAMINI GUNASEKERA B.S., University of Ceylon, 1957. Plant Science—Plant Physiology. Appointed from Central Agricultural Research Institute. Place of study: U.S.A. s-AS

HECTOR WEERARATNE B.S.A., University of the Philippines, Quezon City, 1963. Agronomy—Plant Breeding. Appointed from Central Research Station, Peradeniya. Place of study: U.S.A. s-as

SADDHANANDA P. R. WEERASINGHE B.Sc., University of Ceylon, Peradeniya, 1961. Plant Science—Plant Physiology. Appointed from University of Ceylon. Place of study: U.S.A. s-as

CHILE

JORGE FELIX ARRATE MACNIVEN Lawyer, University of Chile, Santiago, 1964. Economics. Appointed from University of Chile. Place of study: U.S.A. s-hss

IVAN BELLO M.S., Iowa State University, 1963. Economics. Appointed from University of Chile, Santiago. Place of study: U.S.A. s-hss

JORGE FRANCISCO BERTINI CAZOR Civ.Ind.Eng., University of Chile, Santiago, 1967. Economics. Appointed from University of Chile. Place of study: England. s-hss

HERNAN V. CONCHA Comm.Eng., Catholic University of Chile, 1967. Business Administration. Appointed from Catholic University of Chile. Place of study: U.S.A. s-hss

ALEJANDRO GUILLERMO CONTRERAS B.S., University of Chile, Santiago, 1967. Physics. Appointed from University of Chile. Place of study: U.S.A. s-mns

VITTORIO CORBO LIOI Comm.Eng., University of Chile, Santiago, 1967. Economics. Appointed from University of Chile. Place of study: U.S.A. s-hss

CARLOS MARIO CORTES MUNDACA M.A., Yale University, 1962. Economics. Appointed from University of Chile, Santiago. Place of study: U.S.A. s-hss

MOISES EISENBERG (GRUNBERG) Biophysics. Appointed from University of Chile, Santiago. Place of study: U.S.A. s-mns

GONZALO E. FALABELLA Dipl. (Sociology), Catholic University of Chile, 1967. Sociology. Appointed from University of Chile, Santiago. Place of study: U.S.A. s-hss

CHRISTIAN HEWSTONE M. Ing.Agr., University of Chile, Santiago, 1963. Plant Science. Appointed from Agricultural Research Institute. Place of study: Mexico. s-as

ERNST W. JAHN Ing.Agr., University of Concepción, 1965. Animal Science—Dairy Husbandry. Appointed from Institute of Animal Research, Chillán. Place of study: U.S.A. s-as

AAGE KRARUP HJORT M.S., University of California, Davis, 1963. Plant Science—Horticulture. Appointed from University of the Soreto. Place of study: U.S.A. s-as

HERNAN LOPEZ VILLANUEVA M.S., Oregon State University, 1962. Plant Science—Agronomy. Appointed from Ministry of Agriculture. Place of study: U.S.A. s-as

ROLF JURGEN LUDERS SCHWARZENBERG M.A., University of Chicago, 1960. Economics. Appointed from Catholic University of Chile. Place of study: U.S.A. s-hss

Fellows and Scholars

FRANCISCO ALEJANDRO J. MEZZADRI B.A., National University of Buenos Aires, Argentina, 1962. Economics. Appointed from University of Chile, Santiago. Place of study: U.S.A. s-HSS

OSCAR E. MUÑOZ GOMA M.S., Yale University, 1963. Economics. Appointed from University of Chile, Santiago. Place of study: U.S.A. s-HSS

FERNANDO RODRIGUEZ-SCHULLER Comm.Eng., Catholic University of Chile, 1967. Economics. Appointed from Catholic University of Chile. Place of study: U.S.A. s-HSS

JAIME SEPULVEDA D.V.M., University of Chile, Santiago, 1962. Animal Science—Milk Production. Appointed from Ministry of Agriculture. Place of study: New Zealand. s-AS

OMAR ULLOA TORRES Ing.Agr., University of Concepción, 1963. Agricultural Engineering—Farm Mechanization. Appointed from Agricultural Research Institute. Place of study: U.S.A. s-AS

COLOMBIA

JESÚS ARIAS Ing.Agr., National University of Colombia, Palmira, 1959. Plant Science—Plant Breeding. Appointed from Colombian Institute of Agriculture. Place of study: U.S.A. s-AS

EDUARDO RAFAEL AVCARDI BARRERO M.S., Cornell University, 1965. Animal Science—Microbiology. Appointed from Colombian Institute of Agriculture. Place of study: U.S.A. s-AS

VICENTE BORRERO RESTREPO M.D., University of Valle, 1965. Public Health. Appointed from University of Valle. Place of study: U.S.A. F-MNS

WALTER CORREA M.S., State University of New York, Stony Brook, 1965. Chemistry. Appointed from University of Valle. Place of study: U.S.A. s-MNS

RAMIRO DE LA CRUZ Ing.Agr., National University of Colombia, Bogotá, 1962. Crop Production. Appointed from Colombian Institute of Agriculture. Place of study: U.S.A. s-AS

MARÍA OLGA FRANCO GARCIA Lic., University of Valle, 1966. Psychiatric Nursing. Appointed from University of Valle. Place of study: U.S.A. s-MNS

RENATO FUCHS P. B.S., University of Valle, 1967. Biochemical Engineering. Appointed from University of Valle. Place of study: U.S.A. s-MNS

HECTOR M. GALEANO ARBELAEZ Ing.Agr., University of Tolima, 1964. Library Science. Appointed from Colombian Institute of Agriculture. Place of study: U.S.A. s-AS

JOSE JAMEL GOMEZ ROJAS M.D., National University of Colombia, Bogotá, 1959. Pathology. Appointed from University of Valle. Place of study: Puerto Rico. F-MNS

JOAQUIN ANDRES GONZALEZ-FRANCO Ing.Agr., National University of Colombia, Palmira, 1958. Plant Science—Plant Physiology. Appointed from Colombian Institute of Agriculture. Place of study: U.S.A. s-AS

OSCAR HENAO-CABAL M.D., National University of Colombia, Bogotá, 1951. Public Health. Appointed from University of Valle. Place of study: U.S.A. s-MNS

GUSTAVO HERNANDEZ BOADA D.V.M., National University of Colombia, Bogotá, 1962. Animal Science—Animal Breeding. Appointed from Colombian Institute of Agriculture. Place of study: U.S.A. s-AS

JORGE ERNESTO HOLQUIN BEPLAT B.Sc., Xavier University, 1963. Political Science—Public Administration. Appointed from University of Valle. Place of study: U.S.A. s-HSS

DANIEL JIMENEZ MARIN M.D., National University of Colombia, Bogotá, 1962. Morphology. Appointed from University of Valle. Place of study: U.S.A. s-MNS

JOSE CARLOS LOZANO TOVAR Ing.Agr., National University of Colombia, Palmira, 1960. Plant Science—Plant Pathology. Appointed from Colombian Institute of Agriculture. Place of study: U.S.A. s-AS

MARINA NAVARETTE HERNANDEZ B.S., University of Chile, Santiago, 1960. Public Health. Appointed from Ministry of Public Health. Place of study: U.S.A. s-MNS

JAIME NAVAS Ing.Agr., National University of Colombia, Palmira, 1962. Agronomy—Soil Science. Appointed from Colombian Institute of Agriculture. Place of study: U.S.A. s-AS

ALFREDO OCAMPO Z. M.A., University of Valle, 1966. Sociology. Appointed from University of Valle. Place of study: U.S.A. s-HSS

HECTOR MARIA PEREZ RODRIGUEZ B.A., University of Valle, 1961. Architecture. Appointed from University of Valle. Place of study: Italy. s-HSS

ALVARO POSADA BORRERO M.S., Michigan State University, 1954. Economics. Appointed from University of Valle. Place of study: U.S.A. s-HSS

GONZALO ROA Electromechanical Eng., University of Valle, 1966. Agricultural Engineering. Appointed from University of Valle. Place of study: U.S.A. s-MNS

JUAN DE LA CRUZ ROJAS B.A., Pedagogical and Technological University of Colombia, 1960. Linguistics. Appointed from University of Valle. Place of study: U.S.A. s-HSS

CARLOS ABEL ROSSO ACUNA B.A., Pedagogical and Technological University of Colombia, 1962. Literature. Appointed from University of Valle. Place of study: U.S.A. s-HSS

JUAN JOSE SALAZAR CRUZ M.S., North Carolina State University at Raleigh, 1966. Animal Science—Animal Breeding. Appointed from Colombian Institute of Agriculture. Place of study: U.S.A. s-AS

ROSMIRA SOTO CASTANO Lic., University of Valle, 1966. Nursing. Appointed from University of Valle. Place of study: U.S.A. s-MNS

GUILLERMO VALENCIA B.S., University of Valle, 1967. Sanitary Engineering. Appointed from University of Valle. Place of study: U.S.A. s-MNS

DANIEL VEGA BARVO B.S., University of the Andes, 1965. Physiology and Biophysics. Appointed from University of Valle. Place of study: U.S.A. s-MNS

Fellows and Scholars

GERARDO RAUL VELEZ M.S., University of California, Davis, 1963. Entomology. Appointed from National University of Colombia, Medellín. Place of study: U.S.A. s-as

CONGO

LEONARD MUKENCE Lic. (Social Science), Lovanium University, 1964. Sociology. Appointed from Lovanium University. Place of study: Canada. s-hss

COSTA RICA

HUGO CACERES-RAMOS B.S.. University of Antioquia, Colombia, 1960. Library Science. Appointed from Inter-American Institute of Agricultural Sciences. Place of study: U.S.A. s-as

ECUADOR

Luis H. CRUZ Ing.Agr., Central University, 1966. Plant Science—Plant Breeding. Appointed from National Institute of Agricultural Research. Place of study: Mexico. s-as

GUSTAVO ANIBAL VERA Ing.Agr., Central University, 1961. Plant Science—Plant Breeding. Appointed from National Institute of Agricultural Research. Place of Study: U.S.A. s-as

HONDURAS

FERNANDO FERNANDEZ DE CORDOVA M.S.A., University of Florida, 1960. Soil Science—Soil Chemistry. Appointed from Pan American Agricultural School. Place of study: U.S.A. s-as

JAMES SCOTT PACKER M.A., University of Utah, 1965. Biology—Entomology. Appointed from Pan American Agricultural School. Place of study: U.S.A. s-as

IVAN VISCOVICH Ing.Agr., Technological Institute of Monterrey, Mexico, 1961. Plant Science—Plant Breeding. Appointed from DESARRURAL, Tegucigalpa. Place of study: Mexico. s-as

INDIA

SUSHIL KUMAR ADDY M.A., University of Missouri, Columbia, 1961. Plant Science—Plant Pathology. Appointed from Utkal University. Place of study: U.S.A. s-as

PREM NATH BAHL M.Sc., Rajasthan University, Pilani, 1955. Plant Science—Genetics and Breeding. Appointed from Indian Agricultural Research Institute. Place of study: U.S.A. s-as

CHINTAMANI DABRAL M.A., Banaras Hindu University, 1955. Library Science—Medical. Appointed from Directorate General of Health Services—National Medical Library. Places of study: U.S.A., Europe. F-MNS

JAPAN

AKIO TODANI M.A., Meiji University, 1955. Library Science. Appointed from Ministry of Agriculture and Forestry. Place of study: U.S.A. s-as

KENYA

WILSON REUBEN OPILE B.Sc., Haile Selassie I University, Ethiopia, 1966. Plant Science—Plant Physiology. Appointed from East African Agriculture and Forestry Research Organization. Place of study: U.S.A. s-as

EQBAL MOHAMED RUPANI B.A., University of East Africa, Kampala, Uganda, 1967. Literature. Appointed from University College, Nairobi. Place of study: England. s-hss

PETER ELIEZER TEMU B.Sc., University of East Africa, Kampala, Uganda, 1963. Economics. Appointed from University College, Nairobi. Place of study: U.S.A. s-hss

LEBANON

LUCINE V. KEVERIAN B.S.N.E., Syracuse University, 1957. Nursing Education and Administration. Appointed from American University of Beirut. Place of study: U.S.A. s-mns

MEXICO

ALFONSO ARNOLDO AMAYA CELIS M.S., North Dakota State University, 1964. Agronomy—Cereal Technology. Appointed from National Institute of Agricultural Research. Place of study: U.S.A. s-as

CARLOS ALEJANDRO GAMBOA DOMINGUEZ D.V.M., National University of Mexico, 1964. Library Science. Appointed from National Institute of Agricultural Research. Place of study: U.S.A. s-as

ANDRES ALFREDO IRUEGAS EVARISTO Ing.Agr., National School of Agriculture, 1965. Plant Science—Plant Breeding. Appointed from National Institute of Agricultural Research. Place of study: U.S.A. s-as

LORENZO FRANCISCO MEYER COSIO Ph.D., Colegio de México, 1967. Political Science. Appointed from Colegio de México. Place of study: U.S.A. r-hss

EVERARDO GONZALEZ PADILLA D.V.M., National University of Mexico, 1965. Animal Science—Animal Husbandry. Appointed from National Center for Livestock Research. Place of study: U.S.A. s-as

MARCO ANTONIO QUINONES LEYVA B.S., National University of Mexico, 1966. Plant Science—Cytogenetics. Appointed from International Maize and Wheat Improvement Center. Place of study: Canada. s-as

