The Rockefeller Foundation

Annual Report 1948

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[1] Raymond B. Fosdick retired as President, June 30, 1948. He was succeeded by Chester I. Barnard, July 1, 1948.
[2] Elected April 6, 1948.
[3] To April 6, 1948.
[4] Retired June 30, 1948.
[5] Appointed Counsel beginning July 1, 1948.

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Director for the Humanities
DAVID H. STEVENS

[1] Resignation effective May 31, 1949.
[2] Elected April 6, 1949.

To the Trustees of The Rockefeller Foundation

GENTLEMEN:

I have the honor to transmit herewith a general review of the work of The Rockefeller Foundation for the period January 1, 1948, to December 31, 1948, together with detailed reports of the Secretary and the Treasurer of the Foundation, the Director of the International Health Division, and the Directors of the Medical Sciences, the Natural Sciences, the Social Sciences and the Humanities.

Respectfully yours,

CHESTER I. BARNARD
President

THE
PRESIDENT'S REVIEW
FOR 1948

PRESIDENT'S REVIEW

PRESIDENT'S REVIEW

MR. FOSDICK'S RETIREMENT

AN important event in the affairs of The Rockefeller Foundation in 1948 was the retirement on June thirtieth of Mr. Raymond B. Fosdick. Mr. Fosdick served as President from July 1936, and as a trustee from 1921. His knowledge of the history of the Foundation and his experience in the solution of its complex and often delicate problems were both mature and profound. He achieved a career of outstanding usefulness to the Foundation and to the greater society of mankind throughout the world, in whose service it was established. His influence will be manifest as long as the Foundation and the memory of it endure.

One of the accomplishments which brought Mr. Fosdick wide renown was the document known as the President's Review. Although it served as an introduction to the formal report of the Foundation, it was also published separately, not as an official report to the Board of Trustees, but as a quasi-personal

appraisal of world-wide conditions and of Foundation interests. It appeared in English, French and Spanish.

There is no formal requirement that such a report be published. In fact only one of Mr. Fosdick's predecessors, Mr. George E. Vincent, President from 1917 to 1929, issued similar reviews. The present incumbent had to consider even before taking office whether to attempt to continue a series made illustrious by the skillful pens of Mr. Vincent and Mr. Fosdick. The initial question, "What would justify the publication of so personal a report?" after consideration became "What would justify not making such a report?" For although the valuation of Foundation work and the critique of conditions to which this work applies are matters of personal judgment, the Review is written from a position of official responsibility. This position is unique because the Foundation represents no private or political interest, and is concerned with the entire range of philanthropic effort throughout the world.

The detached objectivity with which the officers of the Foundation can regard their work contributes more than any other single factor to the acceptance of Foundation efforts. It is inevitable that the views of the officers and trustees are affected individually by the biases and preconceptions of their training, and collectively by Judaeo-Christian traditions of long standing, as well as a solid background of American democracy. But the purpose of the Foundation is to serve the welfare of mankind, and it is neither religiously oriented nor nationalistic in a narrow sense.

It has served, and is now serving, without national, sectarian or racial discrimination throughout the world. The freedom of the Foundation is enhanced, moreover, by a singular combination of circumstances. It does not have to make profits, it seeks no funds, is bound by no traditions, has no alumni, represents no political or religious interests, is not an agency of any government and does not aim to be perpetual. In addition to appropriations from annual income, the Foundation has appropriated to date almost $125,000,000 out of principal and under the current policy of the Board of Trustees might be allowed to terminate its activities within the lifetime of another generation.

The chartered purpose of the Foundation with its wide scope and its absence of preconceived or specialized interests has in a quite informal and undesigned manner caused the Foundation to become one of the crossroads of the scientific, educational and scholarly world. In 17 countries the Foundation maintains more or less permanent headquarters or research centers. Its officers travel extensively. They are in constant touch with scholars, educators, scientists, statesmen, men of affairs and churchmen everywhere. In search of support or advice, and bringing first-hand knowledge of conditions and problems, a stream of visitors comes to its headquarters from nearly all countries and from nearly all walks of life. This constant seeking of the detached judgment and informal advice that the officers are in a position to give is one of the most valuable by-products of Foundation work and in itself would justify the administrative costs

incurred in carrying on the direct functions of the Foundation.

Such is the background for the belief that there is an obligation to make public not merely the concrete facts of the Foundation's activities, but also the more personal estimate contained in the President's Review.

The radical changes in world conditions since 1939, together with the change in leadership of The Rockefeller Foundation, make opportune a brief restatement of the Foundation's program to precede a review of the highlights of the year's work.

FOUNDATION POLICIES

The Foundation's Charter permits the use of income and principal for philanthropic purposes anywhere in the world. In relation to so broad an aim and to the unlimited needs of today, the Foundation's resources, although substantial in themselves, are trivial. Hence the practical necessity of restricting the scope of Foundation activities to manageable limits and of drawing up a program sufficiently concentrated to be effective. If this were not done, the scattering of aid with the consequent large overhead administration would soon dissipate what resources there are. Foundation programs and policies are subject to change, but they have been roughly consistent through fairly long periods.

In general the policy of the Foundation and, with occasional exceptions, its practice have conformed to the following principles: 1) The support of the Foundation should be directed to purposes for which it is

otherwise difficult to secure funds. 2) The support should be of an initial or catalytic character, with the idea that what has been demonstrated to be useful should then be carried on by other means. 3) Current and palliative types of philanthropy should accordingly be left to others, not because they are unimportant, but because the needs they encompass are more generally recognized. Furthermore the resources of this Foundation, and indeed of all similar foundations combined, are insignificant in relation to such needs. Current philanthropy, which is a function of the whole of a society, however it may be organized, and of the individuals in that society, requires very general support. 4) The Foundation therefore selected as its primary interest the promotion of knowledge and its effective application to human interests. The hope is that even comparatively small sums devoted to this field may prove of wide and lasting value. One major realization of such a hope is offered by the history of penicillin. Here modest sums made available to scientific research helped to develop a therapeutic agent of extraordinary importance. This led indirectly to the discovery of other valuable antibiotics.

The advancement of knowledge and the promotion of its application, already restricted objectives, still represent too vast a goal. The limited funds available and the desirability of a small administrative organization call for an even sharper concentration of interest. Only in the field of public health and in one major experimental agricultural development has it been feasible for The Rockefeller Foundation to make use of its own personnel in carrying out projects receiving financial support. In the divisions of the

Medical, Natural and Social Sciences and of the Humanities, the Foundation is for the most part a disbursing rather than an operating agency. It gives financial support but leaves the execution of the project to governments, universities and other recognized institutions.

In this connection a further restriction arises from the paucity of trained talent available throughout the world. This factor is important in determining the kind and extent of Foundation interest in various countries. Some countries afford little occasion for support of scientific research, though perhaps offering opportunity for aid in the application of knowledge in public health or in educational effort. The lack of qualified workers limits the opportunity for support in many important fields of knowledge. We should not be misled by the fact that the word "research" has now become a slogan to secure public and private funds for activities sometimes more respectable than fruitful. Today deficiencies of truly notable personnel are most crucial in the social sciences and the humanities.

When we speak of the advancement of knowledge, we sometimes refer only to that well recognized body of fact and theory validated by the application of current scientific methods. And scientific research does indeed produce a knowledge of nature which is on the whole useful for the welfare of mankind although susceptible of misuse. It is, however, not the only kind of knowledge available. Knowledge is wider than science. Everyday matter-of-fact knowledge of specific occurrences, then and there or here and now, is far more important in the enormous tides of human

behavior than even scientific knowledge and its application. Billions of transactions take place daily based on everyday matter-of-fact knowledge that has no standing in science and is unproven, unprovable or irrelevant to everything but immediate action. Such unscientific knowledge is with us for better or for worse, and the generalizations to which it gives rise and the working fictions by which it is expressed are worthy of careful study. The refinement of this kind of knowledge and the elimination from it of what is not true or reliable is an indispensable part of the scholarly work of mankind.

All this suggests vital problems of priority in Foundation policy. What comes first? What needs constant, what needs exceptional support? How does improving the techniques of language instruction compare with pure research in, say, physical chemistry? Do yellow fever and malaria eradication take precedence over soil conservation and the development of disease-resistant grains? Above all, what is the relation between the spiritual deficit of our times, of which Mr. Fosdick spoke, and the almost deliberate unwillingness to cooperate? These and analogous fundamental questions go to the roots of the problems of The Rockefeller Foundation because they are root questions of modern society.

PROBLEMS OF MODERN SOCIETY

The confusing ferment of opinions with which the daily press, the periodicals and the current output of the book publishers confront us suggests the need of a clear-cut reclassification of the problems of modern

society. These problems cannot be met by one-sided solutions or sugar-coated panaceas. A society that in spite of partial knowledge and confusion persists in the endeavor to control its destinies has need of a careful re-survey of the whole field of unsolved problems.

A possible scheme presented here, not as something absolute but as something which may be of help in delineating the areas of ignorance and in attaining a much needed new perspective, would consider the secular needs of mankind under three headings. These are: Population, Communication and Cooperation. These common simple terms are of use in restating the Foundation's program because they and their connotations encompass all that the Foundation is attempting or has attempted to do, though not all that the welfare of mankind may require.

Population

Nearly all forms of life multiply superabundantly. The natural methods of eliminating the excess of life resulting from this reproductive propensity are conflict, disease and starvation. These methods have worked in the past and are in operation today. They apply to all forms of life. With respect to the world's human population, organized warfare has become an additional and peculiarly human means of elimination.

The natural processes are modified, in the case of man, by his intelligent control of some of the conditions under which he lives. Social organization, science, technology, the accumulation of productive capital and the measures of public health have oper-

ated to change our environment. But although these factors have modified they have not nullified the natural methods of population control. Except in a few restricted areas, improvement in food supply and the prolongation of the life span have been accompanied by constant increases in population. Recognition of this fact has led some publicly and others privately to express the extreme view that, for example, the work of The Rockefeller Foundation in the control of yellow fever and malaria, widely regarded as beneficent, is in fact futile and even immoral! The same criticism would apply with equal force to all constructive methods of improving the condition of man whether these be economic, political, scientific or educational. Such views amount to asserting that if we cannot solve all problems simultaneously then we should attempt to solve none of them.

Population problems are world-wide, ever-present and of first importance. They underlie many critical national, class and racial conflicts. The urgency of these problems has led many to underestimate our ignorance concerning them, to indulge in unwarranted generalizations and gross oversimplifications, and to advocate "simple" cures for maladjustments involving the most complex of human relationships. The issues are further confused by wide differences in customs, rules of inheritance and moral ideas, as well as a diversity of positive and negative religious tenets.

This is the background of the Foundation's interest in problems of population. Two preliminary remarks on the general character of these problems are here

relevant. The first is that population problems are relative rather than absolute. The world is overpopulated now with respect to our present knowledge, to the present availability of natural resources, to the state of the arts today, to the existing social organization, and to some of the presently held traditional and religious precepts regarding foods. In relation to present realities the world is overpopulated. In relation to present potentialities this may not be so. It is unwarranted to assert that world population today has passed the limit of adequate support, but it is equally unwarranted not to recognize that the present application of existing knowledge is insufficient to maintain the population we have at even the minimum acceptable standard of living.

A second remark is that population problems are not merely quantitative. They are also qualitative. Concretely the question is whether it is better to have twelve children per family, all on the average undernourished, uneducated, over-worked and short-lived, than on the average four per family, adequately nourished, possessed of the tools of ordinary education, not overworked and of reasonable life expectancy. At present about half the world's population is close to starvation, and another quarter suffers from malnutrition. Physiologically they are in poor condition, weak from undernourishment, inadequate clothing and shelter.

The problems of population may be grouped under the following headings: biosocial sexual problems, ecology, conservation of natural resources, improvement of production, reduction of waste, nutrition,

development of capital and technical demographic problems. Following are brief notes on the present status of our knowledge of some of these problems and of the Foundation's interest in them.

For many years the Foundation has supported research in genetics, endocrinology, the physiology of reproduction and the sexual behavior of animals and men. In spite of the progress made there is much yet to be learned. A great deal of this work is highly technical and of interest chiefly to specialists in the biological sciences and to the medical profession. Some of it related to sexual behavior or practice, such as the taxonomic studies of Professors Alfred C. Kinsey, Wardell B. Pomeroy and Clyde E. Martin, elicits popular as well as professional interest from those concerned with public problems of morals, crime, diseases and marital adjustment. The studies thus far made are limited in scope and geographical area; however, they have served to provide new knowledge and also to emphasize how meager present knowledge is and how important it is to increase it. Perhaps the most striking fact established is the enormous biological maladjustment for modern man between the sexual drive and the needs of population. In American society, probably in many others also, it is estimated that this drive in males is many times greater than necessary to maintain the population and certainly well beyond the maximum physiological capacity of women of childbearing age to bear children. For civilized communities these are sober facts with complex social consequences. Their significance with respect to morals, to the incidence of venereal diseases, to frus-

tration and to crime is increased by the wide variation between individuals, the sexual drive being thousands of times stronger in some than in others, so that continence for some involves little restraint, yet for others continence may involve nervous or emotional strains only with difficulty to be distinguished from insanity.

When disease, accidents and famine abound high death rates ensue and high birth rates are then probably necessary to the maintenance of the race. Perhaps we may say that under such conditions there is no fundamental biological maladjustment. When by control of disease, improved technology and intensified agriculture, death rates are greatly reduced and length of life increased, high birth rates are no longer necessary. The sexual drives thus become one of the major maladjustments of society. This situation is not obviated by reticence, nor can the problems be solved by ignoring them.

Human ecology, or the study of the relations of human populations to their environments and particularly to other forms of life, though long recognized as a field of special study, has been slow to develop sustained professional interest. Nearly ten years ago, when the Foundation began to seek opportunities for support in this area, the war intervened. A study of the characteristics of populations and of their interdependencies is important in connection with soil and forest conservation, water control and many other man-made endeavors designed to provide increased support to the human population.

It is quite easy to exaggerate the consequences of the waste of natural resources, particularly the irre-

trievability of such resources, but it is hardly possible to overemphasize the importance of this subject. The scarcity of natural resources increases with growth of population. It decreases with the advance of scientific knowledge. But this advance may not be swift enough to avoid disaster. Moreover, while soils deficient in nitrates or phosphates may be restored by adding these ingredients, this cannot be done for nothing. A fundamental and increasing scarcity is utilizable water. Land without rainfall may be irrigated, but only at substantial cost. The excessive runoff resulting from deforestation can not be corrected without expense and effort.

As a difficulty quite apart from the factors of power, capital and organization we encounter the low productive capacity of individual men. This may be ascribed in part to lack of education and training, to malnutrition and to disease. Even in the United States with its high development of power the standard of living is lowered by lack of initiative and by the loss of time resulting from illness. The transport of the mosquito, *Anopheles gambiae*, from Africa to northeast Brazil produced in 1938 an extremely virulent kind of malaria. About 10 per cent of the population died of it, and the remainder was in danger of starvation, being too ill to produce, distribute and prepare food. Fortunately, the government of Brazil, with Foundation aid, found it possible to take prompt measures to relieve this situation. It was once more demonstrated that public health and public education to promote individual capacity are essential ingredients in the complex cooperation required by modern technologies.'

The waste in food supplies after these have been produced and the waste of arable land weigh heavily in the food situation. In parts of the world many thousands of potentially productive acres support cattle, which are used not at all or ineffectively for food. The loss of crops from rodents, insects and molds is enormous. The waste from personal and social habits in the preparation and serving of foods, especially in relatively wealthy countries, is conspicuous.

There are some who maintain that with proper use available food supplies could support a larger population or provide an improved standard of living for the existing population. Though much study has been given to nutrition, much more needs to be done. Perhaps the most important aspect of this problem is the modification through education of the habits and predilections of the peoples concerned.