ROBERTO RUIZ-DIAZ D.V.M., National University of Mexico, 1963. Animal Science—Veterinary Science. Appointed from National Center for Livestock Research. Place of study: U.S.A. s-as

Fellows and Scholars

ARMANDO SHIMADA MIYASAKA D.V.M., National University of Mexico, 1964. Animal Science—Animal Nutrition. Appointed from National Center for Livestock Research. Place of study: U.S.A. s-as

RAUL FERNANDO ZERTUCHE RIOS Ing.Agr., University of Coahuila, 1962. Library Science. Appointed from National School of Agriculture. Place of study: U.S.A. s-as

NIGERIA

ADEBOLA TOYIN ADEKILE S.R.N., Whittington Hospital, London, England, 1964. Nursing. Appointed from University of Ibadan. Place of study: U.S.A. s-mns

CYRIL AMECHI OBIAKOSAH AKPOM M.B.Ch.B., University of Aberdeen, Scotland, 1963. Tropical Public Health. Appointed from University of Ibadan. Place of study: U.S.A. s-mns

SUNDAY MATTHEW ESSANG M.Sc., University of Ibadan, 1967. Economics. Appointed from University of Ibadan. Place of study: U.S.A. s-hss

OMOTARA FASAKIN S.R.N., Bedford General Hospital, England, 1962. Nursing. Appointed from University of Ibadan. Place of study: U.S.A. s-mns

VIVIAN SAMUEL VANVELP FERNAND L.M.S., Ceylon Medical College, Colombo, 1936; Ph.D., University College, London, England, 1949. Physiology. Appointed from University of Ibadan. Place of study: U.S.A. f-mns

FRANCIS SULEMANU IDACHABA B.Sc., University of Ibadan, 1967. Economics. Appointed from University of Ibadan. Place of study: U.S.A. s-hss

WINIFRED OLUREMI ICUN S.C.M., Dudley Road Hospital and Thorpe Coombe Hospital, England, 1957. Nursing Education. Appointed from University of Ibadan. Place of study: U.S.A. s-mns

STEPHEN MAJEBI A. LAWANI B.Sc., University of Ibadan, 1966. Library Science. Appointed from University of Ibadan. Place of study: U.S.A. s-as

VINCENT OLUFEMI MORAKINYO M.B., B.S., University of Ibadan, 1964. Psychiatry. Appointed from University of Ibadan. Place of study: Scotland. f-mns

DOMINIC AZIKIWE NWASIKE B.A., University of Ibadan, 1966. History. Appointed from University of Ibadan. Place of study: U.S.A. s-hss

THEOPHILUS OLADIPO OGUNLESI L.M.S., Higher College and School of Medicine, Yaba, 1947. Cardiology and Cardiovascular Epidemiology. Appointed from University of Ibadan. Place of study: U.S.A. f-mns

MICHAEL OLUDARE OLATAWURA M.B., B.S., University of Ibadan, 1964. Psychiatry. Appointed from University of Ibadan. Place of study: Scotland. f-mns

FESTUS BONIMADE ONIMODE B.Sc., University of Ibadan, 1966. Economics. Appointed from University of Ibadan. Place of study: U.S.A. s-hss

JOHN AZUKA ONYIAH B.Sc., University of Ibadan, 1964. Entomology. Appointed from Nigerian Institute for Trypanosomiasis Research, Kaduna. Place of study: England. s-mns

TIMOTHY AJIBOLA TAYLOR Ph.D., University of Durham, England, 1961. Entomology.
Appointed from University of Ibadan. Place of study: U.S.A. s-as

PERU

ARTURO CARRASCO GONZALEZ Ing.Agr., Agrarian University, 1955. Agronomy—Pastures and Forages. Appointed from Agrarian University. Place of study: Brazil. s-as

JORGE CHRISTIANSEN GONZALEZ Ing.Agr., National School of Agriculture, 1958. Plant Science—Genetics and Breeding. Appointed from Ministry of Agriculture. Place of study: U.S.A. s-as

SAUL FERNANDEZ-BACA M.S., University of California, Davis, 1960. Animal Science—Animal Physiology. Appointed from University of San Marcos. Place of study: U.S.A. s-as

CARLOS LLOSA BALUARTE M.S., Purdue University, 1964. Plant Science—Genetics and Breeding. Appointed from Agricultural Research and Extension Service. Place of study: U.S.A. s-as

ALFREDO MONTES M.S., University of California, Davis, 1964. Plant Science—Horticulture. Appointed from Agrarian University. Place of study: U.S.A. s-as

BENJAMIN QUIJANDRIA SALMON Ing.Agr., Agrarian University, 1965. Animal Science—Animal Breeding. Appointed from Agrarian University. Place of study: U.S.A. s-as

MARIO RONDON OLAZAVAL M.S., North Dakota State University, 1963. Plant Science—Genetics and Breeding. Appointed from Agrarian University. Place of study: U.S.A. s-as

RICARDO J. VALDIVIA R. D.V.M., University of San Marcos, 1963. Animal Science—Animal Nutrition. Appointed from University of San Marcos. Place of study: U.S.A. s-as

JOSE VALLE-RIESTRA SALAZAR M.S., Cornell University, 1965. Animal Science—Nutrition and Physiology. Appointed from Agrarian University. Place of study: U.S.A. s-as

AUGUSTO VALLENAS PANTICOZO M.Sc., Cornell University, 1954. Animal Science—Animal Physiology. Appointed from University of San Marcos. Place of study: U.S.A. s-as

CARLOS VALVERDE SUAREZ M.S., Purdue University, 1963. Soil Science—Soil Fertility. Appointed from Agricultural Experiment Station, La Molina. Place of study: U.S.A. s-as

OSWALDO VOYSEST VOYSEST M.S., University of California, Davis, 1963. Plant Science—Genetics and Breeding. Appointed from Agricultural Research and Extension Service. Place of study: U.S.A. s-as

PHILIPPINES

BLISS AQUINO ADAY Completed requirements for M.S., University of the Philippines, Los Baños, 1967. Plant Science—Plant Breeding. Appointed from University of the Philippines. Place of study: India. s-as

CECILIO R. ARBOLEDA M.S., University of the Philippines, Los Baños, 1964. Animal Science—Poultry Science. Appointed from University of the Philippines. Place of study: U.S.A. s-as

ELISEO A. BARDENAS M.S., University of the Philippines, Los Baños, 1965. Plant Science—Plant Taxonomy. Appointed from International Rice Research Institute. Place of study: U.S.A. s-as

PONCIANO A. BATUGAL Completed requirements for M.S., University of the Philippines, Los Baños, 1967. Plant Science—Plant Physiology. Appointed from University of the Philippines. Place of study: U.S.A. s-as

RODOLFO ANDRES BULATAO, JR. B.A., De La Salle College, 1964. Sociology. Appointed from University of the Philippines, Quezon City. Place of study: U.S.A. s-hss

ALEJANDRO J. CASAMBRE Ph.D., Ohio State University, 1962. Speech. Appointed from University of the Philippines, Quezon City. Place of study: U.S.A. p-hss

ROBERTO E. CORONEL M.S., University of Hawaii, 1965. Plant Science—Horticulture. Appointed from University of the Philippines, Los Baños. Place of study: U.S.A. s-as

PAULINO S. CRUZ M.D., University of the Philippines, Manila, 1965. Community Medicine. Appointed from University of the Philippines. Place of study: Colombia. p-mns

ERNEST H. CUBAR M.A., University of California, Los Angeles, 1961. Linguistics. Appointed from University of the Philippines, Quezon City. Place of study: U.S.A. s-hss

FREDECUSTO G. DAVID A.B., University of the Philippines, Quezon City, 1959. Psychology. Appointed from University of the Philippines. Place of study: U.S.A. s-mns

ISIDORO P. DAVID M.S., University of the Philippines, Los Baños, 1966. Mathematics—Statistics. Appointed from University of the Philippines. Place of study: U.S.A. s-as

CAROLINA GALICIA M.A., University of Karachi, Pakistan, 1964. Political Science. Appointed from University of the Philippines, Quezon City. Place of study: U.S.A. s-hss

OSCAR MANACOP GATMAITAN D.V.M., University of the Philippines, Quezon City, 1959. Animal Science—Clinical Pathology. Appointed from University of the Philippines, Los Baños. Place of study: U.S.A. s-as

MAYBELLE GOMEZ B.S., University of the Philippines, Quezon City, 1967. Botany. Appointed from University of the Philippines. Place of study: U.S.A. s-mns

NILDA JOVEN M.A., University of Sydney, Australia, 1965. Dramatic Literature. Appointed from University of the Philippines, Quezon City. Place of study: U.S.A. s-hss

FLOR JULIANO LACANILAO M.S., University of the Philippines, Quezon City, 1963. Zoology. Appointed from University of the Philippines. Place of study: U.S.A. s-mns

LILIA ORINA-ALLAS M.A., Ateneo de Manila University, 1959. Reading Instruction. Appointed from University of the Philippines, Quezon City. Place of study: U.S.A. s-hss

ARCADIO J. QUIMIO M.S., University of the Philippines, Los Baños, 1967. Plant Science—Plant Pathology. Appointed from University of the Philippines. Place of study: U.S.A. s-as

ALBERTO G. ROMUALDEZ, JR. M.D., University of the Philippines, Manila, 1965. Physiology.
Appointed from University of the Philippines. Place of study: U.S.A. F-MNS

AURORA ROXAS-LIM M.A., University of Chicago, 1959. Art History. Appointed from
University of the Philippines, Quezon City. Place of study: U.S.A. S-HSS

RICHARD M. TIONCO M.D., University of the Philippines, Manila, 1955. Surgery. Ap-
pointed from University of the Philippines. Place of study: U.S.A. F-MNS

REMIGIO D. TORRES M.S., University of the Philippines, Los Baños, 1966. Agricultural
Economics. Appointed from University of the Philippines. Place of study: U.S.A. S-AS

THELMA ESTELA TUPASI M.D., University of the Philippines, Manila, 1964. Infectious
Disease. Appointed from University of the Philippines. Place of study: U.S.A. F-MNS

EVA M. DUCA VENTURA M.A., Eastern Kentucky State College, 1952. Government. Ap-
pointed from University of the Philippines, Quezon City. Place of study: U.S.A. S-HSS

VICTORIA ANTONIO VICENTE B.S., University of the Philippines, Quezon City, 1965. Chem-
istry. Appointed from University of the Philippines. Place of study: U.S.A. S-MNS

SUDAN

MOHAMED EL NASRI HAMZA B.V.Sc., Fuad I University, Egypt, 1952. Animal Science—
Animal Pathology. Appointed from University of Khartoum. Place of study: England.
S-AS

ABDEL MONEIM MUSTAFA YOUSIF Dipl. (Architecture), Leicester College of Art, England,
1959. Architecture. Appointed from University of Khartoum. Place of study: Australia.
S-HSS

TANZANIA

FRANK XAVIER NJENGA LL.M., Columbia University, 1965. Law. Appointed from Uni-
versity College, Dar es Salaam. Place of study: U.S.A. S-HSS

ANTHONY HUBERT RWEYEMAMU Ph.D., Syracuse University, 1966. Political Science. Ap-
pointed from University College, Dar es Salaam. Place of study: U.S.A. F-HSS

THAILAND

ASCHAN SUKTHUMRONG B.Sc., Kasetsart University, 1966. Plant Science—Agronomy. Ap-
pointed from Kasetsart University. Place of study: India. S-AS

BOONSANONG PUNYODYANA M.A., University of Kansas, 1964. Sociology. Appointed from
Thammasat University. Place of study: U.S.A. S-HSS

CHALONGRUT INTREE B.S., University of Medical Sciences, 1961. Nursing. Appointed from
University of Medical Sciences. Place of study: U.S.A. S-MNS

CHAMNAN CHUTARAKAEW B.Sc., Kasetsart University, 1963. Plant Science—Plant Breed-
ing. Appointed from Ministry of Agriculture. Place of study: India. S-AS

Fellows and Scholars

CHANTHANA KOSAIDILOK B.A., Chulalongkorn University, 1965. English. Appointed from Chulalongkorn University. Place of study: U.S.A. s-HSS

CHUMPHOT SUVAPHORN B.A., Thammasat University, 1966. Economics. Appointed from Thammasat University. Place of study: U.S.A. s-HSS

CHUSRI MANIPLUKSA B.A., Chulalongkorn University, 1964. Economics. Appointed from Thammasat University. Place of study: U.S.A. s-HSS

GOSAH ARYA M.A., Rutgers—The State University of New Jersey, 1967. Economics. Appointed from Thammasat University. Place of study: U.S.A. s-HSS

KALAYA DARAVIROJ B.S., University of Medical Sciences, 1965. Nursing Education. Appointed from University of Medical Sciences. Place of study: U.S.A. s-MNS

KAMALA MALLIKAMAS B.A., Chulalongkorn University, 1962. Linguistics. Appointed from Kasetsart University. Place of study: U.S.A. s-HSS

KANDA THAMMONGKOL M.S., Indiana University, 1959. Education. Appointed from Chulalongkorn University. Place of study: U.S.A. s-HSS

KAJI RATANABUNNANGCOON B.S., University of Medical Sciences, 1967. Pharmacology. Appointed from University of Medical Sciences. Place of study: U.S.A. s-MNS

KHAISRI SAKRANANDH B.A., Chulalongkorn University, 1958. Literature. Appointed from Thammasat University. Place of study: U.S.A. s-HSS

KOBKUL ARIYAPRAKAI M.S., Tulane University of Louisiana, 1967. Parasitology. Appointed from University of Medical Sciences. Place of study: U.S.A. s-MNS