More efficient utilization of natural resources and more effective cooperation in production call for enormous increases in world capital. This is a matter of diverting the productive efforts of each country to capital goods, which may involve a correlative restriction of consumption. The capital required, particularly in conjunction with agriculture, need not at the start take the form of spectacular dams, power facilities and industrial plants. Rather it could consist of thousands and thousands of small improvements, such as local water systems, small dams, wells and a variety of other constructions and implements. The United States, with its large natural resources in relation to the population, can fairly easily secure a substantial surplus production for capital equipment and

thereby increase its productive capacity. But in countries where most of the population is now able to secure only the barest minimum for existence, the accumulation of productive capital will necessarily be a slow process.

This is sufficient, I hope, to suggest to the reader that the solution of population problems in the last analysis involves the use of all the information we now possess and the acquisition of a much greater store of both fundamental and practical knowledge.

A second conclusion I should like to emphasize is that of interdependence. A balanced and simultaneous development along several lines is necessary. Modern technology requires widespread education as well as capital. The order of attack, of course, will vary for different countries. So far the beginnings of population studies have been developed chiefly in western Europe and North America. Little attention has been paid to conditions in the Far East and in the lesser developed countries. At any event any deliberate attempt to bring population into satisfactory relation to resources, or resources into adequate relation to population, involves what may be called "social engineering." The essential obstacles to be overcome are human inertia, resistance and our present insufficient knowledge. Thus the problems of population lead directly to the subjects of communication and cooperation.

Communication

More and more it is coming to be understood how fundamental the faults and limitations of communi-

cation are to the ills of human society. Misunderstanding and lack of understanding breed fears and hostilities in even small and intimate groups. Conversely, good understanding based upon intelligible communication is the first step toward cooperation.

The basic difficulties and limitations of communication have only recently been recognized. The perfecting of mechanical means of communication — telephone, telegraph, transportation — far outruns our progress in the essential means of communication. These are first of all the construction, utilization and translation of languages. Thus far the most universal language is that of mathematics. Some approach to universality is made in physics and chemistry and in the more abstract branches of biology. But these abstract languages are common to but an infinitesimal portion of mankind, and the very specialization they require tends to limit understanding even among scientists. Thus, the unity of science, as yet a metaphysical assumption or hope, and the popularization of science from a cultural standpoint both become of increasing importance in a technological world.

Despite multiplying difficulties, the extension of science is itself a means of improving communication. Scientific knowledge provides a fund of exact ideas which form the basis for a *common* world. But scientific knowledge cannot possibly meet the full requirements of communication. The knowledge of modern languages, the teaching of them and the extension of the fields of *what* is to be communicated are also essential. We not only talk; we talk *about* something. Hence, the Foundation's interest in the study and

teaching of languages, cultural anthropology, political science, history and all that the arts convey of human attitudes and experience.

Cooperation

One of the most striking facts revealed by the experience of working in different countries of the world is the wide disparity among different peoples in the capacity to cooperate. Political instability or a stability secured only by authoritarian methods are sometimes important but rather superficial indices of the absence of this capacity. In the United States we are now accustomed to large-scale and extremely complex cooperation, imperfect though it may be. Our vast industrial plants and our power, transportation and communication systems not only facilitate but also enforce cooperation; they effectively demonstrate the advantages of cooperation. But such conditions obviously do not obtain everywhere.

The increased capacity of nations and peoples to cooperate is essential to harmony within the family of nations. It is also indispensable in dealing with problems of population. Hence, the importance of knowing how to cooperate and how to promote and maintain cooperation.

The capacity for purposeful and conscious collaboration, assuming an effective satisfactory mode of communication, appears to depend upon three broad essentials: 1) Knowledge based on the experience of effective collaboration, involving techniques ranging from simple group effort, business partnerships, corporate organization and community associations to

local, regional, national and international political systems, all interrelated and interdependent. 2) An attitude of tolerance not merely of opinion but also of diverse positions and interests which call for moderation in competitive and combative efforts. 3) The will to cooperate, which implies an acceptance of fundamental values overriding personal and group interests or the exigencies of the moment.

There is neither space nor need here to discuss the first two of these topics, though they are vast and of highly practical import. However, a few words should be said on the third. This is the field of ethics, morals, philosophies and religions. Incompatibilities and contradictions of beliefs throughout recorded history have led to wars and persecutions without end. Now that human behavior is becoming interactive and interdependent on a world-wide scale we are finding that concrete methods of accommodation underlie all viable systems of international collaboration. Achievements in this direction are far from hopeless, for in many small and large communities in ancient and modern times substantial harmony and effective, if limited, cooperation among persons of diverse beliefs have proved feasible for long periods of time.

In the more restricted and parochial areas of human behavior the rapid changes introduced by modern technology give rise to many questions as to the meaning and relevancy of ancient moral precepts. What is the bearing of endocrinology or pathology on the moral assessment of human behavior? What is the relevancy or the application of ancient codes of individual behavior to modern corporate action?

What should guide the conduct of those who represent others, such representation being a dominant characteristic of Western civilization? How often are supposedly fundamental conflicts of interest considered to be problems of justice and ethics when the root of difficulty is actually ignorance of the real facts?

Until recently The Rockefeller Foundation has given no support to studies in this field primarily on the ground that it was exclusively one for religious and philosophical schools. However, the field of empirical research related to moral problems is now being considered. An examination of the nature of conflicts of ethical systems today seems an appropriate subject of support, and exploratory efforts are being made. The compelling reason back of this is the belief that there can be no satisfactory solution to the problems of our civilization that does not take into account the ideals and spiritual aspirations of men.

I should like to add one final remark to this introductory statement. Inherent in our systematic efforts to promote the welfare of mankind there may be an assumption that by taking thought we may add a cubit to our stature, that by reason and science we may govern the future of unborn generations in ways that *we* know are right. Can we hope to annul the biological factors of inheritance by manipulating the environment? Some such hope is implicit, if not explicit, in socialist doctrine, but it is implied also in the dominant attitudes of American society. "Planning" and "Control" are the common coin of American politics, American business, American education

and American science, despite the concurrent emphasis upon liberty, individualism and democracy. The bombastic phrase "control of nature" is a by-word of the literature of the day. Do we mean that because we have learned to navigate the tides we shall also control them? Because we have learned to clothe ourselves and to provide shelter we shall also control the winds? We have already begun the attempts to regulate local weather. Where do we think we shall stop — with the control of the speed of rotation of the earth, of its revolution about the sun? Shall we also learn to control the chain reaction in the sun whence comes all our life and power? Pride goeth before a fall. All our efforts will promote only disaster if they are not done in the humility appropriate to our ignorance, never forgetting that we have not made the earth or the heavens above it.

HIGHLIGHTS OF THE YEAR

Population and Agriculture

During the year The Rockefeller Foundation provided substantial aid to the Office of Population Research at Princeton University. In 1948 the Foundation also appointed a field mission to make an exploratory survey in the Far East. Dr. Frank W. Notestein, director of the Office of Population Research, and Dr. Irene Taeuber, of that same organization, served on the mission. With them were two Foundation staff members representing the International Health Division and the Social Sciences division.

The Office of Population Research, which received a grant of $100,000 in 1948 to supplement a ten-year

grant of $200,000 made in 1944, is engaged in an extensive program of studies in the field of international comparative demography. Its staff is composed of several regional experts, together with persons skilled in statistics, sociology, economics and bibliography. One of its major interests is Far Eastern population problems.

The Foundation in 1948 also appropriated funds to the Population Association of America to set up a central office for the International Union for the Scientific Study of Population. The new office is needed to facilitate the exchange of information among demographers throughout the world and to act as a planning agency in coordinating new population studies of international concern.

In many parts of the world, present trends in birth and death rates and migration do not necessarily point to any future balance between the size of the populations and the production of food for their support. Any solution to the over-all population problems necessarily devolves upon basic issues of food and agriculture as they relate to public health.

A notable illustration of the application of modern technology in attacking extensive and serious agricultural problems is to be found in Mexico. As part of a concerted effort to raise standards of living throughout the country, the Mexican government is giving special attention to agricultural experimentation and training. The Mexican economy is predominantly agrarian, with 77 per cent of the employed population engaged in farming and other rural industries. One of the first requisites for a higher national standard of living is the development of essential foodstuffs.

The Rockefeller Foundation welcomed the opportunity to participate in this program. For about seven years it has cooperated with the agricultural authorities to improve the volume and the quality of Mexico's basic food crops and to prepare Mexican personnel for careers in agriculture. A special office of the Secretariat of Agriculture, with the aid of a group of agricultural scientists assigned by the Foundation, is now embarked on an ambitious program. Staff specialists in plant pathology, plant genetics, agronomy, soil science, entomology and botany are engaged in the development of highly productive, disease-resistant varieties of corn, wheat and beans. They are also giving considerable attention to soils management and conservation, the control of destructive insects and the introduction of forage legumes and grasses. Much of the work is carried on in experimental plantings established in various parts of the country. At the National College of Agriculture at Chapingo special laboratories have been established for the study of plant diseases, soil fertility, use of fertilizers and insecticides, and for plant breeding experiments.

Since corn is the staple food of the Mexican people, staff experts decided first of all to select the varieties of native corn best suited to different regions of the country. Of 1,500 varieties tested, 15 proved superior, and the seed of six of these, after extensive multiplication, was released to Mexican farmers. Meanwhile, some progress has been made on the development of synthetic and hybrid stocks which will be even better yielders than the best native grains. Another accomplishment is the production of several rustproof vari-

eties of wheat, which will be suitable for planting in the summer months, when irrigation is unnecessary.

The research achievements of the program have been applied to the immediate improvement of Mexican agriculture. As soon as good seed becomes available in quantity, it is distributed to farmers. During 1948 improved corn seed was planted on more than 270,000 acres, or about 6 per cent of the total corn belt of Mexico. Wheat was planted on about 25,000 acres.

In 1948 the Foundation appropriated $327,555 for general operation of the Mexican Agricultural Program and $5,770 for preliminary expenses in connection with an associated nutrition project.

Progress in Public Health

In two outstanding postwar projects the Foundation is attempting cooperative study of some of the public health and social problems confronting the peoples of two large Mediterranean islands. Sardinia and Crete, which have been likened to miniature continents, are the scenes of these constructive projects. In Sardinia a real effort is under way to wipe out malaria. In Crete the Greek government is engaged in a long-range plan to improve living standards generally. Both projects involve the application of public health and sanitation measures on an unusually large scale.

While the health benefits will be reflected immediately in an increased capacity for work and enjoyment, planners of the projects are well aware of the probable effect of such comprehensive improvements

on the size and composition of the future population in these areas. In Crete, experts in the social and natural sciences as well as public health are collaborating to explore the total economy of the island. While Crete is a relatively prosperous region of Greece, its agricultural methods are primitive and there is little or no manufacturing. To raise the standard of living and to take care of the larger population which may be expected to result from better health methods, it will undoubtedly be necessary to improve farming techniques, to exploit natural resources and to promote new industry.

Entomologists, engineers and public health experts have joined forces in Sardinia to exterminate the malaria mosquito, which has plagued the islanders for over 2,000 years. This mosquito eradication campaign is the largest public health program The Rockefeller Foundation has ever undertaken in Europe. A sizable organization, employing over 22,000 people, mostly native Sardinians, has been built up. Airplanes, fog machines, power boats, power sprayers and all the rest of modern science's machinery of insect warfare are being used in the fight against the mosquito. Drainage canals have been blasted with dynamite or excavated by hand to destroy the breeding places of the mosquitoes. This has produced a valuable dividend by converting swamps into good agricultural land. As a double precaution, all buildings on the island are being sprayed with DDT.

The control work has already been highly successful in reducing the number of malaria victims. At the beginning of the campaign in 1946, there were 17,186

cases in one district alone. During the first six months of 1948, the number of cases in that district was 457, and of these only 31 were new. When operations are concluded it is hoped that the malaria mosquito will be extinct in so far as Sardinia is concerned, thus eliminating one of the greatest health hazards in the island.

Under the leadership of Dr. Oswaldo Cruz, Brazil in 1908 succeeded in eliminating yellow fever from the city of Rio de Janeiro and from much of the rest of the country. Tropical and subtropical regions of the Americas had been subject to devastating epidemics of the disease since colonial days, and Rio de Janeiro was one of the largest seedbeds of infection. Probably the disease had existed, at least in endemic form, for a century or more; however, known cases introduced by ship into the Province of Bahia in 1849 started an epidemic of enormous proportions. After invading the entire province, it spread to the north and also to the south of Brazil, overrunning Espirito Santo, Rio de Janeiro, São Paulo and neighboring areas. Later on, probably owing to the construction of railways, inland provinces began to be invaded by the terrible scourge. So great was the number of victims that the populations of some towns were almost entirely destroyed.

The Rockefeller Foundation, interested in the investigation and possible eradication of yellow fever, began cooperation with the Brazilian government in 1923, at which time epidemic aspects of the disease were thought to be conquered. In 1928, however, there was a sudden flare-up, the last effects of which

were not brought under control until 1931. Investigations by the Foundation and Brazilian staff indicated that other factors were involved in yellow fever besides the man-mosquito-man cycle which had been broken by the control of the *Aedes aegypti* mosquito in port cities. It was found that other mosquitoes could transmit the virus and that unrecognized yellow fever was prevalent in large silent endemic areas of South America, as well as Africa. Although best known as the aegypti-borne disease of cities, yellow fever exists also in a permanent reservoir in tropical forests. This jungle yellow fever is primarily a disease of animals, such as monkeys, but may be transmitted to human beings. When jungle yellow fever virus is transferred accidentally to towns and cities it may be followed by aegypti-borne outbreaks.

In 1937, after a prolonged and careful study in laboratory animals, a mild virus was developed which made possible safe vaccination of human beings against yellow fever. Areas of Brazil exposed to jungle yellow fever were the first in which this vaccine was generally applied. Shortly thereafter the Brazilian Yellow Fever Service began large-scale production of the vaccine, and the vaccination program became a routine function. The Brazilian government assumed complete responsibility for yellow fever control beginning in 1940, and since then the Foundation has contributed toward only part of the expenses of the yellow fever research laboratory in Rio de Janeiro. Foundation staff have continued to cooperate in studies of the epidemiology of jungle yellow fever.

Since 1923, the Foundation has contributed a little over $5,000,000 toward control and investigation of yellow fever in Brazil.

Although the menace of yellow fever is as a whole receding, it is necessary for some countries of South America to be particularly vigilant against an invasion of jungle yellow fever from the permanent forest reservoirs. Modern communications, particularly air travel, accentuate the urgency for continuing control organizations. In 1948 the Foundation aided the government yellow fever services of Bolivia, Colombia, Peru and Ecuador. It also continued laboratory and field investigations in Africa, perhaps the original seat of this disease, at its Yellow Fever Research Institutes in Entebbe, Uganda, and Lagos, Nigeria.

Communication and Medicine

The attempt to extend or improve communication of any kind among men must of necessity reckon with the human nervous system — man's own built-in communication network. For the nervous system functions not only as a receiver and a transmitter but also as a delicate control and interpretative device.

It is becoming increasingly evident that much of the explanation of human behavior and function lies in thorough and precise understanding of the work of the nervous system. In an effort to comprehend and treat nervous diseases, psychiatry is devoting much effort to the study of fundamental neurophysiology, neuroanatomy and the biochemistry of the nervous system. The Foundation's interest in psychiatry has

gone along with this development, and in 1948 a number of projects in the basic biology of the nervous system were receiving support.

Several studies on the fundamental biology of mental disease are in progress at Western Reserve University under the direction of Dr. Douglas D. Bond. The studies are being conducted by the new research division of the Department of Psychiatry, to which the Foundation made a grant. A grant was also made for research on the relationship of mental disorders to biochemical changes in the brain by Dr. Derek Richter of the Cardiff City Mental Hospital, Wales. At the University of Oxford, with the aid of a Rockefeller Foundation appropriation, the physiology of pain is under investigation along neuroanatomical, electrophysiological and clinical lines by Dr. Graham Weddell and his colleagues. Dr. Carl G. Bernhard and Dr. Carl R. Skoglund of the Karolinska Institute, Stockholm, and Dr. Per Olof Therman of the Institute of the Pennsylvania Hospital, Philadelphia, also received support for their neurophysiological studies.