MONTRI CHULAVATNATOL B.Sc., University of New South Wales, Australia, 1967. Biochemistry. Appointed from University of Medical Sciences. Place of study: U.S.A. s-MNS

NALINI KRAIRIKSH B.A., University of the Sacred Heart, Tokyo, 1965. Philosophy. Appointed from Thammasat University. Place of study: U.S.A. s-HSS

ORABHIN MOOLPRAMUK B.A., Chulalongkorn University, 1966. Library Science. Appointed from University of Medical Sciences. Place of study: U.S.A. s-MNS

PATAMAKA PATAMAPONGSE B.S., University of Bristol, England, 1965. Linguistics. Appointed from University of Medical Sciences. Place of study: U.S.A. s-HSS

PENSRI ATTASAMPUNNA B.A., Chulalongkorn University, 1963. Linguistics. Appointed from Kasetsart University. Place of study: U.S.A. s-HSS

PRADAB KROBTHONG B.S., University of Medical Sciences, 1960. Nursing. Appointed from University of Medical Sciences. Place of study: U.S.A. s-MNS

PRAPIN WILAIRAT B.S., Australian National University, Canberra, 1967. Physical Chemistry. Appointed from University of Medical Sciences. Place of study: U.S.A. s-MNS

PRAPON WILAIRAT B.S., Australian National University, Canberra, 1967. Biophysical Chemistry. Appointed from University of Medical Sciences. Place of study: U.S.A. s-MNS

RASAMI KANTASEWI B.A., Chulalongkorn University, 1946. Dietetics. Appointed from University of Medical Sciences. Place of study: U.S.A. s-MNS

REUTRAKUL VICHAI B.Sc., University of Sydney, Australia, 1966. Organic Chemistry. Appointed from University of Medical Sciences. Place of study: U.S.A. s-MNS

SIRIBOON NAWADHINSUKH B.A., Chulalongkorn University, 1965. Economics. Appointed from Thammasat University. Place of study: U.S.A. s-HSS

SIRIPORN KANCHANAVASITA B.A., Chulalongkorn University, 1963. Linguistics. Appointed from Kasetsart University. Place of study: U.S.A. s-HSS

SOMPAN HINJIRANAN B.S., University of Medical Sciences, 1960. Medical and Surgical Nursing. Appointed from University of Medical Sciences. Place of study: U.S.A. s-MNS

SRIYAKUL CHAREONSI B.Sc., University of Otago, New Zealand, 1966. Microbiology. Appointed from University of Medical Sciences. Place of study: U.S.A. s-MNS

SUCHIN NANTHAVIROJYANA B.S., University of Medical Sciences, 1965. Nursing. Appointed from University of Medical Sciences. Place of study: U.S.A. s-MNS

SUDA HIRANYATHEB Dipl. d'études supérieures, University of Nancy, France, 1964. Literature. Appointed from Thammasat University. Place of study: U.S.A. s-HSS

SUTAT SRIWATANAPONGSE M.S., Purdue University, 1965. Plant Science—Plant Breeding. Appointed from Kasetsart University. Place of study: U.S.A. s-AS

TONGBAI POONYANUNT B.S., University of Medical Sciences, 1959. Nursing. Appointed from University of Medical Sciences. Place of study: U.S.A. s-MNS

TONGTAVUCH ANUKARAHANONTA M.D., University of Medical Sciences, 1966. Pathology. Appointed from University of Medical Sciences. Place of study: U.S.A. F-MNS

VALEE HARISDANGKUL M.D., University of Medical Sciences, 1966. Immunopathology. Appointed from University of Medical Sciences. Place of study: U.S.A. F-MNS

VIBHAWARN MANUNAPICHU M.S., University of Liverpool, England, 1954. Library Science. Appointed from University of Medical Sciences. Place of study: U.S.A. s-MNS

WISMAI SUCHAVETA B.A., Chulalongkorn University, 1964. Linguistics. Appointed from Kasetsart University. Place of study: U.S.A. s-HSS

YADA STHOLASUTA B.A., Chulalongkorn University, 1966. Library Science. Appointed from University of Medical Sciences. Place of study: U.S.A. s-MNS

TRINIDAD

DARWIN BASIL WILLIAMS M.S., Iowa State University, 1964. Plant Science—Plant Breeding. Appointed from University of the West Indies, St. Augustine. Place of study: U.S.A. s-AS

UGANDA

EPHRAIM BOMERA AKIKI-MUJAJU B.A., University of East Africa, Kampala, 1967. Political Science. Appointed from Makerere University College. Place of study: U.S.A. s-HSS

OWNALI NURDIN MOHAMEDALI B.A., University of East Africa, Kampala, 1967. Library Science. Appointed from Makerere University College. Place of study: U.S.A. s-AS

FESTO ABBY MUTERE Ph.D., University of East Africa, Entebbe, 1965. Zoology. Appointed from Makerere University College. Place of study: Scotland. F-MNS

PHARES MUKASA MUTIBWA B.A., Makerere University College, 1962. History. Appointed from Makerere University College. Place of study: England. s-HSS

AZIM AKBERALI NANJI B.A., University of East Africa, Kampala, 1967. Islamic Studies. Appointed from Makerere University College. Place of study: Canada. s-HSS

JAMES CERESOMU SAKABUNGA M.D., Guy's Hospital, London, England, 1959. Cardiology. Appointed from Makerere University College. Place of study: England. s-MNS

UNITED STATES

JOSEPH ALLEN COOK M.D., Vanderbilt University, 1964. Hygiene. Appointed from University of North Carolina, Chapel Hill. Place of study: U.S.A. F-MNS

URUGUAY

CARLOS ALBERTO JOSE RUCKS BOBOLI M.S., University of Wisconsin, Madison, 1961. Economics and Rural Life—Agricultural Extension. Appointed from National Agricultural Extension Center. Place of study: U.S.A. s-AS

ORGANIZATIONAL INFORMATION

MEETINGS

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

TRUSTEES AND PRINCIPAL OFFICERS

Dr. Lee A. DuBridge retired on April 5, 1967, after eleven years' service as a Trustee. He has been President of the California Institute of Technology since 1946. During World War II, he was Director of the Radiation Laboratory at the Massachusetts Institute of Technology, which operated under the auspices of the U. S. Office of Scientific Research and Development.

Dr. Alberto Lleras Camargo of Colombia succeeded Dr. DuBridge on April 5, 1967. A distinguished journalist and statesman, Dr. Lleras is Chairman of the Editorial Board of *Visión* magazine. He was President of the Republic of Colombia in 1945-1946 and again from 1958 to 1962, and has held many other high government posts.

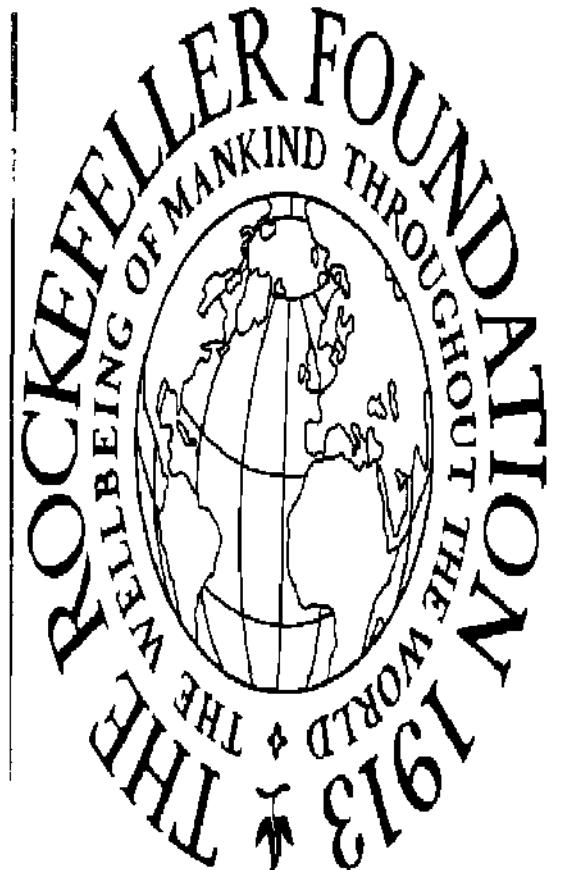
Mr. George D. Woods retired on June 30, 1967, after serving as a Trustee since April 5, 1961. Mr. Woods became President of the International Bank for Reconstruction and Development in 1963. Prior to that time he had been with the First Boston Corporation for many years, becoming Chairman of its Board in 1951.

Mr. Robert V. Roosa, a general partner of Brown Brothers Harriman & Co. since 1965, succeeded Mr. Woods on July 1, 1967. Mr. Roosa was an official of the Federal Reserve Bank of New York from 1946 to 1960. He resigned as Vice-President in 1960 and served as Under Secretary of the Treasury for Monetary Affairs from 1961 through 1964.

Dr. Will M. Myers became a Vice-President on February 1, 1967. He had served on the Foundation's Board of Consultants for Agricultural Sciences from 1954 to 1959 and from 1962 to 1964. In January, 1965, he joined the staff as Associate Director for Agricultural Sciences, assigned to Nigeria. He has held high positions with the U. S. Department of Agriculture and at the University of Minnesota, where he was Dean of International Programs in 1963-1964.



Photograph Excised Here



Photograph Excised Here

George D. Woods

Lee A. DuBridge

Mr. Theodore R. Frye succeeded Mr. Kenneth Wernimont as Treasurer on November 1, 1967. Mr. Wernimont, who was formerly both Vice-President for Administration and Treasurer, resigned from the latter post at the end of October. Mr. Frye came to the Foundation as Assistant Treasurer in 1963, after fifteen years as a U. S. Department of State and Foreign Service Officer, with assignments in Washington, D. C., India, and Israel.

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FINANCIAL SUMMARY FOR 1967

The Trustees of The Rockefeller Foundation approved \$39 million in new appropriations during 1967.

The Foundation's five major areas of interest received a total of \$29.6 million, allocated as follows: Toward the Conquest of Hunger—\$6 million; University Development—\$4.1 million; Problems of Population—\$5.1 million; Toward Equal Opportunity for All—\$4.8 million; Aiding Our Cultural Development—\$2.8 million, and for projects closely related to these five program areas—\$6.8 million. Grants in aid were funded with \$1.3 million and fellowships with \$2.7 million. Appropriations of \$2.8 million were made for New York program expenses and \$2.6 million for administrative services.

These new commitments bring to a total of \$950 million the appropriations of The Rockefeller Foundation during the 54 years of its existence.

Payments during 1967 on current and prior appropriations were \$36.3 million. These payments were made from the Foundation's income for the year of \$32.1 million and from \$4.2 million of principal. By the end of 1967, the Foundation's total payments for the 54-year period were \$870.2 million, of which \$727.8 million was paid from income, while \$142.4 million was paid from principal.

At December 31, commitments for future payments aggregated \$79.5 million.

The Foundation continued the diversification of its investments by the sale of 90,849 shares of Standard Oil Company (New Jersey) capital stock and the sale of 243,101 shares of Standard Oil Company of California. The proceeds, together with the proceeds from sales of other securities, were reinvested in other common stocks. The Foundation's relatively small holdings of corporate bonds and of U. S. Government Obligations were reduced and the proceeds, except for funds required to cover excess of expenditure over income, were reinvested in common stocks.

The financial statements, and the opinion of Haskins & Sells, independent public accountants, are presented in the following pages.

ACCOUNTANTS' OPINION

HASKINS & SELLS

CERTIFIED PUBLIC ACCOUNTANTS

TWO BROADWAY
NEW YORK 10004

February 15, 1968

Board of Trustees,
The Rockefeller Foundation,
111 West 50th Street,
New York.

Dear Sirs:

We have examined the balance sheet of The Rockefeller Foundation, including the schedule of marketable securities, as of December 31, 1967 and the related statement of income and appropriations, statement of principal fund, summary of appropriations and payments, and summary of transactions in marketable securities 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 financial statements and schedule present fairly the financial position of the Foundation at December 31, 1967 and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Yours truly,

Haskins + Sells

BALANCE SHEET—DECEMBER 31, 1967

ASSETS

MARKETABLE SECURITIES—at cost or market value at date of gift or receipt (quoted market value, \$802,233,123)	\$284,329,651
CASH ON HAND AND ON DEPOSIT	1,284,192
ADVANCES AND ACCOUNTS RECEIVABLE	1,536,556
PROPERTY—at nominal or depreciated amount	100,273
TOTAL	\$287,250,672

FUNDS AND OBLIGATIONS

PRINCIPAL FUND	\$206,693,984
UNPAID APPROPRIATIONS	79,493,501
ACCOUNTS PAYABLE	962,914
PROPERTY FUND	100,273
TOTAL	\$287,250,672

STATEMENT OF INCOME AND APPROPRIATIONS

FOR THE YEAR ENDED DECEMBER 31, 1967

INCOME:

Dividends	\$ 30,173,650
Interest	2,014,743
	<hr/>
	32,188,393

APPROPRIATIONS:

During the year	\$ 39,142,415
Less refunds and lapses of unexpended balances	368,131
	<hr/>
EXCESS OF APPROPRIATIONS OVER INCOME FOR THE YEAR CHARGED TO PRINCIPAL FUND	\$ 38,774,284

EXCESS OF APPROPRIATIONS OVER INCOME FOR THE YEAR CHARGED TO PRINCIPAL FUND	\$ 6,585,891
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STATEMENT OF PRINCIPAL FUND

FOR THE YEAR ENDED DECEMBER 31, 1967

BALANCE, JANUARY 1, 1967	\$191,933,525
ADD:	
Excess of proceeds from sales of securities over ledger amount	21,309,349
Contributions received	37,001
	<hr/>
	213,279,875
DEDUCT:	
Excess of appropriations over income for the year	6,585,891
BALANCE, DECEMBER 31, 1967	<hr/> \$206,693,984

SUMMARY OF APPROPRIATIONS AND PAYMENTS

FOR THE YEAR ENDED DECEMBER 31, 1967

UNPAID APPROPRIATIONS, JANUARY 1, 1967	\$ 77,068,633
APPROPRIATIONS:	
During the year	\$ 39,142,415
Less refunds and lapses of unexpended balances	368,131
	<hr/>
	38,774,284
	<hr/>
	115,842,917
PAYMENTS:	
During the year	36,435,190
Less refunds on appropriations	85,774
	<hr/>
	36,349,416
UNPAID APPROPRIATIONS, DECEMBER 31, 1967	<hr/> \$ 79,493,501

**SUMMARY OF TRANSACTIONS IN
MARKETABLE SECURITIES**

FOR THE YEAR ENDED DECEMBER 31, 1967

Ledger Amount of Securities, January 1, 1967		\$267,316,673
Purchased	\$ 91,257,653	
Otherwise Acquired	<u>2,420,259</u>	<u>93,677,912</u>
		360,994,585
Sold	58,811,281	
Redeemed at Maturity	15,199,185	
Otherwise Disposed of	2,420,259	
Ledger Amount Reduced	<u>234,209</u>	<u>76,664,934</u>
Ledger Amount of Securities, December 31, 1967		<u>\$284,329,651</u>

TRANSACTIONS IN MARKETABLE SECURITIES

FOR THE YEAR ENDED DECEMBER 31, 1967

PURCHASED:		LEDGER AMOUNT
\$ 3,200,000	U. S. Treasury Bills	\$ 3,186,780
3,000,000	U. S. Treasury Notes (under Repurchase Agreement)	3,000,000
1,000,000	Banks for Cooperatives 5.90% Debentures due February 1, 1967	1,000,312
1,000,000	Federal Home Loan Banks 5.55% Notes due April 25, 1967	1,000,313
3,000,000	Federal Home Loan Banks 5 1/8 % Bonds due March 25, 1969	3,016,875
2,000,000	Federal National Mortgage Association Notes	1,990,750
3,000,000	Federal National Mortgage Association 5.20% Participation Certificates due January 19, 1972	3,022,500
23,000,000	The Chase Manhattan Bank Certificates of Deposit	23,000,000
750,000	First National City Bank Certificate of Deposit	750,000
55,000	shares Boeing Company	4,946,773
78,000	" Central Illinois Public Service Company	1,557,741
80,000	" Columbia Broadcasting System, Inc.	4,247,647
16,800	" DuPont (E. I.) de Nemours and Company	2,579,821
70,000	" Firestone Tire & Rubber Company	3,553,143
98,300	" Hartford Fire Insurance Company	3,196,463
79,140	" Hooker Chemical Corporation	3,554,387
6,000	" International Business Machines Corporation	3,015,350
30,000	" International Nickel Company of Canada, Ltd.	2,947,847
62,484	" Monsanto Company	2,794,953
80,000	" National Steel Corporation	3,971,454
90,000	" Public Service Electric & Gas Company	2,886,217

TRANSACTIONS IN MARKETABLE SECURITIES *continued*

FOR THE YEAR ENDED DECEMBER 31, 1967

PURCHASED: *concluded*

		LEDGER AMOUNT
100,000	shares Scott Paper Company	\$ 2,862,557
260,000	" Southern Company (The)	7,037,824
8,600	" Xerox Corporation	2,137,946
		<u><u>\$ 91,257,653</u></u>

OTHERWISE ACQUIRED:

3,309	shares American Electric Power Company received as a stock dividend on 132,392 shares owned of record December 9, 1966	—
53,100	" American Home Products Corporation received in a stock split on 53,100 shares owned of record April 26, 1967	—
722	" Columbia Broadcasting System, Inc. received as a stock dividend on 36,100 shares owned of record November 24, 1967	—
4,970	" Consumers Power Company received as a stock dividend on 49,700 shares owned of record March 3, 1967	—
75,600	" Great American Holding Corporation received in exchange for 37,800 shares Great American Insurance Company owned of record October 13, 1967 in accordance with Exchange Offer	\$ 2,420,259
102,000	" Hartford Fire Insurance Company received in a stock split on 102,000 shares owned of record April 14, 1967	—
1,126	" International Business Machines Corporation received as a stock dividend on 45,052 shares owned of record May 4, 1967	—
2,000	" Monsanto Company received as a stock dividend on 100,000 shares owned of record November 3, 1967	—
5,249	" Security First National Bank (Los Angeles) received as a stock dividend on 34,998 shares owned of record June 9, 1967	—
11,576	" Standard Oil Company of California received as a stock dividend on 231,525 shares owned of record December 22, 1966	—
		<u><u>\$ 2,420,259</u></u>

SOLD:

		PROCEEDS	LEDGER AMOUNT
\$ 3,000,000	U. S. Treasury Bills	\$ 2,987,595	\$ 2,987,595
12,000,000	U. S. 3½% Treasury Notes due February 15, 1967	11,994,375	11,957,198
500,000	U. S. 3½% Treasury Bonds due May 15, 1968	496,406	497,500
1,000,000	Federal Home Loan Banks 5.55% Notes due April 25, 1967	1,000,313	1,000,313
2,000,000	Federal Home Loan Banks 4¾% Bonds due March 1, 1968	1,994,063	1,974,375
2,000,000	Federal National Mortgage Association Notes	1,990,750	1,990,750
9,000,000	The Chase Manhattan Bank Certificates of Deposit	9,000,000	9,000,000
2,000,000	American Telephone & Telegraph Company 3½% Bonds due July 1, 1990	1,455,000	2,036,538
500,000	Dallas Power & Light Company 4¼% Bonds due December 1, 1986	384,375	502,677

TRANSACTIONS IN MARKETABLE SECURITIES *continued*

FOR THE YEAR ENDED DECEMBER 31, 1967

<i>SOLD: concluded</i>		PROCEEDS	LEDGER AMOUNT
\$ 1,000,000	Illinois Bell Telephone Company 4 1/4% Bonds due March 1, 1988	\$ 765,000	\$ 1,009,132
1,000,000	Michigan Bell Telephone Company 4 3/8% Bonds due December 1, 1991	766,250	1,015,533
1,000,000	Mountain States Telephone & Telegraph Company 4 3/8% Bonds due February 1, 1988	780,000	1,008,286
1,000,000	Pacific Gas & Electric Company 4 1/2% Bonds due December 1, 1986	798,000	1,009,470
1,000,000	Public Service Electric & Gas Company 4 3/8% Bonds due November 1, 1986	782,200	1,007,908
19,200	shares Aluminum Company of America	1,603,256	1,213,867
66,000	" American Smelting & Refining Company	4,583,580	1,894,808
37,400	" Continental Insurance Company	2,880,583	1,580,144
52,476	" Dow Chemical Company	4,063,498	2,527,688
3,300	" Great American Holding Corporation	98,743	105,646
83,200	" McGraw-Edison Company	3,426,270	1,635,791
61,800	" Pittsburgh Plate Glass Company	3,719,579	3,981,579
40,247	" Security First National Bank (Los Angeles)	1,491,927	1,655,657
243,101	" Standard Oil Company of California	13,686,363	1,893,560
90,849	" Standard Oil Company (New Jersey)	5,467,914	470,235
55,000	" United States Steel Corporation	2,197,176	2,797,695
60,000	" Western Bancorporation	1,707,211	2,057,273
	Fractional shares and expenses	203	63
		<u>\$ 80,120,680</u>	<u>\$ 58,811,281</u>

REDEEMED AT MATURITY:

\$ 200,000	U. S. Treasury Bills	\$ 199,185	\$ 199,185
1,000,000	Banks for Cooperatives 5.90% Debentures due February 1, 1967	1,000,000	1,000,000
3,000,000	Federal Home Loan Banks 5 3/4% due June 26, 1967	3,000,000	3,000,000
11,000,000	The Chase Manhattan Bank Certificates of Deposit	<u>11,000,000</u>	<u>11,000,000</u>
		<u>\$ 15,199,185</u>	<u>\$ 15,199,185</u>

OTHERWISE DISPOSED OF:

37,800	shares Great American Insurance Company owned of record October 13, 1967, exchanged for 75,600 shares Great American Hold- ing Corporation in accordance with Ex- change Offer	\$ 2,420,259	\$ 2,420,259
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TRANSACTIONS IN MARKETABLE SECURITIES *continued*

FOR THE YEAR ENDED DECEMBER 31, 1967

LEDGER AMOUNT REDUCED:		PROCEEDS	LEDGER AMOUNT
300,000	shares Continental Oil Company by cash received for 300,000 Rights Continental Oil Company	\$ 181,250	\$ 181,250
26,250	" National Cash Register Company by cash received for 26,250 Rights National Cash Register Company	36,094	36,094
	Amortization of bond premiums	16,865	16,865
		<u>\$ 234,209</u>	<u>\$ 234,209</u>

SCHEDULE OF MARKETABLE SECURITIES

DECEMBER 31, 1967

FIXED INCOME SECURITIES	LEDGER AMOUNT	MARKET VALUE
U. S. Government Obligations	\$ 7,820,938	\$ 7,734,844
U. S. Government Agency Obligations	16,421,595	16,204,687
Certificates of Deposit	4,750,000	4,750,000
Corporate Bonds	1,955,000	1,760,000
	<u>30,947,533</u>	<u>30,449,531</u>
COMMON STOCKS	<u>253,382,118</u>	<u>771,783,592</u>
TOTAL	<u>\$284,329,651</u>	<u>\$802,233,123</u>

FIXED INCOME SECURITIES	PAR	LEDGER AMOUNT	MARKET VALUE
<i>U. S. Government Obligations:</i>			
Notes (Under Repurchase Agreement)			
4 3/4%—May 15, 1972	\$ 3,000,000	\$ 3,000,000	\$ 3,000,000
Bonds			
3 3/4%—May 15, 1968	500,000	497,500	496,719
4%—August 15, 1970	2,000,000	1,934,375	1,913,750
4%—February 15, 1972	1,500,000	1,436,250	1,402,500
4 1/8%—November 15, 1973	1,000,000	952,813	921,875
	<u>8,000,000</u>	<u>7,820,938</u>	<u>7,734,844</u>

SCHEDULE OF MARKETABLE SECURITIES *continued*

DECEMBER 31, 1967

FIXED INCOME SECURITIES <i>concluded</i>	PAR	LEDGER AMOUNT	MARKET VALUE
<i>U. S. Government Agency Obligations:</i>			
Federal Home Loan Banks Bonds 5½%—March 25, 1969	\$ 3,000,000	\$ 3,011,462	\$ 2,985,000
Federal Land Banks Bonds 4¼%—October 20, 1969	3,000,000	2,925,000	2,906,250
Federal National Mortgage Association Debentures 5½%—September 10, 1968	2,500,000	2,493,008	2,498,437
4¾%—April 10, 1969	2,000,000	1,965,000	1,957,500
6%—December 12, 1969	3,000,000	3,006,875	2,992,500
Participation Certificates 5.20%—January 19, 1972	3,000,000	3,020,250	2,865,000
	<u>16,500,000</u>	<u>16,421,595</u>	<u>16,204,687</u>
<i>Certificates of Deposit:</i>			
The Chase Manhattan Bank 5.50%—January 26, 1968	1,000,000	1,000,000	1,000,000
5.50%—February 1, 1968	3,000,000	3,000,000	3,000,000
First National City Bank 5.50%—April 15, 1968	750,000	750,000	750,000
	<u>4,750,000</u>	<u>4,750,000</u>	<u>4,750,000</u>
<i>Corporate Bonds:</i>			
General Motors Acceptance Corporation 5%—August 15, 1977	1,000,000	975,000	870,000
International Bank for Reconstruction and Development 3½%—October 15, 1971	1,000,000 2,000,000	980,000 1,955,000	890,000 1,760,000
TOTAL FIXED INCOME SECURITIES	\$ 31,250,000	\$ 30,947,533	\$ 30,449,531