It is well known that different people see the same objects in different ways. At Princeton University, an examination of the factors contributing to the formation of visual perceptions is under way in an attempt to determine the causes of the differences. Professor Carroll C. Pratt is directing this work with the aid of a grant from the Foundation.

Schools of public health, like all schools, are first of all centers of communication. The Johns Hopkins School of Hygiene and Public Health, founded 32

years ago with aid from The Rockefeller Foundation, is today considered one of the leading educational institutions of its kind. Here men of varied ages and experience from many different countries congregate to share their knowledge and experience and acquaint themselves with new techniques and improvements in the field of public health. They are trained to communicate their knowledge to others and upon graduation assume the responsibility of sowing the benefits of health in the communities of many lands.

Johns Hopkins School of Hygiene and Public Health has set a pattern for the training of public health personnel not only in this country but throughout the world. Since its formal opening in 1918 the school has developed departments of biochemistry, bacteriology, parasitology, sanitary engineering, epidemiology, biostatistics and public health administration, with subdepartments of mental hygiene, physiological hygiene, maternal and child hygiene, venereal diseases, infantile paralysis and research in administration. All the states of the union and 72 foreign countries have been represented in its enrollment. Of its 1,482 graduates, 98 per cent have pursued careers in public health administration, teaching and research.

Johns Hopkins was the first school of public health in the United States, and the original organization was of necessity experimental. The position of leadership which it has earned over the years is due in large part to its policy of keeping abreast of new developments and the demands of the times. Today it is ex-

panding its program in several directions, notably to meet the administrative needs occasioned by recent social developments in medicine and public health.

Public health has of late had to learn how to deal with community problems such as inadequate housing, poor sanitation, limited recreation facilities and inadequate health education. In order to promote good physical health, even better methods of detecting illness must be devised. The school is therefore enlarging its facilities for the training of public health nurses. In addition special courses are being conducted in social medicine, mental hygiene, and maternal and child health care, and opportunities for supervised field work are being increased.

Finally, the interests and activities of the School of Hygiene and Public Health have been coordinated with the School of Medicine and the Johns Hopkins Hospital, under the guidance of a Medical Development Committee headed by Dr. Lowell J. Reed. This arrangement promises to place Johns Hopkins ahead of other medical environments in this country in the promotion of increased service to the community.

Since the school was established, the Foundation has contributed in support more than $8,000,000. In 1948 an additional grant of $750,000 was made to enable the Johns Hopkins School of Hygiene and Public Health to expand its program.

The Foundation in 1948 also continued its support of public health institutions throughout the world. These include the National School of Nursing in Ceylon; the National School of Hygiene in Colombia; the University of Rome Engineering School; the Na-

tional Institute of Health in China; the Tacuba Training Center and Demonstration Health Unit in Mexico; the Public Health Training Station in Jamaica, British West Indies; the National School of Nursing in Caracas; the Araraquara Health Training Center, Brazil; the School of Public Health in Chile; the University of Toronto School of Hygiene; the Netherlands Institute of Preventive Medicine, Leiden; the London School of Hygiene and Tropical Medicine; the Department of Public Health and Medical Administration, University of California; Le Bon Secours School of Nursing, Geneva; the Institute and School of Hygiene, Warsaw.

Role of the Humanities

Since time immemorial the extension of intellectual as well as geographical horizons has been the forerunner and accompaniment of human progress. A potent tool in enlarging the sphere of human brotherhood and understanding has been the art of translation. Think of the role played in the Western world by translations of the Old and New Testaments. Inquiry into the past is another powerful instrument. Just as the stargazer uses a telescope to penetrate the darkness of space and project his vision into the uncharted regions of the heavens, so men interested in the humanities have always resorted to translation and to historical study to bring relatively unknown areas of literature and history within the orbit of collective human culture.

To increase Western knowledge of the literary, social and cultural thought of the Near East, the Amer-

ican Council of Learned Societies with Rockefeller Foundation aid is undertaking a translation program. The highly successful Russian translation project directed by the same scholarly body has supplied valuable experience for the Near Eastern program. The council is now engaged in selecting the works to be translated and in developing the personnel and techniques for the prompt and efficient realization of the program.

To promote work in the history of science, the Foundation made a grant to Cornell University. There Professor Henry Guerlac will direct the development of materials and personnel for the teaching of science in general courses to non-scientific students. The underlying idea is not to interpret history merely as a reflection of science but to illuminate history by an understanding of the significance of science in its interplay with politics, economics, literature, religion and sociology.

The history of all major civilizations is being analyzed in a six-volume work entitled *The Great Cultural Traditions* by Professor Ralph E. Turner of Yale University. Two volumes have already been published. In the midst of this work Professor Turner wishes to undertake a study of the historical processes in the twentieth century. Believing that the objectivity of science is creating a new world-wide civilization, he will project upon contemporary life the historical perspective which has developed from his larger work. In 1948 the Foundation made a grant to Yale University to assist Professor Turner in the completion of his undertaking.

A summer session in philosophy and an international congress of philosophers (1949) designed to

promote the exchange of ideas between East and West were aided by the Foundation through a grant to the University of Hawaii in 1948. The 1939 international congress held by the University of Hawaii resulted in studies such as Charles A. Moore's *Philosophy — East and West*, F. S. C. Northrop's *The Meeting of East and West* and Junjiro Takakusu's *The Essentials of Buddhist Philosophy*.

There is considerable interest in Far Eastern civilization in Scandinavia also. The University of Stockholm is receiving Foundation support for the training of selected students under Professor Bernhard Karlgren, the eminent Sinologist. Three students from Sweden and one each from Norway and Denmark plan to spend a year in the Far East, then a second year in the United States at institutions specializing in studies of the Far East. These young scholars are preparing for future posts at Scandinavian universities.

A high level of achievement in humanistic studies is maintained in Mexico at the National Institute of Anthropology and History and the Colegio de México. By virtue of their advanced programs of training and research they have become important centers for all of Latin America in history, philosophy, linguistics, archaeology and museum training. They have had unusual success in attracting students and professors from all the Americas and émigré scholars from Spain. In 1948 the Foundation by further grants continued its aid to both institutions.

A start in cultural liberation has been made in Korea, which for centuries has been dominated intellectually by the Chinese and politically by the Japanese. But even occupation by Japanese forces

during World War II did not succeed in extinguishing the spirit of learning. Despite orders to the contrary, during the Japanese occupation a group of Korean scholars worked underground on a dictionary which uses an alphabet instead of the traditional Chinese characters. Japanese dealt harshly with Koreans who worked on this dictionary; nevertheless, the Koreans managed to keep the manuscript material intact until Korea was liberated. The first volume of the new dictionary was printed in 1947, but publication then had to be suspended for lack of materials. The dictionary is now being published with the aid of a grant from the Foundation to the Korean Language Society for the purchase of paper, ink and binding materials.

Advanced training in the fields of Russian history, economics, law and government, international relations, literature and civilization is offered by the Russian Institute, established in 1946 by Columbia University. The Foundation, through its Social Sciences division, has aided the development of this institute and in 1948 made a special grant to increase its library collections. In addition a monthly list of all Russian publications obtainable on this side of the Iron Curtain is published by the Library of Congress through a grant made by the Foundation.

Human Relations

Recognizing the importance of minority group problems, The Rockefeller Foundation in 1948 made a grant to Cornell University. Professors Leonard Cottrell and Robin Williams of Cornell's Department

of Sociology and Anthropology are conducting a field experiment in Elmira, New York, to investigate the structure of social relations. Elmira has a number of different racial groups and is small enough to permit an examination of the patterns of group prejudice as they fit into the total social context. Representatives of various groups are helping to diagnose and prescribe remedies for causes of tension. An evaluation of the social techniques effective in changing perspectives should result from this experiment.

A basic investigation of attitudes and communication is going forward at Yale University with Foundation support. In making a study of what causes people to develop opinions and, more important, why they change them, Professor Carl I. Hovland hopes to obtain information on the essentials of effective communication. He has chosen as his first experimental subjects a group of high school students in New Haven.

Likewise of interest to students of human behavior are the reactions of individuals and groups to a period of rapid social and economic change. For most of the Japanese Americans, relocation centers to which they were transferred during the war constituted an introduction to American patterns of living. In 1948 the Foundation gave aid to Professors Alexander H. Leighton and Morris E. Opler at Cornell University for an analysis of the materials they collected as resident consultants in Japanese American relocation centers.

Another grant was made for a field study of the cultural background of Puerto Rico. Dr. John Murra,

visiting professor from the University of Chicago to the University of Puerto Rico, is directing a series of community studies to investigate the fusion of Puerto Rican and foreign cultures. Present-day Puerto Rico bears the stamp of many influences, including that of the original Indian population, the Spaniards who reigned for 400 years, Negro slaves, Chinese and Corsican workers, exiles from Portugal, the Canary Islands, Haiti and other colonies of the Western Hemisphere. When the island became a dependency of the United States, new customs of an industrial civilization were introduced. The resultant confusion of languages, traditions and economic practices has greatly complicated the island's social problems. An examination of the basic issues should be of help in planning remedial measures that will embody the best of the contributing cultures.

The question of individual loyalty in a democracy is of vital significance in the postwar world. The United States owes its very existence as a nation to the guaranty of personal freedoms, which Americans have long taken for granted. Although both singly and collectively they enjoy a high degree of personal liberty, in time of national crisis they accept certain limitations imposed by the government for security reasons. Thoughtful citizens do not question this feature of democratic living. At the present time, however, they are seriously concerned with safeguarding national security without restricting individual rights and freedoms.

In 1948 the Foundation appropriated a substantial sum of money to Cornell University for studies of the loyalty measures in force in the United States. As

the loyalty machinery now operates, all federal employees are subject to investigation by special agencies set up in the executive, legislative and judicial branches of the government. A few states also require loyalty tests. Professor Robert E. Cushman of Cornell is conducting a factual examination of the civil liberties issues which arise from actions taken to eliminate subversive individuals from government service.

All of these fundamental problems in human relations are products of the complexity and confusion of our modern society. In the final analysis these problems center around conflicting ideas and standards. Often they represent deeply felt loyalties the clash of which sets the stage for tragic action. Cooperative machinery must be established to systematically forestall resorts to force or other drastic action. This is more easily said than done, but certainly the issues involved should be submitted to constant and relentless study.

With this in mind the Foundation has undertaken several exploratory measures. Funds were allocated to the Social Science Research Council to finance study at several leading universities on specific ways in which social science analysis can contribute to an understanding of ethical issues and problems of values. A grant was made to the Federal Council of the Churches of Christ in America for a study program on ethical issues in economic life.

Studying Normal People

Much attention has been given to the causes of psychological maladjustment and the inability of groups and individuals to cooperate, while very little

work has been done with the normal happy persons whose personalities hold the key to successful living. This is true even of the history of medicine. The urgency of illness led medical men to focus their attention first on the relief of distress and, more recently, upon eliminating some of its causes. In both cases the emphasis is on malfunction. Such a course resulted quite naturally in defining health as the absence of disease. Now the pendulum is swinging the other way.

Recognizing the fact that medicine must play its part in the struggle of science to provide better economic, social and moral health, doctors are now beginning to study the healthy and normal as carefully as they have studied disease in the past. There is no question but that the war against disease must continue to press forward as vigorously as possible, but there is a feeling that to create a world that encourages normalcy and happiness more must be known about normal and happy people. Each individual should know not only what is normal and desirable but also how to achieve it.

To aid the growth and development of this subject, the Foundation in 1948 made three grants, two in the field of psychiatry and one for a general study of child development. Professor Henry A. Murray, Jr. of Harvard University has undertaken a research program in the dynamics of personality development. His project is concerned with the cheerful aspects of human behavior. His subjects will be not the mentally distressed but the strikingly happy and successful persons. Through detailed and intensive study of

these individuals Dr. Murray hopes to throw light on the factors essential to effective and happy living.

Another positively-oriented psychiatric program receiving Foundation support is the study of "normal" Harvard undergraduates under the direction of Dr. Arlie V. Bock. During the years 1938 to 1942, 262 well-adjusted students were carefully studied from the physical, psychiatric and sociological points of view. Dr. Bock is now studying the subsequent careers of these men.

In the work of Dr. Alfred H. Washburn and his associates at the Child Research Council of Denver, the growth and development of children, as individuals, is observed over the years. Particular attention is given to determining what is normal for each child. Physicians, anthropologists, psychologists and other specialists are jointly engaged in the physical and psychological examination of these children from infancy to adulthood. As a result of this systematic study a clear picture of both normal and abnormal growth and behavior patterns is being obtained. The Child Research Council of Denver has received the support of The Rockefeller Foundation since 1939. In 1948 aid was extended for another five years.

Biological Research

For more than 25 years The Rockefeller Foundation has been giving support to projects which deal with one or another segment of biology. In many instances these involve the joint work of representatives of two or more natural science disciplines.

Interrelated efforts of physical and biological scientists to gain more precise information regarding the nature and behavior of living matter is the feature of a long-range program of research conducted at the California Institute of Technology. Two closely integrated groups from the Division of Biology and the Division of Chemistry and Chemical Engineering are directed by Professor George W. Beadle and Professor Linus Pauling. Among the basic questions to which these scientists are seeking the answers is how the molecules of living matter are constructed and how they behave in an organism. This involves the processes of reproduction, nutrition and growth at the molecular level; the mechanism of inheritance; and the structure and properties of antibodies, viruses and bacteria.

The Rockefeller Foundation appropriated $700,000 to the California Institute of Technology in 1948 for its joint chemistry-biology program. Other 1948 grants to aid in extending man's understanding of complex living systems include $20,000 to Birkbeck College, University of London, toward the construction of an electronic computer to be especially adapted for the difficult process of calculating the position of atoms within protein molecules from X-ray crystallographic photographs of these substances; $50,000 to Yale University for studies in plant physiology and genetics; $82,500 to Columbia University for studies in genetics and experimental zoology; $100,000 to the University of Wisconsin for equipment of an enzyme institute; $100,000 to the University of California for biochemical equipment. Smaller

sums went to a number of other institutions for research on enzymes, the organic compounds elaborated by living cells to control such vital functions as digestion, secretion, nerve conduction and muscular contraction.

Central European Rehabilitation

Since early 1948 The Rockefeller Foundation has participated in a program adapted to the needs of democratic reconstruction in Germany and Austria. The people of these countries suffer chiefly from poverty and isolation. The poverty brought on by the war was heightened by the postwar dislocations which threaten the economic stability of all Europe. Isolation, too, is the result not only of the war but of systematic prewar efforts by the Nazi leaders to cut off the German peoples from communion with the rest of the world.

In 1947 the plagues of drought, economic inflation and slum housing reduced Central Europe to a state in which the only bright things in life were the lunches provided for school children, the millions of food and clothing parcels from friendly people all over the world, and the large-scale provision of basic foodstuffs by the American and British governments. Whether or not this suffering was justifiable may be argued pro and con, but certainly under such conditions Germany lacked incentive for a democratic rebirth or for constructive effort in the economic recovery of Europe.

In 1948 good harvests, currency reform and increased industrial production combined to relieve the

acute symptoms of chaos and to re-establish some hope for the future. Germany will, however, continue for some time to come to be a poor land, with a diet containing little meat and fat, with most children attending double-shift schools, and with most families crowded into half their prewar dwelling space.

Austria is not only less poverty-stricken than Germany but she has recovered more rapidly because she suffered less war damage. She came under the Nazi influence later, and thus her period of isolation was less prolonged. She has enjoyed a greater measure of political and economic self-determination since the end of the fighting. The social welfare and educational programs which were the pride of Vienna before 1930 have been surprisingly well preserved and restored. Should her economic problem be solved by economic union with other European countries, Austria might become a beacon of democracy in Central Europe.