SCHEDULE OF MARKETABLE SECURITIES *concluded*

DECEMBER 31, 1967

COMMON STOCKS	SHARES	LEDGER AMOUNT	MARKET VALUE
American Electric Power Company, Inc.	135,701	\$ 1,074,595	\$ 4,919,161
American Home Products Corporation	106,200	3,628,841	6,119,775
American Telephone & Telegraph Company	175,926	4,636,063	8,862,272
Boeing Company	55,000	4,946,773	4,977,500
Central Illinois Public Service Company	78,000	1,557,741	1,569,750
Columbia Broadcasting System, Inc.	80,722	4,247,647	4,399,349
Consolidated Natural Gas Company	600,000	3,603,294	17,325,000
Consumers Power Company	54,670	2,509,303	2,357,644
Continental Insurance Company	11,475	484,817	920,869
Continental Oil Company	300,000	1,834,168	22,312,500
Corning Glass Works	35,000	4,728,113	12,075,000
Crown Zellerbach Corporation	82,500	3,391,122	3,774,375
DuPont (E. I.) de Nemours and Company	53,000	10,039,958	8,400,500
Eastman Kodak Company	118,600	7,790,263	17,671,400
Firestone Tire & Rubber Company	207,900	9,673,965	11,538,450
Ford Motor Company	492,891	22,948,266	26,369,669
General Electric Company	189,000	11,631,709	18,144,000
General Motors Corporation	195,532	10,481,427	16,033,624
Great American Holding Corporation	72,300	2,314,613	2,159,962
Hanna Mining Company	94,075	4,377,577	7,490,722
Hartford Fire Insurance Company	302,300	5,374,991	6,877,325
Hooker Chemical Corporation	150,000	6,235,636	6,562,500
Insurance Company of North America	50,000	2,411,908	2,925,000
International Business Machines Corporation	52,178	10,248,105	32,715,606
International Nickel Company of Canada, Ltd.	175,000	8,496,169	20,518,750
International Paper Company	251,402	2,861,119	7,730,612
Marathon Oil Company	212,241	3,708,384	17,483,352
Minnesota Mining & Manufacturing Company	100,000	6,312,717	9,450,000
Mobil Oil Corporation	600,000	7,778,152	25,575,000
Monsanto Company	102,000	3,587,400	4,832,250
National Cash Register Company	26,250	1,785,892	3,491,250
National Steel Corporation	214,000	9,841,869	9,844,000
Owens-Corning Fiberglas Corporation	40,000	2,530,742	2,480,000
Peoples Gas Light & Coke Company	84,000	1,057,373	2,887,500
Public Service Electric & Gas Company	90,000	2,886,217	2,958,750
Scott Paper Company	223,000	6,926,557	6,048,875
Southern Company (The)	342,000	8,853,096	9,704,250
Standard Oil Company (Indiana)	2,000,000	14,184,718	108,250,000
Standard Oil Company (New Jersey)	4,000,000	20,704,025	270,000,000
Travelers Corporation (The)	100,000	856,405	2,500,000
Union Carbide Corporation	60,000	2,973,773	2,940,000
Union Tank Car Company	100,000	593,187	7,575,000
Upjohn Company	50,000	2,529,555	2,500,000
Weyerhaeuser Company	150,000	2,605,917	5,906,250
Xerox Corporation	8,600	2,137,946	2,605,800
TOTAL COMMON STOCKS		\$253,382,118	\$771,783,592

PAYMENTS 1967

Approximately 85 percent of all 1967 payments were made in the United States, including expenditures for equipment and supplies purchased for shipment to foreign grantees. Payments marked () represent refunds.

INTERNATIONAL

Cooperative programs of The Rockefeller Foundation

Conquest of Hunger—field staff in the Agricultural Sciences	\$2,093,408
University Development—Program development and field staff in the Humanities and Social Sciences	797,429
Virus Research Program—field staff	529,812
Field Research in Medical Sciences, Nutrition, and Population Problems	698,769

Organization of American States

<i>Inter-American Institute of Agricultural Sciences, Costa Rica</i>	
Secretariat for the Latin American Association of Plant Science	12,000
Operation costs of the secretariat of the Inter-American Association of Agricultural Librarians and Documentalists	9,000
Toward publication of <i>Agricultural Sciences in Latin America-Progress and Future Prospects</i>	750

United Nations

<i>Food and Agriculture Organization of the United Nations</i>	
Provision of liaison officers	5,000
Preparation of a soil map of South America	(719)

ARGENTINA

National Institute of Agricultural Technology

Travel expenses of visiting professors	(854)
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Torcuato di Tella Institute

Support of the Latin American Center for Advanced Musical Studies	27,711
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University of Buenos Aires

Support of the Faculties of Medical Sciences, Pharmacy and Chemistry, and Exact and Natural Sciences	6,321
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University of Cuyo

Support of the Faculty of Medical Sciences	52,361
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Other support

Fellowships, scholarships, and travel grants to individuals	16,371
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AUSTRALIA

University of Queensland

Contribution toward fellowship operations	1,000
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Other support

Travel grants to individuals	16
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PAYMENTS 1967

BOLIVIA

Fellowships and scholarships for individuals 5,927

BOTSWANA

Department of External Affairs

Purchase of a collection of basic works in international relations 3,669

BRAZIL

Brazilian Society of Genetics

General support 9,700

Federal University of Minas Gerais

General development 40,844

Research in the Institute of Biology 1,300

Support of the Faculty of Medicine 5,551

Institute of Agronomy of the State of São Paulo

Support of the Tropical Center of Food Research and Technology 19,484

Rural University of the State of Minas Gerais

Contribution toward fellowship operations 1,500

Development of its School of Domestic Science and study of native plants 3,476

University of Bahia

Support of the Laboratory of Human Genetics 3,500

University of Paraná

Catalogue of neotropical bees 2,145

Research in the Laboratory of Human Genetics 2,338

University of Rio Grande do Sul

Research in the Laboratory of Animal Genetics 3,050

Research in the Laboratory of Human Genetics 2,287

Research in the Laboratory of Molecular Genetics 3,573

Support of the Faculty of Medicine and the Institute of Natural Sciences 3,585

University of São Paulo

Research in the Laboratory of Animal Genetics 3,000

Research in the Laboratory of Human Genetics 5,462

Research equipment for the Department of Genetics 1,260

Research in the Laboratory of Medical Genetics 4,784

Research at the School of Agriculture, Piracicaba 132,789

Research equipment for the Department of Clinical Medicine 262

Support of the Department of Physiology 2,507

Cooperative programs

Belém Virus Laboratory 48,888

Visiting faculty (Federal University of Minas Gerais) 20,448

PAYMENTS 1967

BRAZIL (cont'd)

Other support

Support of work in the creative arts	6,000
Fellowships, scholarships, and travel grants to individuals	135,225

CANADA

Canadian Forestry Education Study Group

Study of forestry education	5,000
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McGill University

Contribution toward fellowship operations	3,000
Visiting faculty appointments in Africa, Asia, and Latin America	68,505
Transportation facilities for faculty assigned to African universities	3,606

University of Manitoba

Contribution toward fellowship operations	500
Research on wheat-rye hybrids	18,233

CEYLON

Fellowships and scholarships for individuals	11,241
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CHILE

Agricultural Research Institute

Activities of the Institute	155,044
Cooperative research projects	25,237
Library development, research, and training	64,412

Catholic University of Chile

Development of studies in neurology, marine biology, and nuclear medicine	723
Equipment and supplies for the Laboratory of Physiopathology	2,205
Equipment for the Teatro de Ensayo	7,430
Equipment for the Conjunto de Musica Antigua	707
Program in labor economics	30,650
Program of the School of Economics and Business Administration	48,095
Research in the Center of Economic Studies	7,350
Support of the Laboratories of Neurophysiology and of Electron Microscopy	13,386
Support of the Faculty of Agronomy	5,910
Undergraduate research program in history	2,705

Council of Rectors of Chilean Universities

Equipment and supplies	2,369
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University of Chile

Development of the Faculty of Medicine library	25,699
Research on malnutrition in infants and preschool children	15,000
Research in the Faculty of Medicine	793
Research in the Graduate School of Economics	4,796

PAYMENTS 1967

Population research and family planning programs	160,104
Support of the Faculty of Sciences	77,897
Support of the Department of General Biochemistry	13
Support of the Center of Research on American History	100,590
Support of the Institute of Economics	51,365
 University of Concepción	
Support of the Faculty of Agronomy	7,508
 Cooperative program	
International Development Center, Santiago	48,977
Visiting faculty (Universities in Santiago)	67,371
 Other support	
Fellowships, scholarships, and travel grants to individuals	281,037
 COLOMBIA	
 Colombian Association of Faculties of Medicine	
Support of its program	37,600
 Colombian Institute of Agriculture	
General support	149,115
Teaching, research, and extension programs	65,219
 Fundación para la Educación Superior	
Maintenance of vehicles	7,000
 International Center of Tropical Agriculture	
Program in tropical agriculture	66,295
 National University of Colombia	
Toward modernization of its fiscal system	18,700
 University of the Andes	
Support of the Department of Biology and premedical program	53,739
Research and training in political science	761
 University of Antioquia	
Support of the School of Library Science	24,424
 University of Valle	
Contribution toward fellowship operations	1,000
Appointments in the Departments of Political Science and Sociology	90,000
Construction of an addition to the Central Library	90,000
Development and equipment for the library	62,062
Development of administrative services	15,466
Research in grains and other products with the Colombian Institute of Agriculture	36,241
Support of the Department of Biology	26,911
Equipment and supplies for the Division of Social Sciences and Economics	10,897
Research in the Division of Social Sciences and Economics	25,275

PAYMENTS 1967

COLOMBIA (cont'd)

University of Valle (cont'd)

Program in reproductive physiology	1,025
Program for the investigation of the effect of climate on architecture in Colombia	25,000
Research on human resources of the State of Valle	49,610
General development	135,901
Research in reproductive biology	7,271
Development of the Department of Music	308
Nutrition research program	14,148
Support of the Faculty of Medicine	150,826
Research in tropical diseases	40
Support of the School of Nursing	9,235
Special seminar programs	3,326
Support of the language laboratory	8,714
Support of the University Hospital	34,828
Support of the Division of Health Sciences	263,923
Population studies	43,349
Toward metabolic studies in Israel	10,000
Evaluation of English language courses	2,000

Cooperative programs

Colombian and Andean Centers	224,763
International Maize and Wheat Improvement Center activities in Colombia	6,768
University Development Program Center (University of Valle)	75,647
Virus laboratory, Cali	51,318
Visiting faculty (University of Valle)	10,408

Other support

Support of work in the creative arts	1,850
Individual study in library science	1,200
Fellowships, scholarships, and travel grants to individuals	349,679

CONGO

Lovanium University

Tutorial program	20,000
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Other support

Fellowships and scholarships for individuals	17,485
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COSTA RICA

University of Costa Rica

Equipment for bean virus research	120
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Other support

Fellowships, scholarships, and travel grants to individuals	12,785
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Financial Statements

PAYMENTS 1967

ECUADOR

Central University

Research in the Faculty of Agronomy and Veterinary Medicine 2,246

National Agricultural Research Institute

Laboratory equipment 89,387

Cooperative program

Colombian and Andean Centers—Cooperative activities in Ecuador 34,422

Other support

Fellowships, scholarships, and travel grants to individuals 18,266

ETHIOPIA

Study of genetic variability in the sorghum species 7,077

Jimma Agricultural Technical School

Library purchases (2,380)

Other support

Fellowships, scholarships, and travel grants to individuals 23,905

FRANCE

Practical School of Higher Studies

Contribution toward fellowship operations 1,000

University of Aix-Marseilles

Research in biochemistry 741

Other support

Individual travel grants 561

GERMANY

Fridericiana Technical University

Contribution toward fellowship operations 1,000

G H A N A

Fellowships, scholarships, and travel grants to individuals 5,611

GUATEMALA

University of San Carlos

Research in the Faculties of Veterinary Medicine and Agronomy and the
Institute of Animal Husbandry 1,827

Other support

Fellowships, scholarships, and travel grants to individuals 14,589

PAYMENTS 1967

GUYANA

Ministry of External Affairs

Purchase of a collection of basic works in international relations 2,454

Other support

Fellowships, scholarships, and travel grants to individuals 4,357

HONDURAS

Pan American Agricultural School

General development 11,994

Other support

Fellowships and scholarships for individuals 18,293

INDIA

All India Institute of Medical Sciences

Teaching and research equipment 2,190

Equipment for the teaching hospital 276,510

Indian Agricultural Research Institute

Library development 1,723

Indian Cancer Research Centre

Research in biophysics 142

Indian Council of Medical Research

Support of the Reproductive Physiology Unit 14,971

Research at the Nutrition Research Laboratories, Hyderabad 2,089

Laboratory supplies 247

Indian School of International Studies

Staff training program 482

Research materials 12,450

Indian International Centre

General support 23,000

Osmania Medical College

Support of the Department of Biochemistry 104

Punjab Agricultural University

Development of an experiment station 14,889

Seth Gordhandas Sunderdas Medical College

Teaching and research 23,951

University of Delhi

Advanced library training 26,982

Comparative studies of Western and Indian music 11,226

Research on economic development in Africa 6,199

PAYMENTS 1967

Cooperative programs

Ballabghar Rural Health Centre	59,278
Indian Program Center	79,620
Indian Agricultural Program	398,763
Virus Research Centre, Poona	120,869
Visiting faculty (University of Delhi)	38,304
Laboratory for grain research at the Indian Agricultural Research Institute	48,502

Other support

Fellowships, scholarships, and travel grants to individuals	262,273
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INDONESIA

Fellowships and scholarships for individuals	4,314
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IRAN

Fellowships, scholarships, and travel grants to individuals	8,518
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ISRAEL

Hebrew University of Jerusalem

Research on ancient agricultural systems in the Negev	14,005
Research in international relations	3,539
Study of Israel's relations with the great powers	1,000

Other support

Fellowships and scholarships for individuals	3,315
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ITALY

University of Turin

Research in human genetics	9,454
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Villa Serbelloni

Research and Conference Center of The Rockefeller Foundation	182,929
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JAMAICA

University of the West Indies

Conference on political and economic relations	2,000
Research and training in international relations	48,954
Support of the Faculty of Medicine	15,007
Visiting faculty assignment to the University of Ibadan	4,748
Faculty exchanges with the University of Valle	(45)

Other support

Travel grants to individuals	2,141
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PAYMENTS 1967

JAPAN

Hokkaido University	
Studies on the physiology of corn	10,000
Institute for Plant Virus Research	
Purchase of library materials	15,000
Japan Women's University	
Library materials	4,267
Keio University	
Research in biochemistry	1,702
Kihara Institute for Biological Research	
Research on hybrid wheat	3,500
National Institute of Health	
Research in virology and rickettsiology	3,133
Tohoku University	
Publication of a report on upland farming	2,000
Other support	
Fellowships, scholarships, and travel grants to individuals	8,237

KENYA

East African Common Services Organization	
Support of the East African Agriculture and Forestry Research Organization	46,518
Egerton College	
Program in agricultural education	80
Ministry of Agriculture and Animal Husbandry	
Maize improvement program	31,289
Support of the Agricultural Education Commission	16,383
Museum Trustees of Kenya	
Research by the Department of Comparative Osteology	25,000
University of East Africa	
<i>University College, Nairobi</i>	
Research on the tsetse fly	15,626
East Coast fever research	14,157
Research in economics and related social sciences	79,028
Support of the Department of Government and Administration	4,364
Development of the library of the Department of History	2,656
Research in the basic sciences	7,035
Support of the Social Science Division of the Institute for Development Studies	5,480
Support of the Faculty of Veterinary Science	98,000

PAYMENTS 1967

Other support

Fellowships, scholarships, and travel grants to individuals 67,376

KOREA

Ministry of Foreign Affairs

International relations library acquisitions 25

LEBANON

American University of Beirut

General support 829,796

Research on international relations of the Arab countries 28,930

Near East Emergency Donations

Support of refugee students at the American University of Beirut 250,000

Other support

Fellowships, scholarships, and travel grants to individuals 14,818

LESOTHO

Ministry of Foreign Affairs

Purchase of a collection of basic works in international relations 3,669

LIBERIA

Cuttington College and Divinity School

Economic research program 2,500

Program in economics and business administration 16,293

Other support

Travel grants to individuals 79

MALAWI

Fellowships and scholarships for individuals (21)

MALAYSIA

Fellowships and scholarships for individuals 16,769

MEXICO

Colegio de México

Program in humanities and social sciences 7,788

Research in demography 43,482

International Maize and Wheat Improvement Center, Chapingo

Development of its headquarters facilities 106,677

Pilot program in corn production 19,875

Protein quality laboratory 37,931

PAYMENTS 1967

MEXICO (cont'd)

Mexican Center of Writers	
Creative writing program	4,500
National Institute of Agricultural Research	
Support of the National Agricultural Center, Chapingo	138,455
National Institute of Nutrition	
Equipment	435
National School of Agriculture	
Support of the Graduate School	67,363
National University of Mexico	
Graduate training in chemistry and biochemistry	31,902
Technological Institute of Monterrey	
Extension of graduate studies in the School of Agriculture	119,438
University of the State of Veracruz	
Training and research in the Faculty of Veterinary Medicine and Animal Husbandry	19,347
Cooperative programs	
International Maize and Wheat Improvement Center	59,721
Mexican research center	18,754
Other support	
Fellowships, scholarships, and travel grants to individuals	243,123

NATIONAL REPUBLIC OF CHINA, TAIWAN

Joint Commission on Rural Reconstruction, Taipei	
Fish culture research	56,720
Nutrition study	8,000
Other support	
Fellowships and scholarships for individuals	26,030

NETHERLANDS

The Hague Academy of International Law	
Lectures by Asian and African scholars	3,000

NEW ZEALAND

University of Otago	
Fiji virus research program	2,133

NICARAGUA

Fellowships and scholarships for individuals	
	191

PAYMENTS 1967

NIGERIA

University of Ibadan	
Arbovirus research	57,579
Toward the expenses of a visiting professor in geography at Northwestern University	1,440
Appointment of an environmental engineer	6,467
Appointment of a chief accountant	28,030
Development of a drama program	25,831
Lectureship in agricultural economics	3,491
Research in animal husbandry	19,006
Special scholarships	2,248
Equipment for the Department of Pathology, Faculty of Medicine	2,000
Medical training posts	22,172
Research in the Department of Agriculture	6,474
Support of the rural health center at Igbo-Ora	69,750
Support of the Institute of African Studies	56,070
Research projects in the Department of Agricultural Economics	6,246
Support of the Reading Centre	22,657
Support of the Department of Nursing	95,493
Support of the language laboratory	28,409
Conference on economic research	12,500
Research in rural pediatrics and nutrition	41,271
Research on tropical animals	23,500
Appointment of an assistant in the corn program	3,453
Renal function studies on children with schistosomiasis	25,000
Support of the Department of Psychiatry, Neurology, and Neurosurgery	73,743
Cooperative programs	
University Development Program Center (University of Ibadan)	7,727
Visiting faculty (University of Ibadan)	104,921
Special field operations	1,351
Other support	
Fellowships, scholarships, and travel grants to individuals	198,719

NORWAY

Christian Michelsen Institute	
Research on the East African economy	9,000

PAKISTAN

Central Institute of Islamic Research	
Support of research	225
Other support	
Fellowships and scholarships for individuals	7,992

PAYMENTS 1967

PERU

Agrarian University

Cooperative program with the Agricultural Research and Extension Service	109,076
Research and teaching in agricultural economics and rural sociology	72,920

Agricultural Research and Extension Service

Cooperative program with the Agrarian University	17,774
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University of San Marcos

Graduate scholarships and equipment and supplies for the Faculty of Veterinary Medicine	22,031
Support of the Faculty of Veterinary Medicine	4,749

Other support

Fellowships, scholarships, and travel grants to individuals	90,765
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PHILIPPINES

International Rice Research Institute

Travel for eight Indian rice specialists	7,286
Training awards for Indian scientists	10,067
Equipment for studies on protein quality in rice	40,000

University of the Philippines

Support of the Department of Anatomy	6,046
Support of the Department of Biochemistry	15,579
Support of the Institute of Hygiene	5,668
Support of the Department of Parasitology	1,266
Laboratory equipment for the Department of Pediatrics	1,486
Equipment for the Department of Pharmacology	45,676
Research equipment and supplies for the Department of Physiology	23,529
Support of the Eye Research Institute	3,697
Staff training in medical electronics	5,856
Rural community health teaching service	30,218
Construction of an International Center and faculty housing	12,487
Support of the University Press	4,771
Survey and engineering plans for a utility system	1,214
Faculty research in the Departments of English and Comparative Literature, History, Political Science, and Sociology	24,150
Graduate training and research in the Department of Economics	21,136
Graduate scholarships in the College of Arts and Sciences and the School of Economics	20,984
Development of the Social Sciences and Humanities Center	71,643
Faculty development in the Division of Natural Sciences	12,500
Library facilities for the Department of English and Comparative Literature	1,448
Library materials	36
Staff travel, consultation, and study	16,668
Research in the United States by a faculty member	4,500

PAYMENTS 1967

Conference on Indonesian economic stabilization	531
Research on violin technique	9,600
Cooperative program	
University Development Program Center (University of the Philippines)	53,255
Visiting faculty (University of the Philippines)	108,347
Other support	
Fellowships, scholarships, and travel grants to individuals	503,417
POLAND	
Polish Academy of Sciences	
Equipment for protein synthesis study	4,000
RHODESIA	
Agricultural Research Council of Rhodesia and Nyasaland	
Soil microbiologist	(37)
Other support	
Fellowships and scholarships for individuals	5,579
ST. LUCIA	
Ministry of Education, Health, and Social Affairs	
Expenses of training a laboratory assistant	1,450
Development of a plan for social and economic research	4,526
Cooperative program in schistosomiasis research and control	125,924
SENEGAL	
University of Dakar	
Support of research in the Laboratory of Medical Biochemistry	5,187
Other support	
Travel grants to individuals	3,351
SINGAPORE	
University of Singapore	
Research in virus diseases	2,421
SOUTH AFRICA	
Fellowships and scholarships for individuals	403
SUDAN	
University of Khartoum	
Language research project	8,132
Lectures on political science	(215)
General development	19,444

PAYMENTS 1967

SUDAN (cont'd)

Cooperative program

Visiting faculty (University of Khartoum) 1,131

Other support

Fellowships, scholarships, and travel grants to individuals 102,938

SWEDEN

Travel grants to individuals 5,500

SWITZERLAND

Graduate Institute of International Studies

Training and research in international organization and relations 42,629

International Press Institute

Program for the Asian press 50,550

TANZANIA

College of Agriculture

General support 172,926

Dar es Salaam School of Medicine

Development of population studies 8,642

Ministry of Health and Labour

Training program for rural physicians 4,067

University of East Africa

University College, Dar es Salaam

Appointment of a senior lecturer in history 6,725

Research in Swahili literature 13,635

Purchase of books in political science 711

Toward a program in management and administration 10,483

Training of photographers 858

Visiting research professor in economics 14,612

Other support

Fellowships, scholarships, and travel grants to individuals 18,651

THAILAND

Chulalongkorn University

Research in biochemistry 18

Research equipment 36

Kasetsart University

Study of protein quality and quantity of rice 18,418

Research on the Thai diet 454

Scientific equipment 36,593

PAYMENTS 1967

Purchase of equipment for the Veterinary School	1,676
Toward planning costs for a new campus and curriculum	9,567
Experiment station development	61,420
 Social Science Association of Thailand	
Publication of Thai-language social science textbooks	10,000
 Thammasat University	
Library development for the Faculty of Economics	4,002
Study grants for M.A. candidates	10,000
 University of Medical Sciences	
Architectural consulting services for the Faculty of Medical Sciences and its teaching hospital	23,920
Graduate scholarships in the Department of Physiology, Faculty of Medical Sciences	10,000
Honoraria for visiting scientists	3,000
Support of the Faculty of Medical Sciences	683,919
Purchase of equipment	378
 Cooperative programs	
Inter-Asian Corn Program	17,099
Rice and corn-sorghum research programs in Thailand	93,745
University Development Program Center, Bangkok	264,524
Visiting faculty (Universities in Bangkok)	127,553
 Other support	
Fellowships, scholarships, and travel grants to individuals	415,947
 TRINIDAD	
 University of the West Indies	
Food crop research and postgraduate program	93,309
Support of the Trinidad Regional Virus Laboratory	108,088
Symposium on tropical root crops	10,000
 Other support	
Support of work in the creative arts	3,333
Fellowships, scholarships, and travel grants to individuals	6,548
 TUNISIA	
Travel grants to individuals	3,997
 TURKEY	
 Hacettepe Science Center	
Development of family planning clinics	66,500
 Robert College	
Training of Turkish personnel	15,100
 University of Ankara	
Support of the Hacettepe Faculty of Medicine	2,923

PAYMENTS 1967

UGANDA

East African Common Services Organization

Sorghum research program 15,486

University of East Africa

Academic meetings 4,197
Africanization of staff 175,918
Research on steroid hormones 8,500
Travel for 12 scholars to professional meetings in Dakar 2,500

University of East Africa

Makerere University College

Contribution toward fellowship operations 1,000
Appointment of a visiting lecturer in the Department of Political Science and Public Administration 10,000
Support of graduate teaching assistants in the Faculty of Social Sciences 8,400
Support of the Kasangati health center 12,900
Research on economic development problems of East Africa 55,482
Political science research at the Makerere Institute of Social Research 21,524
Support of the Faculty of Agriculture 150,000
Research and training in African music 17,095
Research in schistosomiasis 27,500
Appointment of a tutor in library training 1,272
Initial expenses for a USAID-donated vehicle 500
Travel for newly appointed faculty member 850

Cooperative Program

University Development Program Center, Entebbe 50,610
Visiting faculty (University of East Africa) 72,019

Other support

Fellowships, scholarships, and travel grants to individuals 91,192

UNITED ARAB REPUBLIC

Fellowships, scholarships, and travel grants to individuals 16,051

UNITED KINGDOM

England

Central School of Speech and Drama

Contribution toward fellowship operations 500

Institute for Strategic Studies

Research on strategic problems in non-Atlantic areas 12,500

Royal Institute of International Affairs

Studies of Islamic society and the West 3,266

PAYMENTS 1967

University of Cambridge

Contribution toward fellowship operations	3,000
Study of naval policy and strategy	420
History of the English criminal law	7,042
Support of the British Committee on the Theory of International Politics	559
Research in international relations	(3,500)

University of London

Contribution toward fellowship operations	20,500
Research by scholars from the Far East, the Middle East, and Africa in economics and political science	19,352
Publication of selected writings of Jeremy Bentham	2,393
Fellowships in the Institute of Advanced Legal Studies	4,194
Research on the medieval background of the common law	11,787
Population program in Singapore	18,932

University of Oxford

Contribution toward fellowship operations	4,000
Research, graduate training, and library acquisitions for Nuffield College	9,333

University of Reading

Travel expenses of a committee of agricultural experts	2,500
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University of Sussex

Transportation facilities for faculty members appointed to university development posts in Africa	7,671
Research on agricultural economics in the Sudan	6,176
Support of its Institute for the Study of International Organisations	70,000
Visiting faculty appointments in Africa, Asia, and Latin America	18,274

Victoria University of Manchester

Contribution toward fellowship operations	3,000
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Other support

Support of work in the creative arts	2,000
Travel grants to individuals	10,205

Scotland**University of Edinburgh**

Contribution toward fellowship operations	5,000
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Other support

Travel grants to individuals	4,222
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UNITED STATES**Alabama****Auburn University**

Contribution toward fellowship operations	1,000
Research on freshwater pond fish culture	114,807