The postwar intellectual isolation has been fully as damaging to Germany and Austria as the hunger and cold. The role of The Rockefeller Foundation in European rehabilitation was clearly to help relieve the cultural isolation of Germany and Austria, just as the economic rebuilding was a matter for the Allied governments to work out in conjunction with plans for general economic recovery in Europe. As Germany and Austria become economically and politically integrated into postwar Europe, they must also be absorbed intellectually and morally into the larger whole; otherwise their economic recovery, if unac-

companied by internal democratic changes, may become a threat to the future peace of the world.

The Rockefeller Foundation has set aside the sum of $700,000 to aid in the cultural rehabilitation of Germany and Austria. Part of the funds are being used by the University of Chicago toward its exchange program with the University of Frankfurt. Seven or eight university professors from Chicago are teaching each semester at Frankfurt, a new team going from Chicago every six months. Frankfurt, in return, is sending three professors to Chicago in the spring of 1949 and more thereafter. Relations have already been established between the student bodies of the two universities. A Chicago graduate student who is doing research in history at Frankfurt corresponds with the campus newspaper at Chicago, and the Chicago students have collected books, clothing and money to help needy students at Frankfurt.

To help restore scholarly communication between the United States and Austria and Germany, a grant was made to the Germanistic Society of America for subscriptions to periodicals and for the purchase of medical books for German and Austrian universities and research libraries. Foreign exchange restrictions prevent Germans and Austrians from using their own funds for such purposes.

This two-way flow of leaders in universities and public life has been aided by other Foundation grants. One was made to the Free Trade Union Committee to bring a group of German and Austrian labor leaders to visit their colleagues in the United States. Other

grants have enabled American organizations to serve as hosts to groups of Germans and Austrians representing the fields of public education, teacher training, radio and youth organizations. German leaders in youth organizations have received funds for study and observation in Denmark and England. Still other grants have been made to assist in securing staff members for the Salzburg Seminar in American Civilization and for the international summer schools at the Universities of Munich, Heidelberg and Marburg in Germany.

By the close of 1948 a considerable flow of persons and of ideas had been restored, on the one hand between Germany and Austria, and on the other hand between the United States and the countries of western Europe. There remains the continuing and long-range task of guaranteeing to the ablest young people, the future leaders of all countries, the opportunity to travel in other countries. In this way they can observe and learn what is needed to establish the working relations which will in the long run bind these nations together. There is also the continuing responsibility of the United States and other western countries to assist the Germans and Austrians in fashioning more democratic institutions and practices in their schools, universities, churches, business organizations and governing bodies. Only when this has been accomplished can Germany and Austria become intellectually and morally integrated into a peaceful and stable world community.

Experiment in Communication

In December 1947 the Foundation made a grant to Columbia University to bring a small group of

German radio personnel to the United States and subsequently to Canada and Great Britain to see the operation of radio in these democratic countries. In April 1948, six broadcasters arrived. During the next five months they attended seminars to catch up on theoretical and practical advances made during the years of Germany's isolation. After visiting the great networks of the metropolitan areas they spent weeks in small-town radio stations close to the people, learning about the particular interests of farm, educational and regional groups.

Prepared for coldness or indifference, they encountered cordiality and helpfulness everywhere. In Washington they met the President, the Secretary of State, the Director of the Economic Cooperation Administration. They attended sessions of Congress and they saw the operation of the *Voice of America* program. Later, in Canada, they had the opportunity to observe "mixed" radio, which combines commercial and public broadcasting. They completed their tour in England, where they learned about the British Broadcasting Corporation. Back in Germany they now occupy prominent positions in the radio world of the three Western zones.

In June 1948 the Foundation made a grant to Columbia University to bring over 15 German journalists for study at the American Press Institute. This organization was founded in 1946 by 38 newspaper publishers to improve the quality of the American press. The group of German journalists was composed in part of distinguished anti-Nazis, most of whom had been persecuted under Hitler, and one of whom had spent seven years in Buchenwald. All sorts of precedents were broken. For the first time,

the Press Institute conducted a seminar for foreign journalists. One of the 15 was a woman, and previously no newspaperwomen had been admitted to such seminars.

Intensive study of American journalism in the seminar and in observation periods in New York newspaper and magazine offices was supplemented by trips to Washington, Trenton and Providence, all crowded into a busy six weeks. At the end the 15 had gathered a great deal of information but were exhausted. They had seen nothing west of the Atlantic seaboard. They had had no time to think over all they had seen, nor to sort it out. Most unfortunate of all, they had had no chance to talk over their impressions and future plans with each other; and once they returned to Germany they would be scattered.

Consequently, the Foundation made an additional grant to enable the German journalists to travel for two weeks in the West and South. Following this, there was a period of free time in which they compared notes and made arrangements to follow up, as a group, the ideas developed during their stay here.

Fellowship Program

The Foundation's fellowship program has been a standing recognition of the importance attached to international exchange of information in the world of science and scholarship. In recent years it has given scientific leaders in countries isolated in wartime an opportunity to put themselves abreast of what has been done elsewhere.

While the fellowship program in most of the European countries was interrupted during the war, it has

been resumed as fast as contacts could be restored. Since 1945 a special effort has been made to enable men in active careers to reestablish broken ties with colleagues abroad through both fellowships and grants for travel. Many of the men so aided had held fellowships from the Foundation in the past.

During 1948, 719 fellowships distributed among 47 different countries were supported by the Foundation. Of this number 399 fellowships were administered by the Foundation. National research councils in Great Britain, Canada and Australia, and similar institutions in the United States administered 320 fellowships from funds provided by the Foundation. The total expended for this program during the year was $1,308,409.

APPLICATIONS DECLINED DURING 1948

The number of applications to the Foundation for aid has been increasing yearly since the end of the war. In 1948, 2,702 applications were declined as compared with 2,510 in 1947, 1,839 in 1946 and 1,028 in 1945. The largest number of applications declined in any one category was 956, for fellowships and travel and training grants, 35 per cent of the total. Many of these applications represented projects of interest to the Foundation but were declined because other opportunities seemed more promising. The great majority, however, were declined because they fell outside the areas of work in which the Foundation is attempting to be of service.

The Foundation does not make gifts or loans to individuals, finance patents or altruistic movements

involving private profit, contribute to the building or maintenance of churches, hospitals or other local organizations, or support campaigns to influence public opinion.

The applications which were declined during 1948 may be classified under the following headings: conferences and meetings, 83; continued aid to projects, 55; cures, remedies, investigation of theories and inventions, 66; development of cultural and educational institutions and projects, 338; European refugees, 48; fellowships, travel and training grants, 956; local institutions (including churches, hospitals, museums and schools), 231; personal aid, 158; public health projects, 27; publication projects, 140; research projects, 452; miscellaneous, 148.

REPORT OF THE SECRETARY

SECRETARY'S REPORT

THE members and trustees of The Rockefeller Foundation during the year 1948 were:

WALTER W. STEWART, *Chairman*

WINTHROP W. ALDRICH	ROBERT F. LOEB, M.D.
CHESTER I. BARNARD [1]	JOHN J. MCCLOY
KARL T. COMPTON	HENRY ALLEN MOE
JOHN S. DICKEY	WILLIAM I. MYERS
HAROLD W. DODDS	THOMAS PARRAN, M.D.
JOHN FOSTER DULLES	JOHN D. ROCKEFELLER, 3RD
RAYMOND B. FOSDICK [2]	ROBERT G. SPROUL
DOUGLAS S. FREEMAN	ARTHUR HAYS SULZBERGER
HERBERT S. GASSER, M.D.	HAROLD H. SWIFT
WALTER S. GIFFORD	HENRY P. VAN DUSEN

The officers of the Foundation were:

WALTER W. STEWART, *Chairman of the Board of Trustees*
RAYMOND B. FOSDICK, *President* [2]
CHESTER I. BARNARD, *President-elect* [1]
THOMAS B. APPLEGET, *Vice-President*
FLORA M. RHIND, *Secretary*
EDWARD ROBINSON, *Treasurer*
GEORGE J. BEAL, *Comptroller*
THOMAS M. DEBEVOISE, *Counsel* [2]
CHAUNCEY BELKNAP, *Associate Counsel* [3]
VANDERBILT WEBB, *Associate Counsel* [3]
GEORGE K. STRODE, M.D., *Director for the International Health Division*
ALAN GREGG, M.D., *Director for the Medical Sciences*
WARREN WEAVER, *Director for the Natural Sciences*
JOSEPH H. WILLITS, *Director for the Social Sciences*
DAVID H. STEVENS, *Director for the Humanities*

[1] Became President July 1, 1948.
[2] Retired June 30, 1948.
[3] Appointed Counsel beginning July 1, 1948.

The following were members of the Executive Committee during the year:

THE PRESIDENT, *Chairman*

CHESTER I. BARNARD [1]	HENRY ALLEN MOE
JOHN S. DICKEY	JOHN D. ROCKEFELLER, 3RD
JOHN FOSTER DULLES [2]	WALTER W. STEWART
RAYMOND B. FOSDICK [3]	WALTER S. GIFFORD, Alternate
ROBERT F. LOEB, M.D.	HENRY P. VAN DUSEN, Alternate

The following served as scientific directors of the International Health Division of the Foundation during 1948:

CHARLES H. BEST, M.D.	WILTON L. HALVERSON, M.D.
EUGENE L. BISHOP, M.D.	KENNETH F. MAXCY, M.D.
ROLLA E. DYER, M.D.	HUGH J. MORGAN, M.D.

THE PRESIDENT
THE DIRECTOR OF THE DIVISION

MEETINGS

Regular meetings of The Rockefeller Foundation were held on April 6 and 7, and November 30 and December 1, 1948. Six meetings of the Executive Committee were held during the year to take actions within general policies approved by the trustees.

FINANCIAL STATEMENT

A summary of the Appropriations Accounts of the Foundation for the year 1948 and a statement of its Principal Fund follow:

[1] Became President July 1, 1948.
[2] Elected April 6, 1948.
[3] Retired June 30, 1948.

Summary of Appropriations Account

Funds Available		Funds Appropriated	
Balance from 1947	$7,696,020	Appropriations	
Income for 1948	8,861,149	Public Health	$3,000,000
Unexpended balances of appropriations allowed to lapse and refunds on prior year grants	438,274	Medical Sciences	1,771,845
		Natural Sciences	2,799,098
		Social Sciences	2,229,300
		Humanities	1,495,846
Transferred from Principal Fund in accordance with resolutions of the Trustees, December 3, 1946	5,298,120	General Education Board	1,500,000
		Miscellaneous	663,500
		Administration	
		Scientific Divisions	1,081,056
		General	362,605
			$14,903,250
		Less appropriation for which funds were previously authorized	100,000
			$14,803,250
		Authorization for later appropriation by the Executive Committee	94,269
			$14,897,519
		Balance available for appropriation in 1949	7,396,044
	$22,293,563		$22,293,563

Principal Fund

Book value, December 31, 1947		$118,071,816
Add		
Balance of bequest under will of William O. Wakenight	$17,912	
Amount by which the proceeds of securities sold, redeemed and exchanged during 1948 exceeded the ledger value	2,092,363	2,110,275
		$120,182,091
Deduct		
Amount withdrawn from Principal Fund in accordance with action of Trustees at meeting of December 3, 1946		5,298,120
Book value, December 31, 1948		$114,883,971

INTERNATIONAL HEALTH DIVISION

INTERNATIONAL HEALTH DIVISION

Scientific Directors

Charles H. Best, M.D.
Eugene L. Bishop, M.D.
Rolla E. Dyer, M.D.
Wilton L. Halverson, M.D.
Kenneth F. Maxcy, M.D.
Hugh J. Morgan, M.D.
George K. Strode, M.D.

Staff During 1948

Director

George K. Strode, M.D.

Associate Directors

Lewis W. Hackett, M.D.
Fred L. Soper, M.D.[1]
Andrew J. Warren, M.D.

Assistant Directors

Charles N. Leach, M.D.[2]
Hugh H. Smith, M.D.
Mary Elizabeth Tennant

Staff

Thomas H. G. Aitken, Ph.D.
Charles R. Anderson, M.D.
Richmond K. Anderson, M.D.
Marshall C. Balfour, M.D.
Marston Bates, Ph.D.
Johannes H. Bauer, M.D.

[1] On leave, serving as Director of the Pan American Sanitary Bureau.
[2] Appointment effective April 1948.

George Bevier, M.D.
Elizabeth W. Brackett
John C. Bugher, M.D.
Robert P. Burden, D.Sc.[1]
Henry P. Carr, M.D.
Joseph C. Carter
Ottis R. Causey, Sc.D.
Delphine H. Clarke, M.D.
Wilbur G. Downs, M.D.
Brian R. Dyer
John E. Elmendorf, Jr., M.D.
John P. Fox, M.D.
John B. Grant, M.D.
Alexander J. Haddow, M.D.
Richard G. Hahn, M.D.
Guy S. Hayes, M.D.
Rolla B. Hill, M.D.
Esther M. Hirst
Thomas P. Hughes, Ph.D.
John L. Hydrick, M.D.
John H. Janney, M.D.
Harald N. Johnson, M.D.
John F. Kendrick, M.D.
J. Austin Kerr, M. D.
Stuart F. Kitchen, M.D.
Frederick W. Knipe
Henry W. Kumm, M.D.
John A. Logan, D.Sc.
Estus H. Magoon
John Maier, M.D.
Oliver R. McCoy, M.D.
William A. McIntosh, M.D.
D. F. Milam, M.D.
Anna Mary Noll
J. Harland Paul, M.D.
George C. Payne, M.D.
Osler L. Peterson, M.D.
Janet Corwin Piggott[2]
Persis Putnam, Sc.D.[3]
Elsmere R. Rickard, M.D.
Paul F. Russell, M.D.
Bruce E. Sasse
Kenneth C. Smithburn, M.D.
Richard M. Taylor, M.D.
Max Theiler, M.D.
Margaret L. Varley
Robert B. Watson, M.D.
John M. Weir, M.D.
Clifford W. Wells, M.D.
Charles M. Wheeler, Ph.D.[4]
Loring Whitman, M.D.
D. Bruce Wilson, M.D.
Wilson M. Wing, M.D.[5]
C. Brooke Worth, M.D.
Daniel E. Wright[6]

[1] Appointment effective May 1, 1948.
[2] Resignation effective May 23, 1948.
[3] Retirement effective July 31, 1948.
[4] On leave from the International Health Division until May 8, 1948, for service in Japan with Public Health and Welfare Section of the Supreme Command, Allied Powers, as a War Department Civilian; resignation effective July 15, 1948.
[5] Resignation effective December 9, 1948.
[6] Retirement effective November 30, 1948.

INTERNATIONAL HEALTH DIVISION

INTERNATIONAL HEALTH DIVISION

DURING 1948 the International Health Division continued a threefold program. This program consists of 1) aid in the investigation and control of diseases important in the public health field, 2) aid in the practical application of public health administrative measures under varied conditions and in different countries and 3) aid in the promotion of public health education by which new personnel is trained and present public health personnel is enabled to keep up with recent advances. In the account which follows a few pages are given to each of these three aspects of the work of the International Health Division. Public health activities are also discussed in the section of this report containing the President's Review of the work of The Rockefeller Foundation. Of special interest to public health officers and students of public health is the more detailed account of the activities of the International Health Division in 1948, published in a separate volume and available on request.

A considerable portion of the postwar work of the International Health Division is still in the nature of reconnaissance activities. Conditions both in Europe and in the Far East are far from being sufficiently stabilized to make long-term planning of public health

measures other than a somewhat speculative procedure. Nevertheless, such planning is under way, and much is already being done in the way of personnel training.

A broadened conception of public health which makes a wider distribution of both curative and preventive medicine one of its chief concerns continues to be a prominent feature of recent work. There is also added recognition that public health does not operate in a closed compartment. In the wide sphere of human welfare, public health ties up intimately with agricultural and industrial development, economic welfare and good government. A fundamental principle of International Health Division work has always been the stress on cooperation with central governments, because in the final analysis, control of diseases, safeguarding of health and provision of public health education are responsibilities devolving jointly upon the community and the government.

CONTROL AND INVESTIGATION OF DISEASES

The International Health Division devotes a considerable portion of its program to intensive field and laboratory investigations of diseases important in the public health field. The Division has from the start selected from among the many diseases worthy of study those which best lend themselves to the type of joint attack represented by field work with supplementary research in a central laboratory. The diseases receiving most attention in the current program are

malaria, typhus, yellow fever and influenza. Among these four, malaria probably occupies first place.

Malaria

For many years The Rockefeller Foundation through its International Health Division has made a study of the various conditions under which malaria occurs in different parts of the world and of the measures which are required to keep this disease under control. Most of the field work has of necessity dealt with the problems of controlling or eradicating the anopheline mosquito which carries the malaria organism. The fact that the different anopheline species capable of transmitting malaria vary greatly in their living habits has complicated the work; however, the recent fortunate discovery of new insecticides, among them DDT, has been a help in intensifying and strengthening the many-sided campaign against malaria mosquitoes.

LABORATORY WORK

The attack against the mosquito, which is a feature of the field work in malaria, is not the only one launched against the disease. The International Health Division has always reinforced such field work by detailed research, chiefly in its New York Laboratories. Studies in these laboratories have for some time concentrated upon 1) chemotherapy, or the attempt to find a drug which can successfully eliminate the malaria organism from the human body and 2) a study of the malaria organism itself. This

organism has an extremely complicated life cycle, part of which takes place in the mosquito and part in the human body. Certain phases of the human cycle in the life of the malaria parasite, or plasmodium, are still obscure.

Recent laboratory studies have helped to elucidate the food requirements of various stages in the life of the parasite. In the field of human nutrition, progress has been made in isolating food factors necessary to the growth of living tissue. The malaria organism also has certain requirements in the way of food. Unless these are met the organism cannot develop from one stage to the next. A careful study of its metabolism in the light of recent findings in connection with nutritional factors favorable to growth may perhaps lead to a new way of attacking the malaria organism by interfering with its development at certain stages. A stage that seems promising for this type of study is the one at which the parasite enters the human body through the bite of the mosquito, called the sporozoite stage. At this point the organism is spindle-shaped, roughly resembling a spore and is not attached to the tissue cells in which it develops. Another is the exoerythrocytic stage, which occurs in the human body but outside of the normal habitat in the red blood corpuscles.

A second approach to the laboratory study of the malaria parasite makes use of different mosquito species. Not all anopheline mosquitoes are equally susceptible to infection with a given parasite. Certain species which are somewhat less hospitable to

the parasite produce slight variations in the development of the organism. These are sometimes useful in the study of the less well-known sexual phases of its life cycle. Through biochemical and physiological comparison of the forms produced by adequate and inadequate mosquito hosts it is hoped to shed new light on the physiology of the malaria parasite.

Recent advances in studying the chemotherapy of malaria have been made possible through use of the chick embryo as a medium for growing the chicken malaria organism. Various drugs have been tested in this way, and in most cases the results have paralleled those obtained in the hatched chick. The embryo further offers an alternative method for investigating the various stages of the infection. Use has also been made of the malaria parasite which attacks monkeys. Consequent upon the discovery in England that this parasite passes a stage of its life cycle in the liver of the host, it seemed logical to attempt an attack on the infection with a drug known to be excreted by and, hence, concentrated in the liver. A strain of monkey malaria associated with especially severe anemia is under study to find out more about the production of anemia in malaria.

FIELD WORK

The International Health Division in 1948 cooperated in field studies and control operations in a number of foreign countries. DDT has been used extensively to kill off both adult and larval forms of the malaria mosquito vectors, notably in Sardinia.

The mosquito eradication program in the Island of Sardinia represents the largest European project of the International Health Division. For the first time in history, entomologists and public health experts have joined forces to destroy all the malaria transmitting mosquitoes in a mountainous island big enough to be a country. Based on modern technological advances and using the latest scientific tools, this large-scale program is an effort to push forward the frontiers of public health practice. Pioneer work in species eradication has in the past been undertaken with success in Brazil and Egypt, where the vector was an invader rather than a native of the regions. The Sardinian program goes one step further in that it hopes to kill off an indigenous vector species in its native habitat.

The program has been financed by the Italian health department with United Nations Relief and Rehabilitation Administration and European Cooperation Administration lira funds totaling US $4,300,000. The Rockefeller Foundation has provided supervisory personnel and part of the operating expenses. Since 1946 the Foundation has designated $225,000 for this purpose. An additional $100,000 was appropriated for operations in 1949.

Conditions in Sardinia have proved more difficult than those in Brazil and Egypt. To carry out this island-wide campaign of eliminating all larval and adult mosquitoes an organization of more than 30,000 persons has been built up. Before intensive

operations could begin DDT had to be tested to find out exactly how it affected the Sardinian mosquitoes and in what seasons treatment was most effective. Each species was found to require special techniques and specially trained crews. Airplanes, fog machines, power boats and power sprayers were imported to treat difficult terrain. Extensive drainage canals were excavated, sometimes by hand, and to eradicate shade-loving mosquitoes many miles of natural stream-beds in mountainous terrain were cleared. By now all other possible breeding or resting places, whether in cities, villages or uninhabited caves, have been explored and treated at least once.

In spite of the magnitude of the task and the difficult topography, the program is proceeding on schedule. The most important malaria mosquito of the island is now believed to be under control. Because of the importance of the program, the large amount of money and effort which have gone into it, and the size of the area under treatment certain security measures will be adopted. After control measures are completed tests for eradication will be continued until breeding foci give uniformly negative results. Effective quarantine measures must then be instituted to prevent reinfestation of the island from nearby countries.

Apart from the obvious benefits of reducing malaria, a valuable result of the Sardinia program is the experience gained in organizing and carrying out a thorough control program. Staff in charge have per-

fected techniques for large-scale operation which can be used, with slight modification, in many other malarious regions.

Another control program was started in 1948 in the neighboring Island of Corsica, where malaria has long been an important problem. Stimulated by the work in Sardinia, the French Ministry of Health and Population has initiated extensive control measures. Toward this program, including preliminary survey work and the purchase of spraying equipment, the International Health Division has provided a total of $30,500.

The use of the newer insecticides has resulted in a series of fresh problems which members of the field staff are now studying. Perhaps the most outstanding example is the effect of DDT on the fly population near Rome. During the war an extensive antimalaria campaign with DDT was carried out in the Pontine marshes and the Tiber Delta under the auspices of the Allied military authorities. The Rockefeller Foundation Health Commission participated in this campaign. After the war the work was continued by the Italian government, with the result that malaria has practically disappeared from these areas. At the same time the fly population dropped noticeably, with a corresponding decline in summer diarrhea in children, and in infant mortality generally. Late in 1946, however, Professor Missiroli, who had directed the work, observed that DDT no longer had much effect on flies. Further study in the laboratory revealed the presence of a variety of flies which was

gradually building up resistance to DDT. The resistant variety needs at least ten times greater exposure to DDT than the ordinary flies. In treated areas flies are now as numerous as they were before the campaign started.

In view of the importance of fly control as a general public health measure, further studies were made and it was discovered that the DDT-resistant flies could be controlled by other insecticides. Gammexane and especially Octa-Klor, alone or in conjunction with DDT, proved effective. With the aid of a small grant from The Rockefeller Foundation, the Italian government has started a systematic study of the effect of the newer insecticides on flies, mosquitoes, sandflies and ticks, all of which are health hazards in Italy. Forty miles outside Rome, in the Province of Latina, an experimental center has been set up. It is proposed to use the center both for research and as a teaching station for the School of Hygiene in Rome.

Other countries in which the International Health Division cooperated more or less extensively on malaria control in 1948 include Mexico, Peru, Bolivia, Venezuela, Tobago, the Netherlands and China. The present political situation in China is slowing down the progress of the work there.

Typhus

Typhus fever studies initiated last year in Tampa, Florida, are conducted by the International Health Division in cooperation with the State Health De-

partment. This work grew out of a 1946 survey indicating that approximately two and one half times as many cases of typhus occurred during the three-year period 1944–1946 as were reported. The official figure of 2,096 cases had already suggested the importance of murine typhus as a public health problem.

The investigations in progress include studies of domestic and wild rodents, the small insects or ectoparasites that live on the skin of these animals, and the disease itself in human beings. There was a rather sharp decline in the incidence of human typhus cases in Florida in 1948. How much of this decline can be attributed to the anti-rat and DDT campaigns has not yet been determined. The human typhus studies include evaluation of the complement-fixation test as an indicator of past infection and present immunity; determination of the presence of immune bodies in sera of general population; and a detailed study of populations in infected areas to search for mild, abortive and subclinical cases not reported.

As part of the investigations on rodents, animals are tested for infection and the presence of ectoparasites. Following estimates of age and determination of sex and species, they are marked by toe clipping and released. Attempts are made to recapture these same animals to note the presence of infection as correlated with changes in their ectoparasite population.

Yellow Fever

Both in the Old World and in the New World the International Health Division of The Rockefeller

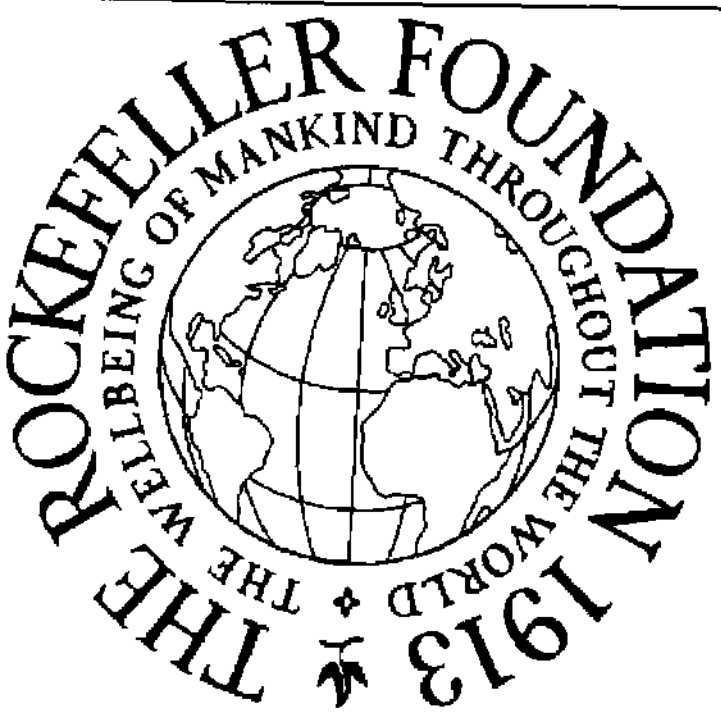
A pheline Eradication Campaign,
S bnia

Photograph Excised Here

D age operations to eliminate
ia mosquito breeding

strict storehouse

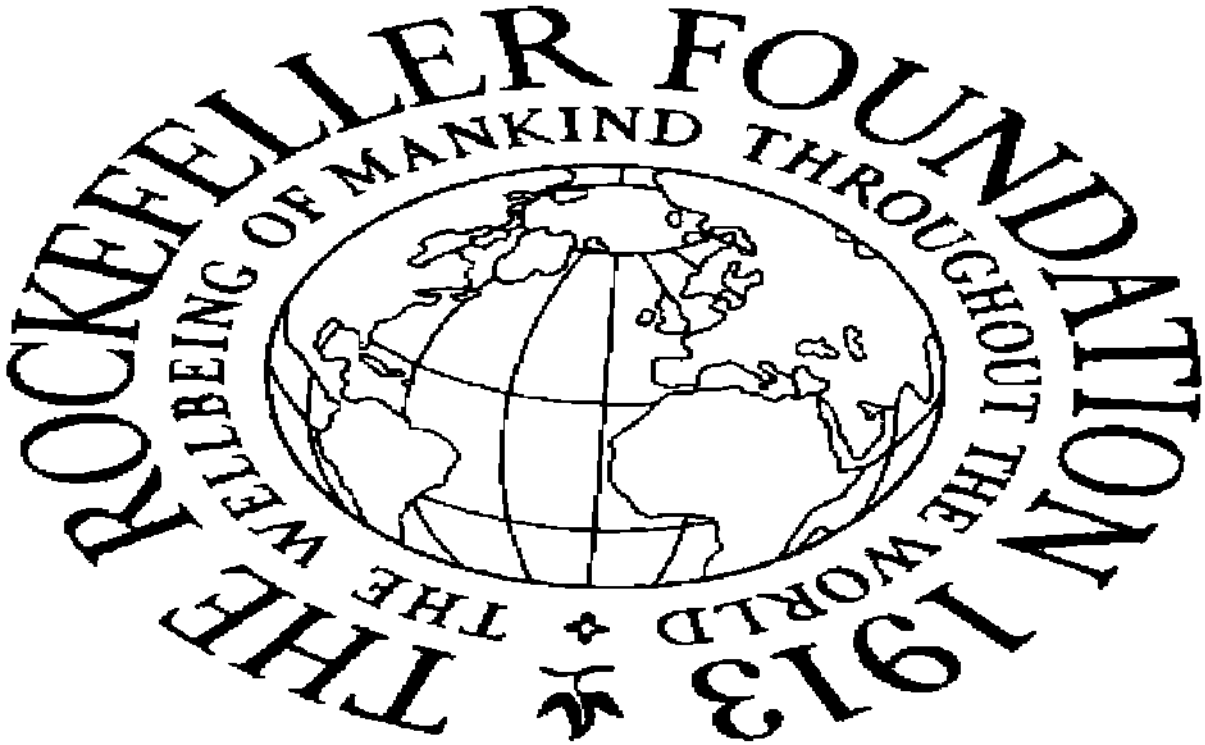
Photograph Excised Here



Photograph Excised Here

School children in Port Elgin, New Brunswick, receive hot cocoa to supplement lunches brought from home

Clinic in the Eastern Health District of Baltimore, a field training area for the Johns Hopkins School of Hygiene and Public Health



Photograph Excised Here

Foundation is continuing its studies of yellow fever. These studies were highlighted in 1948 by further discoveries concerning the flight range of the mosquitoes which carry jungle yellow fever in Brazil, and the virus-carrying potentialities which enable African forest mosquitoes to keep yellow fever alive. Incidentally, the intensive work which has been done on the virus of yellow fever has led to an interest in other viruses which afflict native populations and animals in yellow fever regions. New ways of studying these viruses have been developed in the field laboratory.

Leaving the task of guarding against outbreaks of yellow fever to the well-organized efforts of the Brazilian government, The Rockefeller Foundation in Brazil is giving support to certain types of research in connection with jungle yellow fever. One of the problems has been to find out how yellow fever virus spreads from one isolated forest patch to another. The mosquito alone might be responsible, or the mosquito might give the fever to a monkey, which would then play its part in the yellow fever cycle. This it does by having yellow fever, perhaps in a form not severe enough to be fatal but adequate for maintaining the virus in its blood, so that if this same monkey is later bitten by a healthy mosquito the mosquito becomes infected and is able to transmit yellow fever to a human being.

The work this year in Brazil indicated that certain sylvan mosquitoes, notably *Haemagogus spegazzinii* and *Aedes leucocelaenus*, have a longer range of flight than was thought possible. Marked specimens of one

of these important yellow fever vectors were recaptured nearly seven miles away from the place at which they were released. A flight of three or four miles is not unusual. If it should be found that these mosquitoes can survive the winter in a state of hibernation, they alone, without the aid of the monkey, could account for the spread of yellow fever over wide areas of forest patches. Either the mosquito alone or the mosquito in conjunction with monkeys is keeping the yellow fever virus alive throughout an extensive zone in Brazil. Immunity surveys of the monkey and marmoset population in 13 of the 20 states of Brazil give evidence of widespread specific immunity. This means that the animals were at one time or another infected with yellow fever and were, therefore, potential sources of infection to mosquitoes.