PAYMENTS 1967

UNITED STATES (*cont'd*)*Arizona*

Arizona State University

The university orchestra program with the Phoenix Symphony Orchestra	8,950
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Solar Energy Society

General support	7,000
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University of Arizona

Contribution toward fellowship operations	1,000
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Study of northwest Mexico	8,000
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Arid lands research in cooperation with the University of Sonora, Mexico	96,700
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Research on water resources	7,100
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Research on unified water, food, and power production in a coastal desert community	74,984
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California

Bay Area Educational Television Association

Experimental television workshop	149,250
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California Institute of Technology

Teaching and research on the interrelationships of science, technology, and society	79,935
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Cedars-Sinai Medical Center

Contribution toward fellowship operations	1,000
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Center Theatre Group of Los Angeles

Toward costs of the Mark Taper Forum playwright-directors development program	14,550
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Mills College

Development of a center for the creative and performing arts	53,000
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Occidental College

Contribution toward fellowship operations	1,000
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Discovery and support of talented minority-group students	81,466
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Sacramento State College

Creative writing project	6,660
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San Francisco State College

Creative writing project	4,384
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San Francisco Symphony Association

Contemporary music week of the San Francisco Symphony Orchestra	20,000
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Stanford University

Contribution toward fellowship operations	9,500
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Establishment of a professional theatre and a program for the M.F.A. degree	43,071
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Research on natural product chemistry	(257)
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Support of the School of Medicine	276,155
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Study of the determinants of change in tropical African agriculture	70,597
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PAYMENTS 1967

University of California*Berkeley*

Contribution toward fellowship operations	43,500
Comparative studies in Latin American demography	35,630
Support of the Department of Economics	(1,924)
Conference on patterns of American prejudice	25,000

Davis

Research on anatomical adaptation for cellulose digestion	1,631
Visiting faculty assignment to the University of Concepción	15,000

Irvine

Creative writing project	6,000
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Los Angeles

Improvement of language teaching in the Philippines	(640)
Visiting faculty advisor for universities in Thailand	5,361

Riverside

Support of the Dry-Lands Research Institute	105,762
Toward a study of integration in public schools	(929)

San Francisco

Research on schistosome-echinostome interactions in snails	8,703
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University of San Francisco

Research on Vatican diplomacy	2,000
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University of Southern California

The university orchestra program with the Los Angeles Philharmonic Orchestra	15,000
Training for music critics	55,500

Cooperative program

Research in virology	32,592
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*Colorado***Colorado State University**

Contribution toward fellowship operations	3,000
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Music Associates of Aspen

Stipends for students at the Aspen Music School	3,600
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University of Colorado

Contribution toward fellowship operations	4,000
Research on population growth and economic development in Mexico	7,320

University of Denver

Assignment of social science scholars to universities abroad	29,075
Support of its Department of Theatre	14,875

PAYMENTS 1967

UNITED STATES (*cont'd*)*Connecticut*

Association of Schools of Public Health

Study of the teaching of population dynamics	15,000
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Connecticut College

Summer school program for talented disadvantaged high school students	50,000
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Hotchkiss School

Summer school program for talented disadvantaged high school students	72,073
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Wesleyan University

Attendance of college instructors at its Graduate Summer School for Teachers	24,516
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Program of the Special Committee on Liberal Studies	15,000
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Theatre program with the Eugene O'Neill Memorial Theater Foundation	40,250
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Yale University

Contribution toward fellowship operations	8,000
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Advanced training program for African students at the Law School	9,560
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Collaborative work and research in arbovirology	10,000
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Consultations between American and Indonesian specialists	(727)
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Research on the history of the British Parliament	4,500
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Research on problems of conflict, consensus, and pluralistic democracy	18,881
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Rockefeller Foundation participation in the Yale Arbovirus Research Unit	307,000
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Support of the School of Drama	60,000
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Training program in virology for medical students	5,000
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Yale Summer High School program	85,000
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District of Columbia

American Association for the Advancement of Science

Toward an international conference on arid lands	30,000
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American Institute of Biological Sciences

Toward publication of the Proceedings of the 17th International Horticultural Congress	4,700
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Toward costs of the XI International Botanical Congress	25,000
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American University

Seminars for junior diplomats	3,672
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Catholic University of America

Contribution toward fellowship operations	500
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Georgetown University

Contribution toward fellowship operations	3,000
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George Washington University

Contribution toward fellowship operations	1,000
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Preparation of corn and wheat bibliographies	42,114
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PAYMENTS 1967

National Academy of Sciences	
Studies in water resource problems in Africa	33,340
Support of its programs	1,000,000
National Research Council	
Exploratory studies in the Division of Biology and Agriculture	7,500
Pan American Sanitary Bureau	
Operating costs of its Population Information Center	10,000
Population Reference Bureau	
Latin American educational program	20,000
Washington Drama Society	
Training for the Arena Stage company	60,046
United States Commission on Civil Rights	
Support of a conference on equal educational opportunity	10,000
<i>Florida</i>	
Economic Opportunity Program, Inc.	
Toward costs of its Management Internship Program	78,000
Stetson University	
Summer institute for public school music teachers	11,000
University of Florida	
Contribution toward fellowship operations	11,000
Assignment of scholars to universities abroad	25,067
<i>Georgia</i>	
Atlanta University Center Corporation	
Development of the library	50,000
General development	200,000
Study of library needs	15,000
Support of the post of executive secretary	30,000
Emory University	
Student assistance program	64,179
Support of the Family Planning Clinic	25,000
Mercer University	
Discovery and support of talented minority-group students	15,000
Morehouse College	
Individual project on the social history of the South	19,000
Southern Education Foundation	
Activities in early childhood education	25,000
Individual scholarship for doctoral studies	5,100

PAYMENTS 1967

UNITED STATES (*cont'd*)

Southern Regional Council

General support 50,000

Hawaii

Oceanic Foundation

Fish culture research 50,000

University of Hawaii

Contribution toward fellowship operations 2,000

Conference on population problems 15,000

Illinois

American Library Association

Support of the Office of International Relations 42,942

Associated Colleges of the Midwest

Transitional year program for disadvantaged high school graduates 65,182

Association of American Medical Colleges

Establishment of a secretariat for the Pan-American Federation of
Associations of Medical Schools 15,000

Support of the Division of International Medical Education 25,000

Fund for the International Conference of Agricultural Economists

Travel expenses for delegates 25,000

Northwestern University

Contribution toward fellowship operations 6,000

Technological study of world history 15,000

Southern Illinois University

Contribution toward fellowship operations 1,000

The university orchestra program with the St. Louis Symphony Orchestra 20,000

University of Chicago

Contribution toward fellowship operations 15,000

Editing of the papers of James Madison 4,382

Program to foster the composition and performance of contemporary music 45,000

Research on international water resources in Africa 5,639

Research in the Center for the Study of American Foreign and Military Policy 3,580

Support of the Section of Nuclear Medicine 47,608

University of Illinois

Contribution toward fellowship operations 10,500

Program of its summer music workshop 7,500

Indiana

Earlham College

Reinforcement program for new students 15,000

PAYMENTS 1967

Indiana State Symphony Society		
Performances of new works by the Indianapolis Symphony Orchestra		19,200
Indiana University		
Contribution toward fellowship operations		5,500
Indiana University Foundation		
Study of the repertoires of American symphony orchestras		12,000
Purdue University		
Contribution toward fellowship operations		19,500
Iowa		
Grinnell College		
Discovery and support of talented minority-group students		49,695
Maintaining the Lenox String Quartet in residence		30,000
Iowa State University		
Contribution toward fellowship operations		16,000
University of Iowa		
Contribution toward fellowship operations		1,000
Creative writing project		11,000
Program for the composition and performance of new music		40,325
Kansas		
Kansas State University		
Contribution toward fellowship operations		5,000
University of Kansas		
Contribution toward fellowship operations		1,000
Kentucky		
University of Kentucky		
Contribution toward fellowship operations		1,000
Louisiana		
Free Southern Theater		
Support of free public performances		27,250
Travel and consultation expenses		675
Louisiana State University		
Contribution toward fellowship operations		1,000
New Orleans Philharmonic Symphony Orchestra		
Performances of new works		19,250
Tulane University		
Contribution toward fellowship operations		5,000
Family planning program		144,588
Latin American legal and social science research and training		1,743

PAYMENTS 1967

UNITED STATES (*cont'd*)Tulane University (*cont'd*)

Research in amino-acid analysis	(18,005)
Student assistance program	122,293
Support of the <i>Tulane Drama Review</i>	1,454
Training program for foreign fellows	49,200

Maine

Bowdoin College

Recruitment and assistance of talented minority-group students	11,000
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Colby College

Summer school for string players	3,000
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Maryland

Goucher College

The university orchestra program with the Baltimore Symphony Orchestra	19,500
Institute in the history of the performing arts in America	13,435

Johns Hopkins University

Contribution toward fellowship operations	3,500
Seminars for young diplomats	24,061

University of Maryland

Contribution toward fellowship operations	1,500
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Massachusetts

Boston University

Contribution toward fellowship operations	7,500
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Educational Services Incorporated

Summer institutes in English, economics, and business administration for teachers from Negro colleges, at selected universities	(61,856)
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Harvard University

Contribution toward fellowship operations	18,500
Special program in the Law School for Negro college students from the South	37,183
Research project in the Department of Preventive Medicine	20,000
Research on the biology of the corn plant	10,260
Experimental productions in musical theatre	8,430
Support of the Center for Population Studies	24,940
Economic research on input-output techniques	8,991
International legal studies and advanced training for Africans	13,522
Visiting fellowships in international affairs	24,910
Support of a curriculum study to be carried out by the School of Public Health	(1,867)

Independent Schools Foundation of Massachusetts

Operating expenses	25,000
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Independent Schools Talent Search Program

ABC summer programs	100,000
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PAYMENTS 1967

Massachusetts Institute of Technology	
Contribution toward fellowship operations	1,000
Visiting faculty appointment at Atlanta University Center	27,500
Mount Holyoke College	
Experimental summer school program for talented disadvantaged high school students	50,000
Opera Company of Boston	
Development of local support for its American National Opera Company	25,000
Smith College	
Creative writing project	5,000
Theatre Company of Boston	
Toward its program of new plays	21,000
Tufts University	
Contribution toward fellowship operations	1,000
Visiting faculty assignment to the University of Chile	6,225
University of Massachusetts	
Contribution toward fellowship operations	1,000
Study of government support of the arts in Britain	2,400
WGBH Educational Foundation	
Experimental television workshop	126,000
Williams College	
Program in music education and performance	11,500
Individual study of legislative reforms in the educational system of Massachusetts	2,000
Individual study in American diplomacy	750
Michigan	
Michigan State University	
Contribution toward fellowship operations	12,000
Appointment of research assistants to the University of Valle, Colombia	24,400
Faculty assignments at the University of Valle	7,500
Economic research in Tanzania	14,788
Grain research	3,000
Oakland University	
The university orchestra program with the Detroit Symphony Orchestra	10,000
Participation of Latin American choral conductors in the Meadow Brook Music Festival	6,771
Training program of the Academy of Dramatic Art	25,000
University of Michigan	
Contribution toward fellowship operations	6,500
Continued publication of <i>Language and Language Behavior Abstracts</i>	15,000
Study of the teaching of population matters and family planning in professional schools	14,941

PAYMENTS 1967

UNITED STATES (cont'd)

Wayne State University

Contribution toward fellowship operations	5,000
Cooperative program with the Schools of Nursing at Dillard University and Tuskegee Institute	(3,717)
Study on foreign policy problems of Caribbean states	2,500

Minnesota

Augsburg College

Research on changing attitudes within and outside urban ghettos	4,866
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Carleton College

Discovery and support of talented minority-group students	60,185
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Saint Olaf College

Contribution toward fellowship operations	500
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University of Minnesota

Contribution toward fellowship operations	5,000
Advanced creative work in theatre	28,000
High School Music Teachers' Workshop	12,752
Preparation of a book on grain storage	6,000

Mississippi

Gulf Coast Research Laboratory

Estuarine ponds studies	7,180
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Mississippi State University

Contribution toward fellowship operations	1,500
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Missouri

Saint Louis University

Development of the Anemia and Malnutrition Research Center, Chiengmai, Thailand	27,795
Creative writing project	10,000

University of Missouri

Contribution toward fellowship operations	2,000
Training of a Thai fishery biologist	5,095

Washington University

Contribution toward fellowship operations	1,500
Work-study program for high school graduates	15,524

Montana

University of Montana

Creative writing project	9,400
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Nebraska

University of Nebraska

Contribution toward fellowship operations	4,000
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PAYMENTS 1967

Research in corn genetics	4,252
Research on plant responses to environmental stresses	14,600
Research on sorghum improvement	73,082
Plant pathology research in Colombia	(322)
Visiting faculty appointment to the Hacettepe Science Center, Ankara, Turkey	12,000
<i>New Hampshire</i>	
Dartmouth College	
ABC programs in public high schools	50,870
<i>New Jersey</i>	
Princeton University	
Contribution toward fellowship operations	4,500
Assignment of scholars to universities abroad	38,421
Research in the Center of International Studies	20,000
Research on international trade	(1,687)
Support of the Office of Population Research	14,000
Support of its Department of Music	(171)
Rutgers, the State University	
Contribution toward fellowship operations	2,000
Schistosomiasis research	10,000
Woodrow Wilson National Fellowship Foundation	
Teaching internship program	119,245
<i>New Mexico</i>	
Opera Association of New Mexico	
Apprentice Program for Young Singers	50,000
Replacement of equipment	150,000
<i>New York</i>	
Actors Studio	
Experimental work and training	9,717
Albarwld Theatre Arts	
Playwright training and production of new plays	10,000
American Place Theatre	
Support of its activities	37,763
American Universities Field Staff	
Study on internal migration in Peru and Bolivia	10,000
Asia Society	
Country councils program	6,188
Ballet Theatre Foundation	
Preparation of a ballet for the American Ballet Theatre	5,500