In East Africa the mosquito *Aedes africanus* has been definitely incriminated as the chief vector of yellow fever in lowland forests. In 1948, for the first time, wild-caught specimens of this mosquito were shown to harbor yellow fever virus. A number of these mosquitoes taken straight from the forest were killed, macerated and injected into monkeys with the result that the monkeys came down with yellow fever. The same result can be obtained when live infected mosquitoes are allowed to bite healthy monkeys. The new evidence from wild-caught mosquitoes is much stronger than that obtained from mere laboratory transmission, in which a normal mosquito is allowed to bite first an infected and then a susceptible monkey after a period of incubation.

If the second monkey comes down with yellow fever, it has been demonstrated that the mosquito is capable of transmitting yellow fever. The feature of the 1948 work, however, was infection directly by wild mosquitoes captured in the forest.

The above facts, coupled with the knowledge that yellow fever is common among the native monkeys of this region, confirm the suspicion that the monkeys and mosquitoes together make it possible for the virus to survive in forests uninhabited by humans.

Aedes africanus is a mosquito which normally lives in the forest canopy, a considerable distance above the ground. Monkeys bitten and infected by these mosquitoes do from time to time leave the forests, especially to make raids for food on banana patches and gardens near human dwellings. Here they are apt to be bitten by *Aedes simpsoni*, another yellow fever vector, which in turn bites human beings, thereby helping to complete the cycle from *Aedes africanus* to man. *Aedes simpsoni*, breeding in the banana plant, frequents human habitations and has plenty of opportunity to bite man. It seems probable that africanus and the known vector of the disease in man in Uganda, simpsoni, are the sole main-line vectors of yellow fever in East Africa.

An item of interest in the yellow fever work in West Africa in 1948 was the application of the scratch method of vaccination to the 17-D strain. This method was originally introduced and put into use by the French colonial medical authorities in Africa. In preparing the vaccine they used dried mouse brain

from animals infected with the French neurotropic strain of yellow fever virus. A variation of this method introduced by a staff member of the International Health Division employs, instead of mouse brain, the juice from embryos infected with the somewhat less virulent 17-D strain. The use of egg embryo material instead of mouse brain would seem advantageous in that extraneous viruses are less likely to be encountered. The embryo juice is mixed with powdered gum acacia and dried. The material for inoculation is easily kept and for use is mixed with water. Tests have indicated that the scratch method of vaccination is as safe and as efficacious as the more elaborate standard vaccination. It is also much cheaper. If desired, smallpox vaccinia lymph may be combined with the chick embryo juice and the two vaccines desiccated together to form a single product which will simultaneously immunize against both diseases. The results obtained with the single product appear to be comparable to those obtained with the French technique in which the combination is made at the time of use.

Influenza and Other Viruses

In the field of virus investigations the New York Laboratories of the International Health Division in 1948 devoted major attention to the respiratory viruses, particularly the influenza types. They also initiated a search for new methods and techniques which may be generally applicable to the recognition and cultivation of viruses in general. A number of

unidentified viruses have been isolated from animals and insects in the yellow fever research laboratories in South America and Africa. The significance of accidental transfers of such viruses to human beings is perhaps considerable. The new viruses merit more study than can be given them in the field. In preparation for this work the New York Laboratories were furnished with new quarters in 1948. They also have at their disposal well-equipped pathology, chemistry and physics laboratories.

One of the newer techniques being used in the study of viruses involves radioactive tracers. This is facilitated by the use of incubating hens' eggs, which by this time have become a universal medium for virus cultivations. Virus injected into any one of the membranous systems which develop to serve the growth process eventually reaches the embryo itself; however, the route and technique of inoculation depend on the nature of the virus under study. The presence of the virus within the egg may be recognized in any one of several ways. Characteristic pathological changes in the embryo sometimes reveal the identity of a virus. Another virus, influenza, for example, may produce agglutination of the red blood cells. Still others cannot be recognized until material from the infected embryo is injected into susceptible animals. Occasionally, however, characteristic changes do not show up in the embryo, and the growth of the virus escapes notice.

In an effort to find other means of identifying the presence of little-known viruses the International

Health Division Laboratories are experimenting with a tracer technique, using a radioactive isotope of phosphorus, P_{32}. The idea is to inject the substance into various parts of the developing egg to see if its transport to other parts is affected by the presence of virus. Radioactive properties of the isotope provide a visible tag on its progress.

First of all, P_{32} was injected into healthy eggs to note the normal reactions to phosphorus. It was found that the allantoic membranes tend to retain the phosphorus and will also receive it when introduced by other routes. Contrarily, the amniotic membranes neither retain nor receive the element. To find out whether virus makes any difference in this pattern the experiments were repeated with infected eggs. In the case of the influenza virus results were strikingly different. P_{32} introduced into the allantoic sac no longer remained concentrated there but rapidly diffused to other parts, particularly the blood stream.

As far as the experiments have gone, influenza has a more potent effect on the dispersion of phosphorus than any other virus. Mumps virus shows an influence, but to a lesser degree, whereas yellow fever virus has no apparent effect at all. At present work is going forward on throat washings from various undetermined respiratory infections in the hope of identifying specific viruses.

In view of certain similarities between yellow fever and dengue, as well as their rather peculiar geographical distribution, a more critical investigation of the

immunological relation of the respective viruses is also in progress.

Clinical influenza was rare and sporadic in the winter of 1948. The only strain isolated in the New York Laboratories was an influenza A type, similar to most of the 1947 strains, but markedly different from those isolated in the United States in previous years. In the course of work on factors influencing strain variations, it was found that serial passage of a strain in chick embryos, in the presence of homologous antiserum, produces a measurable change in its antigenic behavior. It is thought that similar processes may possibly operate to produce virus strain variants in nature.

A state-wide epidemic of influenza A occurred for the second time within a year in California. Six virus strains which were isolated proved closely related to two A-prime strains isolated in 1947. Experimental vaccines gave poor results, exhibiting further evidence of the marked strain variation in the influenza A virus.

In keeping with the increased importance attached to the rickettsial group of diseases the laboratory of the California State Department of Public Health, which receives support from the International Health Division, is now designated as the Viral and Rickettsial Disease Laboratory. The large numbers of specimens received from California, the neighboring states, Hawaii and various other Pacific islands constitute a valuable source of materials for research in

the fundamental aspects of diseases of viral or rickettsial origin.

PUBLIC HEALTH PRACTICE

The doctrine that the control of diseases is a communal responsibility was first broached about one hundred years ago, chiefly in England. During the first part of the ensuing century there was preoccupation both in Europe and in America with environmental sanitation. Quarantine measures, clean water supply and sewage disposal made rapid advances. Then the emphasis changed to measures against specific diseases. This was because epidemics of smallpox, typhus, typhoid fever, cholera and yellow fever swept through large areas, while at the same time a wealth of new medical discoveries was laying the basis for the germ theory of diseases, making possible a rational and scientific attack against them. The means for controlling specific diseases have by now been largely worked out, and the orientation today is toward the application of complete modern health measures by public agencies. Public health today includes both preventive and curative services as well as environmental sanitation carried out at the community level.

The International Health Division, since its founding, has endeavored to assist in the application of organized public health measures. At the invitation of governments in many countries, it has aided in the establishment and development of modern public

health services at both the state and local levels. One of its major interests is in helping to work out the methods and techniques best adapted to local situations, and in experimenting with small health centers which can serve as patterns for projects on a larger scale. It is also concerned with the provision of adequate administrative and laboratory services in central health departments. During 1948 the International Health Division gave support to public health services in Canada, the United States, Latin America, Europe and the Orient. A description of some of the more outstanding programs follows.

Canada

According to Canadian Deputy Minister of National Health G. D. W. Cameron, one of the most important milestones in the history of health planning in Canada was passed in May of this year, with the announcement by the Prime Minister of the new National Health Program. Speaking before the Seventy-sixth Annual Meeting of the American Public Health Association, the deputy minister described the program briefly: "Designed to effect general improvement in the nation's health services, and to prepare the way for a national scheme of health insurance, the program commits the federal government to an additional annual expenditure on health of more than $30,000,000, through grants in aid to the provinces. The new program continues the progressive extension of social security measures that has taken place in Canada during the war and postwar years

. . . it is designed to assist the provinces in a number of fields. It consists of three parts: the first a health survey grant [enabling the provinces to survey their own problems and plan integrated programs]; the second a group of grants covering general public health, tuberculosis, venereal disease and cancer control, mental health, crippling conditions in children, professional training and public health research; and the third, a grant to assist in the provision of hospital accommodations of all kinds. . . . The cooperative planning that is now going on not only between the federal and provincial departments but between the provinces and the voluntary agencies is encouraging evidence of the stimulation that has been provided to the whole structure of Canadian health services."

Over the past 20 years or so the International Health Division has given substantial support to several of the Canadian provinces to facilitate the establishment of public health services. Well-established services, such as the ones which have been developed in Manitoba, British Columbia, New Brunswick, Ontario, Prince Edward Island, Quebec and Nova Scotia, are serving as a valuable foundation for the new Dominion health program. In fact, the new plan is dependent on these services to a very large degree. As the Minister of National Health and Welfare, Paul Martin, explained in November 1947: ". . . health planning can best be done on a local or regional basis . . . the new national plan does not in any way lessen the role or lighten the responsibilities of the individual doctor, dentist, nurse or health

worker . . . [neither does it] lessen the momentum of provincial health services."

Provincial services receiving support from the Foundation during the current year include the Division of Maternal and Child Hygiene, Manitoba; the Divisions of Nutrition and Sanitary Engineering, New Brunswick; the Provincial Laboratories, Prince Edward Island; and the Greater Vancouver Metropolitan Health District, British Columbia.

In addition, the Dominion government has made use of the advisory services of International Health Division representatives. In the years since the war these representatives have cooperated in a number of surveys on official request. One of them, of direct concern to planners of the national health program, was a critical study of epidemiological services throughout the Dominion. More localized surveys were made in Cape Breton Island and Halifax, Nova Scotia. In connection with its program in public health education the International Health Division has also aided the development of the East York-Leaside demonstration health center organized by the Department of Health of Ontario and the University of Toronto.

Latin America

In Mexico, Peru, Bolivia, Chile and several other Latin American countries, operating programs in public health are rapidly becoming a part of the national picture.

Cooperative public health activities in Mexico radiate from a central office in Mexico City known

as the Oficina de Especialización Sanitaria. As a dependency of the Secretariat of Health and Welfare, this office not only supervises the development of new public health methods for Mexico but also coordinates cooperative projects of the government and the International Health Division. In 1948 six training centers and demonstration health units received support from the International Health Division through the office in Mexico City. The most outstanding of these centers is the one in Tacuba, set up primarily as a model health unit and teaching station for the School of Public Health. This year the Federal District took over the Tacuba center from the Director General of Health for States and Territories. The center is thus charged with the responsibility for health services to a much larger population than it previously served.

The International Health Division is collaborating with the government of Peru to carry out a reorganization of the Ministry of Health, as provided by a national law passed in December 1945. The reorganization envisages the gradual transformation of technical services in order to put specially prepared personnel on a full-time basis with adequate salaries and tenure of office. These services will replace highly centralized departments staffed by part-time specialists and functioning independently of one another. The ultimate goal is to establish or consolidate well-rounded rural health programs serving the people of outlying areas. In the ministry itself a new department called the Division of Development of Program

was established in 1948 as the core of the new system. It will supervise well-integrated services for the selection and training of personnel, the control of diseases, the development of rural health services and the promotion of a system of regional diagnostic laboratories through the National Institute of Hygiene. The International Health Division is continuing its support of the Peruvian program through a grant toward the 1949 work of the new division.

The Rockefeller Foundation's first contact with Peru goes back almost 30 years to a successful campaign for the elimination of yellow fever from the coastal belt. Some years later a malaria control program was undertaken in the coastal valleys, and this was followed by the organization of a complete model health service in Ica, an important coastal department made up of four provinces. This year, as a part of the new program, a departmental health service has been started in Arequipa. The Arequipa health service will be the first application on a large scale of the principles developed in Ica. Its director studied in Chile on an International Health Division fellowship.

Yellow fever, malaria, typhus and hookworm disease, the great endemic diseases of Bolivia, have long made serious inroads on the health of populations in rural areas. Each disease is restricted to a definite region. Typhus occurs mainly on the high plateau where three quarters of the people live. Malaria is found mainly on the eastern slope of the Andes, where the high plateau breaks down in a succession of steep gorges and fertile valleys to the Amazon plain.

Yellow fever and hookworm are confined to the vast lowland area of the upper Amazon and Paraná basins, which is larger than France and the Low Countries combined. Recently plague has also occurred in this area.

The special government services developed with support from the International Health Division since 1932 have been merged into a Division of Epidemiology and Control of Rural Endemic Diseases. Early this year the division became involved by an epidemic of louse-borne typhus in the Indian population of the high plateau. As it threatened to spread to La Paz the division set up intensive delousing units with road blocks on all entering highways, thereby bringing the epidemic under control in October. A determined effort is being made to exterminate plague-bearing domestic rats which have gradually invaded the southern portion of the country.

During the past ten years the International Health Division has collaborated closely with Chilean authorities in the development of public health services and the training of public health personnel. It has given active support to the development of the School of Public Health and a model health unit known as the Quinta Normal Health Center. From modest beginnings in 1943 this center has grown into a large and important organization serving the complete health needs of some 75,000 persons in a poor section of Santiago. It is also used as a field training station for public health students in Chile, and from other South American countries. With its staff of 30 full-time workers it is a valuable demonstration of what

Photograph Excised Here

Village watering trough in Crete

Photograph Excised Here

A Brazilian nurse visits a young mother in Araraquara, São Paulo

Bacteriological Laboratory, National Superior School of Nursing, Bogotá, Colombia

Photograph Excised Here

can be done through government supervision and coordination of the various phases of public health activity. This particular health center has served as a proving ground to determine the administrative policies best suited to the needs of Chile. On its model four other centers have been started in different parts of the country.

Finland

The International Health Division is contributing a small fund to the Finnish government for research in the control of venereal diseases. Before the war the venereal disease rates in Finland were extremely low, but during the war there was a sharp increase. The incidence of both syphilis and gonorrhea is now several times as high as it was in 1939. Dr. Tavno Ilmari Putkonen, a specialist in this field, started a small control program in May 1946. Some 350 physicians were given special training in the use of penicillin, and 35,000 cases of gonorrhea have now been treated by this new method. The trained physicians receive penicillin free of charge on condition that they report the follow-up of their cases.

Using the data obtained by these men, Dr. Putkonen has started to analyze the value of penicillin in treating gonorrhea, with special attention to the possibility that penicillin may mask a concomitant syphilis infection.

Netherlands

Before modern techniques of sanitation can be widely adopted in Europe, it is necessary that their

cost be lowered. This is particularly true in the case of sewage treatment. Even in America the high cost of this service has limited its use. In Europe, with its high population density and lower standards of living, sewage treatment is perhaps more essential but is less widely used. A study of the basic problem in European countries appears highly desirable at this time.

The first step in this direction is research, notably on the activated sludge process which gives most promise for development. This process uses complex biological colonies, known as activated sludge, to feed upon and thus remove organic material from sewage.

The amount of work which has been done on the problems of purification by the activated sludge process is, unfortunately, limited. The vast majority of research during the past 25 years has been of the practical variety, carried out in sewage plants. This type of work necessarily is limited by the inflexibility of the plant itself and by the narrow range in which observations are carried out.

The Sanitary Engineering Division of the Netherlands Applied Research Council is one of the first in Europe to undertake basic research in this field. A staff engineer has been assigned to study one phase of the activated sludge process in the Biochemical Laboratories of the Technical University of Delft, under the personal direction of Dr. A. J. Kluyver, an outstanding microbiologist. The International Health Division has aided this study. The Applied Research Council is particularly interested in theoretical meth-

ods for increasing the speed and completeness of the action of sludge upon sewage. Possible methods of increasing the efficiency of purification are under investigation, utilizing plant-produced rather than pure culture strains of sludge.

Egypt

With the object of developing a cooperative program the Egyptian government in 1947 requested the International Health Division to conduct a survey of the medical and public health facilities available in Egypt.

While the establishment of an adequate public health program in any country is dependent on many factors, such as geography, economics and social development, these items assume unusual importance in Egypt. Geographically Egypt is a large barren desert pierced by the Nile River for a distance of 650 miles. A narrow strip along the Nile, varying from a mile in width at the southern extremity to 160 miles at the mouth of the Delta in the north, comprises most of the 12,000 square miles of inhabitable land. Of Egypt's total land area only 3 per cent is productive, and this must support a population of nearly 20,000,000 people. If the present high birth rate of 40 per thousand continues and no new means of expanding the cultivated area or of increasing industrial labor possibilities are found, this country may face a serious problem of overpopulation. In the meantime, even at the inflated postwar level, the rural population, comprising more than two-thirds

of the people, subsists on an income of $6 to $8 per month per family, and the urban group does little better. The social and medical problems implied by such a low economic level are apparent.

In 1948 the International Health Division participated in the organization of a demonstration program in village sanitation and health. It is designed to show that modern health procedures can operate most effectively at the local level and that they can be kept within the economic means of the community and the federal government.

A group of five villages in Calyube Province north of Cairo was chosen for the program. Headquarters are at the rural health unit in Sindabis village. Here as in most other rural areas of Egypt, flies and primitive sanitation have resulted in a high and crippling incidence of infant and adult dysenteries, schistosomiasis and eye disorders. According to the latest vital statistics, diarrhea and enteritis account for 36 per cent of all the deaths in Egypt. The infant mortality rate is perhaps as high as 400 per 1,000 births. Almost all school children suffer from trachoma or acute inflammation of the eyes. Ninety-seven per cent of the population have schistosomiasis.

Early efforts of the staff have been directed toward a survey of the sanitary facilities within each of the five villages and to a family survey of Sindabis. At the same time, routine insect studies such as fly counts, lice and flea studies and mosquito reconnaissance were instituted. The sanitary services which have so far been organized include refuse dis-

posal, DDT house spraying, routine water sampling and the application of fly larvicides within the villages. Sanitary water supplies and sewage systems are to be installed in the near future.

It is the hope of the International Health Division that the health center and surrounding villages can be developed into a model local health service and training unit. Experience within the villages indicates that complete cooperation of the villagers may be anticipated. The people have taken an active interest in the progress of the work and have in some cases initiated sanitary measures of their own accord.

Crete

The Greek government has shown a deep interest in the health of its people. In the past 15 years, during which it has maintained close working relations with the International Health Division, a considerable amount of joint work has been done in malaria and public health education. In 1947 Greek officials and representatives of the Athens School of Hygiene expressed concern over the fundamental problem of maintaining public health activities in communities with low standards of living. Too frequently they find that the economy of underdeveloped areas proves inadequate to support such activities even after they have been firmly established with special funds. A possible solution in the opinion of public health authorities is long-range planning to raise the standard of living simultaneously with the promotion of public health.

The Island of Crete has been selected as the site of an experiment in over-all regional planning. At the invitation of the Greek government, the International Health Division, the Social Sciences and the Natural Sciences of The Rockefeller Foundation are collaborating in a survey of island conditions. The aim is to study the total economy of the island as it is affected by the conditions of agriculture, health, education, industry, transportation and the exploitation of natural resources. Through this integrated approach the directors of the survey intend to recommend a public health program correlated with long-range economic planning. At the same time they propose to develop model survey procedures applicable in other backward regions.

With an area of 3,320 square miles and a population of nearly half a million people, Crete is the fourth largest island in the Mediterranean. While a large part of the island is covered by mountains, from 25 to 35 per cent of the land area is arable. The present economy is predominantly agricultural, with little or no manufacturing. Upland plains provide good pasturage during the summer months, and the lower hills and valleys yield abundant crops of olives, grapes and oranges. Cotton, tobacco, cereals, apples, almonds and carobs are cultivated to a lesser degree. Although Crete is a relatively prosperous region in Greece, agricultural methods are primitive, and bad roads hinder the transport of produce. Public works in general have received little attention.

Data on disease are difficult to obtain as no adequate system of reporting is in operation. Malaria, which used to afflict 40 per cent of the Greek population in epidemic years, has been reduced to a minimum by the DDT control campaign carried out by military authorities, the United Nations Relief and Rehabilitation Administration and the World Health Organization. Tuberculosis rates, however, probably average from 200 to 300 per 10,000 population. As no modern sanitation exists, typhoid is endemic, along with various forms of dysentery and insect-borne diseases. The island is not well supplied with doctors and lacks trained laboratory technicians and nurses.

With the technological, economic and sociological techniques now available Crete presents an opportunity to introduce the full benefits of modern public health.

PUBLIC HEALTH EDUCATION

Aid to education in the field of public health has long been a feature of the program of the International Health Division. Health programs, no matter how well conceived, must be implemented by qualified persons if they are to be effective. Public health education is the cornerstone of public health.

Medical care, a relatively new aspect of public health, is a field with rapidly growing social implications. The educational activities of the International Health Division for 1948 were concerned with the

promotion of medical care education, general aid to schools and institutions of public health and nursing, and postgraduate fellowships for public health workers in all branches and from all parts of the world.

Medical Care Education

In the last three decades there have been notable advances in both curative and preventive medicine. The two fields are drawing closer together, with preventive work increasing in prominence all the time. Preventive medicine and the provision of health or medical care have assumed new importance, largely as the result of a new and broader conception of health as a basic human need. The development and maintenance of physical and mental well-being, as well as the alleviation of illness, is now accepted as the proper function of medicine. And the assurance of such service to all individuals, regardless of financial status, is coming to be recognized as a public responsibility. The adoption of this view has widened the horizons of public health, and consequently public health schools have had to extend their area of operations.

The Johns Hopkins School of Hygiene and Public Health was founded in 1916 with the aid of The Rockefeller Foundation. It has remained one of the most influential institutions in this field, growing through the years to keep pace with new developments. Today it is planning further expansion in order to meet the demands occasioned by the increased scope of public health activities. The school

is now orienting its program toward health care, mental hygiene and public health nursing.

Students today when they return to their public health positions face quite different problems from those encountered by the students of 20 years ago. The social implications of disease and disability have become more evident. The increasing load of responsibility put on health officials by the administration of medical care programs makes it imperative that instruction be changed. Health officers need training in the sociological ramifications of public health and in medical care administration. Plans have already been made to give these subjects a conspicuous place in the curriculum.

Within the new medical care programs, prevention of mental disease should occupy a large role. The mental health units established by many health departments point up the need for specially trained personnel. The School of Hygiene and Public Health has already made a start on this problem through a specialized teaching program, established with financial assistance from the International Health Division. The program is now being put on a permanent basis.

Following up previous efforts to integrate the teaching of public health nursing with courses in general public health administration, the school is increasing postgraduate training facilities for nurses and also strengthening the teaching of public health nursing in the regular Master of Public Health course. Opportunities for supervised field training for public health workers are being expanded in cooperation

with the Eastern Health District of Baltimore City. The school hopes to extend its program of field training into rural areas as well.

All of these new plans are facilitated by a recently established Medical Development Committee, organized and directed by Dr. Lowell J. Reed, formerly director of the School of Hygiene and Public Health, and now vice-president of the university in charge of medical affairs. The committee, composed of the heads of the Schools of Medicine and Hygiene and of the Johns Hopkins Hospital, examines all new plans in order to coordinate the interests and activities of the sister institutions. This cooperative arrangement has already borne fruit in effecting greater economies and efficiency.

The Johns Hopkins School of Hygiene and Public Health has had the continuous support of The Rockefeller Foundation since its founding. From 1916 to 1947 the Foundation provided a total of over $8,000,000. The new program, of cardinal significance in the furtherance of public health, is a costly one, requiring $150,000 a year over and above present funds. The university is, however, firmly convinced of its validity, and has undertaken to provide one half of this amount. In 1948 The Rockefeller Foundation, through the International Health Division, granted the additional $750,000 to enable this work to go forward over a ten-year period.

The International Health Division in 1948 made two additional grants to increase training opportunities for medical care administration, one to the

University of Toronto and the other to the University of California.

In Canada there is recognition of the need for facilities to train physicians and others in the administration of medical care programs. At present no such facilities exist, and there is a shortage of well-qualified personnel. Nevertheless, there has been considerable development of plans for prepaid medical care by both official and voluntary agencies. Planning of this sort has been greatly encouraged by the Canadian government's new national health program, in which all of the provinces except one have indicated their desire to participate. Provincial governments and medical associations, the Canadian Blue Cross and many large industries have all offered plans for comprehensive medical and hospital care. As these plans are put into practice the need for trained leadership becomes more urgent.

The School of Hygiene of the University of Toronto, with the aid of an International Health Division grant, is planning to incorporate instruction and studies in medical care administration in its curriculum. In addition to giving instruction in the mechanics of administering medical and hospital services the school will attempt to relate the teaching of medical care administration to the teaching and practice of groups already furnishing medical treatment services, namely, public health workers, hospital workers, and physicians and dentists in private practice. The course should be of help to candidates for the Diploma in Public Health as well as specialists

in medical administration. It is hoped that the program will broaden the view of workers in all branches of public health and will lead to fuller appreciation of the possibilities and difficulties of better integration of health services.

The School of Public Health of the University of California has also taken steps to broaden its curriculum with regard for the mounting social implications of medical care. This year support of the International Health Division for expansion of the school's Department of Public Health and Medical Administration was continued.

The curriculum for 1949–50 has been extensively revised, and several new major subject areas have been added. Two of these are in the undergraduate field. The first, in public health education, is designed to prepare students for junior health education positions with governmental or voluntary agencies, or for postgraduate study in health education. The other is a major termed pre-administration, which should prepare students for positions as administrative assistants in health departments, junior executive posts in hospital, medical care and health insurance plans and in voluntary agencies, or for graduate study in hospital administration.

The graduate courses of study are also being reorganized in keeping with the tendency to consider the fields of public health practice, medical care administration and hospital administration as one over-all organizational and administrative problem. No student will receive the Master of Public Health

degree without having had a comprehensive view of the entire public health field. Specialists in any one division will have a good working knowledge of the others and will be aware of the interrelationship between them. In line with this, the entire group of administrative courses in the Master of Public Health program will in a sense prepare for the field of medical care administration. The differentiation between the curricula for the three fields will be largely one of slanting toward the particular specialty.

In addition, two very definite projects in the practical aspects of medical care administration are planned. The first involves a visit to several of the outstanding medical cooperatives and health insurance programs in the State of Washington, a leader in the field. The second project is a similar study of the Ross-Loos Clinic in Los Angeles. The experiences and materials to be gained through both investigations should be of value in helping the school to develop its new curriculum along sound lines.

Schools of Public Health Abroad

The 1948 program of the International Health Division in public health education included aid to schools in South America, Europe and Asia as well as North America. Support was continued to institutions in the Netherlands, Sweden, Yugoslavia, Poland, Great Britain, Norway and the Philippines. Grants were renewed for the University of Chile School of Public Health and the National Institute of Health in China, while assistance was given for the first time

to the National School of Hygiene, Bogotá, Colombia, and the University of Rome Engineering School.

The Institute of Preventive Medicine in Leiden, affiliated with the Medical Faculty of the University of Leiden, is one of the most important institutions in Holland engaged in the teaching of preventive medicine. Courses are given for undergraduates, medical officers and sanitary engineers. A diploma in public health is awarded to graduate students after two years of study, one of which is spent in field practice. In addition, the institute conducts a considerable amount of fundamental research. In 1948 a grant from the International Health Division enabled the school to purchase much needed books, chemicals and laboratory apparatus in the United States.

The International Health Division has been collaborating since 1943 with the University of Chile, the National Department of Health and the Bacteriological Institute in the creation and maintenance of a School of Public Health in the University of Chile. Although originally intended as an agency for preparing technical personnel in the public health services of Chile, the school has also trained inspectors and physicians from Bolivia, Peru, Paraguay and Uruguay. It has met with considerable success, but the faculty feels that there is room for improvement and is making every effort to better its program. The International Health Division is continuing in an advisory capacity and in addition has granted financial aid for 1949–50.

The development of Italian teaching facilities in public health engineering is being furthered by an International Health Division grant to the Engineering School of the University of Rome. At present there are practically no opportunities for study in public health engineering in Italy, and engineers desiring to enter the public health field must either go abroad for training or try to work as best they can without it. The proposed department at the University of Rome will function in cooperation with the Superior Institute of Hygiene, so that instruction will be given to engineers in the medical and biological aspects of public health and to medical students in the fundamentals of public health engineering. The university is appropriating an amount considerably greater than the contribution of the International Health Division towards the establishment of the new department. It is hoped that the project will lead to permanent development of public health engineering in Italy.

The National Institute of Health, China, has received assistance from the International Health Division since 1940. In 1948 a grant was made to permit the work of the institute to continue during 1949. Inflation and political unrest in China have hampered the operations of the institute, but an attempt is being made to carry on in spite of difficulties. Activities of the institute aided by the Division's contribution include nutrition studies, biological standardization work, schistosomiasis studies, sanitary chemistry, the collection of vital statistics,

training of nurses and other public health personnel, purchase of laboratory animals and equipment, and purchase of journal subscriptions and books.

Schools of Nursing

Throughout the world there is a rising interest both in improving the quality and in extending the scope of nursing education. The shortage of nurses, accentuated by the recent war, undoubtedly has contributed to this, but other factors have had an influence also.

Foremost of these is perhaps the growing acceptance of full professional status for nurses, which in itself implies higher standards of education and selection of students. Furthermore, the medical world now acknowledges freely the indispensability of skilled and well-trained nurses in the practice of medicine and public health. Medical men are also coming to realize that the nurse is needed and must be trained in an ever growing list of specialities. The ability to give care to the acutely ill remains an integral part of nursing work, but it is no longer the whole of it. Nurses are needed in psychiatry, physiotherapy, disease prevention, welfare work and a host of other new fields.

In public health the nurse has an especially vital function to fulfill. She is the connecting link between the individual and the health specialist. In many instances she is the executor of the health officer's policies, and the attitude of the people in regard to public health measures depends in considerable de-

gree on the way in which the public health nurse carries them out.

The present vigorous concern of private organizations and governments with the advancement of nursing is one of the most promising developments in medicine and public health today. The International Health Division nursing consultants have been and still are working with health officials in India, Egypt, Turkey, Iran and in South America and the Caribbean countries in an effort to improve nursing education systems in those regions. Aid was continued to schools of nursing in Switzerland, Sweden, Denmark, Finland, Ecuador, Venezuela, Norway, Yugoslavia, Poland and Colombia.

The School of Nursing, Bogotá, Colombia, has received support from the International Health Division since its creation in 1943. It is one of the leading schools in South America and has been of value in improving the quality of medical service in Colombia by providing skilled nurses. In 1948 the International Health Division renewed its assistance with a grant to help the school enlarge its curriculum through the establishment of a psychiatric teaching unit in the Women's Mental Hospital in Bogotá.

A new project of the International Health Division in the field of nursing education is in aid of the National School of Nursing in Ceylon. Public health services in Ceylon have developed to quite a high level, except in regard to nursing. Government health officials and leading private practitioners are agreed that one of the first steps that must be taken to

remedy this condition is reorganization of the nursing school at Colombo. In so doing they hope to attract more and better-qualified candidates and to modernize the curriculum so as to emphasize the preventive and social aspects of medicine and nursing. The International Health Division's grant will enable the school to have the supervisory services of two American nursing specialists for four years to get this program off to a sound start.

Fellowships and Travel Grants

In 1948 the International Health Division continued its well-established policy of assisting public health education through fellowships for public health workers to study outside their own countries. Fellowships were granted to 130 individuals from 33 countries on every continent. Among them were 63 physicians, 37 nurses, 17 sanitary engineers and 13 other specialists. One hundred and twenty-three of them studied in the United States and Canada, two in Mexico, two in Finland and one each in Chile and Switzerland. Travel grants were made to 31 persons from 17 countries. The entire program is helping to make it possible for public health experts from all parts of the world to learn about work done in countries from which they were isolated because of the recent war.