PAYMENTS 1967

UNITED STATES (cont'd)

Boyce Thompson Institute for Plant Research	
Contribution toward fellowship operations	1,000
Brooklyn College of the City University of New York	
College talent search project	14,144
Carnegie Endowment for International Peace	
Training program for foreign service officers	88,333
Carnegie Hall-Jeunesses Musicales	
Toward fees of the Composers Quartet	750
Center for the Arts at Ithaca	
Program of the Ithaca Festival Theater	5,000
Chelsea Theater Center	
General support	15,000
Cold Spring Harbor Laboratory of Quantitative Biology	
Biological research program	17,000
Columbia University	
Contribution toward fellowship operations	10,000
Individual study project in mathematics	2,180
Preparation of the memoirs of Dr. Robert Briggs Watson and Dr. J. Curtis Dixon	6,000
Program of professional associates in theatre	14,350
Creative writing project	5,000
Research on educational administration in Kenya	13,800
Research on international organizations in the School of International Affairs	27,389
Research on the physiology of reproduction	37,500
Research in the Russian Institute	35,734
Support of the Group for Contemporary Music	24,900
Survey on environmental pollution	25,000
Toward a study of the Urban Corps of the City of New York	(373)
Typing, binding, and microfilming of a Ph.D. thesis	300
Cornell University	
Contribution toward fellowship operations	22,000
Development of a family planning clinic	86,000
New York State College of Agriculture training program in plant breeding	1,500
Planning for a producing ensemble in drama	6,250
Political science training for a Thai scholar	4,300
Project in American history	13,750
Social science research	10,000
Recruitment and assistance of talented minority-group students	47,328
Cunningham Dance Foundation	
Appointment of a full-time administrator	12,000

PAYMENTS 1967

Education and World Affairs		
Study of talent migration		142,675
Educational Broadcasting Corporation		
Television series in classical drama		172,000
Encyclopaedia of the Social Sciences		(4,352)
Fordham University		
Contribution toward fellowship operations		1,000
Hunter College of the City University of New York		
Playwriting program with the Chelsea Theater Center		14,500
Compensatory education for students from disadvantaged environments		20,071
Institute of Current World Affairs		
Toward a survey of the Middle North		6,000
Institute of International Education		
International education program		100,000
NAACP Legal Defense and Educational Fund		
Development of its Community Service Division		98,800
National Health Council		
Study of uniform accounting and reporting with the National Social Welfare Assembly		(658)
National Industrial Conference Board		
Conference on "The World Food Problem: Private Investment and Government Cooperation"		15,000
National Repertory Theatre Foundation		
Development of community support and educational programs		20,000
National Urban League		
Leadership development program		150,000
New Lafayette Theatre and Workshop		
Establishment of a permanent theatre company		17,500
New School for Social Research		
Contribution toward fellowship operations		500
New York University		
Professional training and creative work in theatre arts		200,000
Research on radiation hazards		11,651
Support of the Institute of Fine Arts		31,120
Support of <i>The Drama Review</i>		15,000
Production at its Medical Center of an English-Spanish correlation index to biomedical library classification schemes		7,500

PAYMENTS 1967

UNITED STATES (cont'd)

New York Zoological Society

Research and scientific equipment 69,250

Phelps-Stokes Fund

Support of *Negro Facts and Figures* 25,000

Philharmonic-Symphony Society of New York

Composer-in-residence with the New York Philharmonic 7,800

Population Council

Fellowships 500,000

Fellowship program for technical assistance personnel 70,000

International study of postpartum family planning 175,000

Research on population problems (1,589)

Repertory Theater of Lincoln Center

Toward a new play and experimental theatre projects at the Forum 25,000

Research Foundation of the State University of New York

Contribution toward fellowship operations 1,000

Training grants for foreign nurse-midwives 12,937

Rockefeller University

Contribution toward fellowship operations 1,000

Saratoga Performing Arts Center

East Coast branch of the Congress of Strings 10,000

Social Science Research Council

Fellowship program in the field of legal and political philosophy (1,664)

State University of New York at Stony Brook

Appointment of a consultant in communications research 13,750

Work on a documentary history of 20th-century Mexico 6,840

Syracuse University

Contribution toward fellowship operations 3,000

Study of United States technical assistance provided through
United Nations agencies 10,000

Theater in the Street

Free outdoor dramatic productions 25,000

Theatre Incorporated

Training program 14,972

University of Buffalo Foundation

Development of a center of performing and creative arts 95,000

University of Rochester

Contribution toward fellowship operations 2,000

PAYMENTS 1967

Volunteers for International Technical Assistance	
General support	26,500
Yeshiva University	
Contribution toward fellowship operations	1,000
Study of training and utilization of health personnel for underdeveloped countries	
	1,877
Planning Academic and Research Library Buildings	
Purchase and distribution of 175 copies to Foundation-supported libraries	126
The Millets, a bibliography	
Distribution in the developing countries	2,660
Campaigns Against Hunger	
Purchase and distribution of 2,000 copies	9,526
Primer for Agricultural Libraries	
Purchase and distribution of 500 copies in the developing countries	1,750
The Sorghum Bibliography	
Purchase and distribution in the developing countries	4,087
Consultants for the creative writing program	
	7,186
Cooperative programs—incidental support	
Faculty development in selected colleges	160
Research in virology	6,782
Rockefeller Archives and Research Center	
Plan for construction, management, and financing	22,730
Rockefeller Foundation—New York Office	
Administrative services	2,475,769
Medical and Natural Sciences	380,652
Agricultural Sciences	556,247
Humanities and Social Sciences	396,779
Arts	154,655
Inter-Program	1,026,025
North Carolina	
Duke University	
Contribution toward fellowship operations	1,500
Student assistance program	52,691
University of North Carolina	
Chapel Hill	
Cooperative program in population studies with the University of Medical Sciences, Bangkok, Thailand	64,500
Family planning unit	57,053

PAYMENTS 1967

UNITED STATES (*cont'd*)

University of North Carolina (*cont'd*)

Greensboro

Creative writing project 13,500

Raleigh

Contribution toward fellowship operations 15,500

Equipment for the Department of Entomology 500

North Dakota

North Dakota State University

Contribution toward fellowship operations 6,000

Ohio

Musical Arts Association

Premiere performances by the Cleveland Orchestra 30,000

Oberlin College

Summer school program for talented disadvantaged high school students 113,319

Discovery and support of talented minority-group students 81,770

Summer workshops for public school music teachers 104,747

Ohio State University

Contribution toward fellowship operations 7,000

University of Cincinnati

Experimental program in theatre 15,000

Western Reserve University

Contribution toward fellowship operations 1,000

Teaching and research program in population 14,000

Oklahoma

Oklahoma State University

Contribution toward fellowship operations 4,500

Research by the Department of Animal Science 15,000

Support of the research and teaching activities of the University's agricultural program in Ethiopia (3,058)

Oregon

Oregon State University

Contribution toward fellowship operations 8,000

Portland State College

Concert-demonstrations by the Group for Contemporary Music 15,000

Reed College

Discovery and support of talented minority-group students 66,734

Establishment of a humanities research center 109,500

PAYMENTS 1967

Pennsylvania

American Friends Service Committee

Overseas family planning programs 48,365

Friends Neighborhood Guild

Counseling and assistance for youth in disadvantaged neighborhoods 102,514

Haverford College

Post-baccalaureate program 138,315

Jefferson Medical College

Contribution toward fellowship operations 1,000

Lincoln University

Discovery and support of talented disadvantaged students 40,000

Special program for entering students 68,500

Pennsylvania State University

Contribution toward fellowship operations 1,000

Research on goals of disadvantaged youth 15,000

Pittsburgh Playhouse School of the Theatre

General support 10,000

Swarthmore College

Discovery and support of talented minority-group students 88,500

University of Pennsylvania

Contribution toward fellowship operations 7,000

Studies in urban design 24,176

Support of the Pennsylvania Contemporary Players 23,500

University of Pittsburgh

Contribution toward fellowship operations 3,000

Training in demographic economics for a Thai scholar 7,550

English language program at universities in Bangkok 116,000

Villanova University

Playwright training 17,400

Rhode Island

Brown University

Contribution toward fellowship operations 500

Creative writing project 9,800

Preparation of a course on standard English 30,883

South Dakota

Augustana College

Study of the United States frontier 5,306

PAYMENTS 1967

UNITED STATES (*cont'd*)

Tennessee

Fisk University

Faculty appointments	310,094
Library services and acquisitions	50,000
Summer assignments for faculty members	19,610
Surveys of organizational and financial procedures and space utilization	21,954

Knoxville College

Southeastern regional summer study-skills program	25,000
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Southwestern at Memphis

Summer youth theatre	10,000
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University of Tennessee

Exchange program with the Faculty of Medicine of the University of Valle, Colombia	38,819
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Vanderbilt University

Contribution toward fellowship operations	2,000
Student assistance program	61,000
Graduate training program in economics and business administration	23,511

Texas

Baylor University

Family planning program in its College of Medicine	61,750
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Dallas Symphony Orchestra

Performances of new works	10,125
Visiting conductors at the Composers-Performers Workshop	512

Rice University

Faculty assignment in economics at the University College, Nairobi	747
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Texas A & M University

Contribution toward fellowship operations	12,000
Livestock study in Mexico	(1,200)
Research and training in tropical veterinary medicine	87,402

University of Houston

The university orchestra program with the Houston Symphony Orchestra	19,000
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University of Texas

Contribution toward fellowship operations	3,500
Research in the Institute of Latin American Studies	15,000
Individual study in philosophy	2,500
Research on the Spanish American university in the 20th century	4,468

Utah

University of Utah

Contribution toward fellowship operations	500
Modern dance repertory company	59,450

PAYMENTS 1967

Utah State University	
Contribution toward fellowship operations	3,000
Vermont	
Bennington College	
Creative writing project	5,000
Marlboro College	
Toward a conference to plan a cooperative theatre league	750
Marlboro School of Music	
Contemporary music program	17,017
Virginia	
University of Virginia	
Contribution toward fellowship operations	1,000
Virginia Polytechnic Institute	
Contribution toward fellowship operations	5,500
Discovery and support of talented minority-group students	24,329
Washington	
Seattle Symphony Orchestra	
Performances of new works	15,875
Seattle Repertory Theatre	
Individual study in stage direction	8,300
University of Washington	
Contribution toward fellowship operations	1,500
The university orchestra program with the Seattle Symphony Orchestra	18,322
Training program for students in music performance	(3,084)
Washington State University	
Contribution toward fellowship operations	1,000
Western Washington State College	
Educational program for disadvantaged junior high school students	50,150
West Virginia	
West Virginia University	
Recruitment of professors in agriculture to serve in East Africa	21,788
Wisconsin	
Marquette University	
Contribution toward fellowship operations	3,000
Milwaukee Repertory Theater	
Support of its Theater for Tomorrow series	50,000

PAYMENTS 1967

UNITED STATES (cont'd)

University of Wisconsin

Contribution toward fellowship operations	21,000
Travel for a visiting scientist	(375)
Performances of new works by the Milwaukee Symphony Orchestra	4,000
Research on the social implications of disease control	64,346
Research on utilization of solar energy	(510)
Study of United States foreign relations	13,527
Research in the Department of Plant Pathology	(389)
Individual study on the political and social significance of organized crime in the United States	(300)
Appointment of a visiting professor in African history and anthropology	(1,190)

United States—General

Fellowships, scholarships, and travel grants to individuals	92,547
Support of work in the creative arts	173,318
Miscellaneous	(63)

URUGUAY

University of the Republic

Support of the Service of Obstetrical Physiology	1,027
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Other support

Fellowships, scholarships, and travel grants to individuals	6,399
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VENEZUELA

National Organization for Agricultural Research

Maize improvement project	240
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ZAMBIA

Travel grants to individuals	2,425
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TOTAL—1967 Net Payments	<u>\$36,349,416</u>
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SUMMARY OF FUNDS APPROPRIATED 1967

APPROPRIATIONS AND ALLOCATIONS REPORTED	\$36,420,044
LESS ALLOCATIONS AND GRANTS IN AID FROM PRIOR YEAR	
APPROPRIATIONS INCLUDED ABOVE	<u>9,539,995</u> \$26,880,049
ADDITIONAL 1967 APPROPRIATIONS FOR LATER ALLOCATION	
BY EXECUTIVE COMMITTEE OR OFFICERS	2,819,366
GRANTS IN AID (1968)	1,347,000
FELLOWSHIPS AND SCHOLARSHIPS (1968)	2,657,000
NEW YORK BUDGETS (1968)	
MEDICAL AND NATURAL SCIENCES	422,635
AGRICULTURAL SCIENCES	507,169
HUMANITIES AND SOCIAL SCIENCES	448,580
ARTS	177,978
INTER-PROGRAM	1,224,824
ADMINISTRATION	<u>2,657,814</u> <u>5,439,000</u>
TOTAL APPROPRIATIONS, 1967	<u><u>\$39,142,415</u></u>

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