THE MEDICAL SCIENCES

THE MEDICAL SCIENCES STAFF

During 1948

Director

ALAN GREGG, M.D.

Associate Directors

ROBERT A. LAMBERT, M.D.[1]
WADE W. OLIVER, M.D.

Assistant Directors

ROBERT S. MORISON, M.D.[2]
DANIEL P. O'BRIEN, M.D.[3]
ROBERT R. STRUTHERS, M.D.

[1]Resignation effective October 3, 1948.
[2]Appointed Associate Director, effective January 1, 1949.
[3]Resignation effective June 30, 1948.

THE MEDICAL SCIENCES

THE MEDICAL SCIENCES

IN 1948 the program in psychiatry, neurology and physiology again occupied a prominent place in the activities of the Medical Sciences. The Foundation encouraged the orientation of medicine in general and psychiatry in particular toward the study of health and normality with grants to Harvard University for studies in personality and in student health, and to the Child Research Council of Denver for research in child development. Grants were made to a group of institutions in the United States and abroad to support research in various aspects of the basic biology of mental disease. The division allocated funds to two medical schools for general support of their departments of psychiatry, and to Princeton University for research in the psychology of perception. Closely related to the psychiatric program were two grants in genetics, one to the University of Copenhagen for study of the hereditary factors involved in mental defectiveness and the other to Harvard University for a genetic study of the Navaho community at Ramah, New Mexico.

Substantial grants to two medical schools in the United States furthered the specialty of dermatology. Other projects supported include a study of medical

student selection at the University of London, a survey on public attitudes in regard to animal experimentation by the National Society for Medical Research, and a project in the coordination of voluntary health agencies. The Foundation gave assistance to one medical school for improvement of its animal house facilities and to a leading Negro medical school for general support.

The grants in aid to some extent reflected the division's interest in psychiatry and related subjects, many of them, whether for travel and study, purchase of equipment or research directly, being in those categories. However, both fellowships and grants in aid continued to be awarded in a diversity of fields and among men of many countries. Foundation funds permitted well over 100 persons to travel and pursue advanced study in their specialties either in the United States or some country other than their own. Relatively small grants in aid gave stimulation to research abroad by enabling schools and other institutions to acquire badly needed supplies and equipment purchasable only with dollars.

PSYCHIATRY, NEUROLOGY AND PHYSIOLOGY

HARVARD UNIVERSITY

PSYCHIATRY

Harvard University has received a six-year grant of $74,880 for teaching and research in psychiatry at the Harvard Medical School under the direction of Dr. Stanley Cobb, chief of the Psychiatric Service

and head of the Department of Neuropathology. This brings the Foundation's support of the psychiatric program at Harvard Medical School and the Massachusetts General Hospital to a total of $896,880 since 1933.

The first grant to Harvard Medical School and Massachusetts General Hospital in 1933 was for the purpose of setting up a new kind of psychiatric service. Until that time, institutional psychiatry had been practiced and taught almost entirely in hospitals remote from medical schools and scarcely related to the practice of medicine as a whole. This isolation contributed to the failure of psychiatry to develop the scientific progress characteristic of other medical specialties. Furthermore, increasing knowledge of the strictly organic aspects of disease had resulted in neglect of the emotional disturbances which frequently accompany and contribute to illnesses as they are observed in general hospitals. The establishment of an active psychiatric service in a general hospital was intended to correct these defects. The plan has since been copied by many other medical schools and hospitals. Many of the key personnel in the new units received their training under Dr. Cobb at Harvard.

The new funds are to provide stable support for teachers and research workers in the junior professorial ranks for the remainder of Dr. Cobb's tenure. It is hoped that at the end of that time the university, the hospital and other outside sources will be in a position to assume complete financial responsibility

for the department. The grant terminates The Rockefeller Foundation's support to one of the pioneer efforts to show the value of a psychiatric department in a general teaching hospital. The example set by the Harvard-Massachusetts General Psychiatric Service has been and may continue to be a valuable stimulus in the growth of psychiatric teaching and the hospital study and care of emotional disorders.

Western Reserve University
PSYCHIATRY

The School of Medicine at Western Reserve University, Cleveland, has recently been undergoing a rapid development. As part of this growth, the Department of Psychiatry has been completely reorganized and considerably expanded under the leadership of Dr. Douglas D. Bond. Dr. Bond, who served as psychiatrist to the Eighth Air Force during the war, has stressed the teaching and research functions of the department in his reorganization program.

Dr. William K. Jordan is head of the department's new research division, which is engaged in both clinical and laboratory work. Already under investigation are the physiology of insulin shock treatment and the possible role of male and female sex hormones in various psychiatric disorders. Several of the basic science departments, notably biochemistry, are anxious to develop cooperative research programs in the basic biology of mental disease. Such fundamental research is of great importance to the

continued progress of psychiatry; Dr. Jordan proposes to undertake several studies along these lines.

Under the increased teaching program the department participates in the training of medical students, interns and residents at Cleveland State Hospital and the Crile Veterans Administration Hospital, as well as at University Hospitals. Fellowships for advanced workers are available at University Hospitals. Instruction at all three institutions is closely coordinated and supervised by the department. Courses in psychoanalysis and child psychiatry and psychiatric training for social workers and nurses are also offered.

The emphasis on academic matters does not mean that clinical services are being neglected. On the contrary, they have been extended and thoroughly integrated with the general treatment program of University Hospitals. But Dr. Bond believes that the department's most important purpose is to serve as a research center and training organization. The psychiatric needs of the Cleveland area, as of other regions, are great and are likely to become greater. In the long run they will be met best by an increase in psychiatric knowledge and in the numbers of trained psychiatrists. The Rockefeller Foundation's grant of $70,000 is for the support of the department's research division for five years.

Johns Hopkins University
PSYCHIATRY

For the past 15 years The Rockefeller Foundation has been supporting research in psychiatry at the

Johns Hopkins University School of Medicine through grants totaling $529,100. The program was first under the direction of Dr. Adolf Meyer, and is continuing under his successor, Dr. John C. Whitehorn. The original grant in 1933 was one of the first made by the Foundation for work in nervous and mental diseases. Since then, the department has been conducting significant research.

The work has followed three general lines: Dr. Leo Kanner works in the children's clinic on problems of child behavior. Dr. Curt Richter has been principally engaged in a long-term study of appetite and other physiological drives. Perhaps best known is his demonstration that laboratory rats, given free access to a variety of pure foods, will select from them a completely balanced diet which varies directly with varying biological needs. Dr. Horsley Gantt, who studied for several years in Russia with Pavlov, continues his work as one of the few contemporary students of the conditioned reflex. One of his principal interests is the adaptation of conditioned reflex techniques to the diagnostic study of human patients.

The group has found a firm place within the regular university budget. The university takes care of major salaries. Additional outside support is becoming increasingly available. The Rockefeller Foundation has appropriated $100,000 as a terminal grant to the department. The grant is intended as a stabilization fund, expendable at the department's discretion, during the transition from Foundation support to a time when the university can assume entire responsibility.

UNIVERSITY OF OXFORD

NEUROHISTOLOGY

The phenomenon of pain has since earliest times interested scientists and laymen alike. This is only natural in view of the frequency and variety of pain. Most descriptions and theories of pain, however, are based on subjective observation. Because of the complexity and intricacy of the nervous system the existent body of accurate knowledge about the exact mechanism of pain is far from complete.

One of the keys to better understanding of painful sensations is fuller information on the microscopic anatomy of the structures involved. Such information has been very hard to obtain because the extremely minute elements of nerve cells and fibers do not stain easily, and hence are not readily visualized. Details observed in one preparation frequently could not be brought out again in another. This problem is now being solved. Dr. Graham Weddell of the Department of Human Anatomy, University of Oxford, has developed a new intravital stain technique for nerve tissue, using the dye methylene blue. This dye is specific for nerve cells. That is, when injected into living tissue, it stains nerve cells exclusively or much more deeply than any others. When the tissue is then examined under the microscope, the nerve cells are clearly defined. Although Ehrlich introduced methylene blue as a neurohistological stain many years ago, it remained for Dr. Weddell and his colleagues to modify and refine

its use so that highly complete and reproducible results are obtained.

The new technique has already been of great value. With it, Dr. Weddell and his associates have been able to correct certain errors in the previous conception of the distribution of sensory nerves in the skin. Study of the nerve supply of muscles and of the spinal and cerebral pathways of sensory impulses, using the new method, has shed much light on the clinical aspects of nerve injuries. A large and promising field for more detailed investigation of the relationship between neural anatomical patterns and motor and sensory nerve functions has been opened up.

Plans have been made to improve the new methylene blue technique and to extend its usefulness. A number of extremely technical studies on the neurohistology of normal animal tissues, the degeneration of central nervous system fibers and the organization of sensory cells are projected. The investigation of pain is progressing along electrophysiological and clinical routes as well as along histological lines. The integration of all three approaches should provide some of the answers to the how and why of pain. A grant of $83,025 has been made to support the researches of Dr. Weddell and his collaborators for a period of five years.

Cardiff City Mental Hospital

BRAIN CHEMISTRY

The Cardiff City Mental Hospital, the principal psychiatric hospital in Wales, is closely associated for

teaching purposes with the National Welsh School of Medicine. It was taken over and used as an emergency hospital during the war, but plans are now under way to build up the hospital as a neuropsychiatric research center combining laboratory and clinical research and as a regional center for all mental hospitals in Wales.

Dr. Derek Richter has succeeded Dr. Juda Quastel, whose researches at the hospital in the past were aided by The Rockefeller Foundation, as director of the biochemistry laboratory. This laboratory is supported by the British Medical Research Council as well as by the hospital. Dr. Richter and his colleagues have been conducting investigations in the biochemistry of normal and pathological brain tissue, particularly the enzymes of nervous tissue and their alteration in disease. At present he is attempting to correlate mental disorders with biochemical changes in the brain; such changes have already been demonstrated in experimental animals as a result of disturbed emotional states and electric shock therapy. Radioactive tracer methods are being utilized, and a technique recently devised by Dr. Richter permits the isolation in quantity of the nuclei of cerebral cortex nerve cells, thus opening many opportunities for the study of nuclear physiology and biochemistry in health and disease. Dr. Richter proposes to continue his present work and to undertake a special investigation of irritability or excitability in the central nervous system. The investigation is to be a comprehensive one and will include study of the ef-

fects of drugs and of the physiological and endocrinological factors which influence this phenomenon.

It is the opinion of many persons that the solution of at least a part of the mental disease problem is to be found in better understanding of the fundamental biochemistry of nervous activity. The Foundation in 1948 appropriated $36,450 for five years to provide additional personnel for the continuation and expansion of Dr. Richter's research in this field.

Karolinska Institute
NEUROPHYSIOLOGY

Dr. Carl G. Bernhard and Dr. Carl R. Skoglund of the Karolinska Institute, Stockholm, have for some time been conducting studies in the basic physiology of the spinal cord. Largely as a result of their work, the institute is now embarked on an expanded program of neurophysiological research.

The new building of the Institute of General Physiology of the Karolinska Institute provides Dr. Bernhard and Dr. Skoglund with excellent laboratory space and equipment for the continuation of their investigations. The Rockefeller Foundation grant of $9,120 over a two-year period is to enable both these capable and productive men to devote all their time to research work.

Institute of the Pennsylvania Hospital
NEUROPHYSIOLOGY

Both clinical and fundamental neurophysiological research at the Institute of the Pennsylvania Hos-

pital, Philadelphia, have received new impetus as a result of the establishment of a research division, with Dr. Per Olof Therman, formerly of the University of Helsinki, as full-time director. The hospital, which is affiliated with the University of Pennsylvania School of Medicine, plans to have all of its young physicians in training spend a part of their period of service doing research under Dr. Therman's direction. The laboratory equipment has been redesigned and modernized by Dr. Therman, and space is adequate for an expanded research program.

Dr. Therman's work is concerned with the intrinsic properties of peripheral nerves and their effect on patterns of organization of the central nervous system. He is particularly interested in the comparative physiology of the nerves supplying flexor muscles (those whose contraction bends a joint) and those supplying extensors (whose contraction straightens out a joint). Smooth muscular action is dependent on perfect coordination of the two sets of opposing muscles; when one set is called into play, the other or opposing set must relax. The nervous system provides the necessary controlling action by means of the phenomenon known as reciprocal innervation. Some of the tensions and tremors of neurotic patients will be at least partially explained by a better understanding of the operation of this coordinating mechanism and the disturbances that occur in it. The Foundation's grant of $10,000 over a three-year period will enable Dr. Therman to carry on his fundamental physiological investigations.

Harvard University

STUDENT HEALTH

From 1938 to 1942 the Department of Hygiene of Harvard University (comparable to the department of student health at other universities) conducted a special study of 262 well-adjusted undergraduates. The study, under the auspices of the Grant Foundation, was directed by Dr. Arlie V. Bock. Its purpose was first to observe a sample of presumably normal young men in terms of anatomical, physiological and psychological measurements and to obtain psychiatric, hereditary and sociological descriptions. Secondly, it was planned to test the predictive value of such observations in regard to the academic records and later life experiences of the subjects. The war made continuation of the study difficult, but 252 men are still available for follow-up.

Education is at present receiving a great deal of attention. Therefore it is reasonable to begin to learn more about the healthy and apparently normal students for whose education such large amounts of effort and money are being spent. Dr. Bock's study has made a start in this direction. Continuing re-evaluation of the subjects should add to the completeness of the project. Even if the original records prove to have little predictive value, the unfolding careers and medical histories of the group will undoubtedly show much that will be of definite use in future long term studies of college men. The Rockefeller Foundation has granted $10,000 for one year

toward the support of this work. The remainder of the necessary funds will be supplied by the university.

HARVARD UNIVERSITY

PERSONALITY DEVELOPMENT

The Rockefeller Foundation granted $54,000 over a three-year period to Harvard University for research in the dynamics of personality development under the direction of Professor Henry A. Murray, Jr. Dr. Murray has inaugurated a number of concrete methods for studying personality, notably various projective tests in which an individual's personality is revealed by his interpretation of a picture, musical fragment or some other similar stimulus. One such procedure, the Thematic Apperception Test (TAT), is now widely used in clinical psychology. During the war Dr. Murray originated several methods of selecting personnel for the Office of Strategic Services.

In psychological literature to date there is very little precisely formulated information on the desirable goals and aspects of human life. Most research in the past has dealt with variations from the normal or the ideal; the emphasis has been on physical and mental illness and abnormal mental states and behavior patterns. One of the aims of Dr. Murray's present research program is to remedy this unfortunate imbalance, and to attempt to establish the factors responsible for effective and happy living.

Dr. Murray will test a large number of subjects of both sexes; the significantly well-adjusted individuals will then receive intensive examination and careful

study comparable to that heretofore reserved for the mentally distressed. Examination of the relationships between college roommates may provide definitions of some basic principles of friendship. Analysis of recordings of group discussions on debatable sociological topics has been selected as an effective means of determining the essentials of cooperative thinking. Detailed investigation of the psychology of the imagination in healthy and sick persons is planned, including the identification of the imaginal themes occurring in patients with gastric ulcer, colitis, hyperthyroidism, hypertension, bronchial asthma and stuttering. These results, together with data obtained from a survey of TAT material furnished by psychologists throughout the country, are to be the basis for a new manual for TAT workers, which will standardize means of interpreting test responses. Other work includes research on the theory and practice of personality assessment and construction of a system of personality classification more comprehensive than those now in existence.

The preoccupation of most modern writers and psychologists with the psychopathic and psychoneurotic has left people today with proportionately fewer images of human excellence. The absence of well-defined conceptions of the desired achievements of physical and mental health, friendship and cooperation also seriously handicaps therapists. Dr. Murray's program, concerned as it is with the constructive and positive side of human behavior, aims

University of Pennsylvania skin virus laboratory at Children's Hospital Philadelphia

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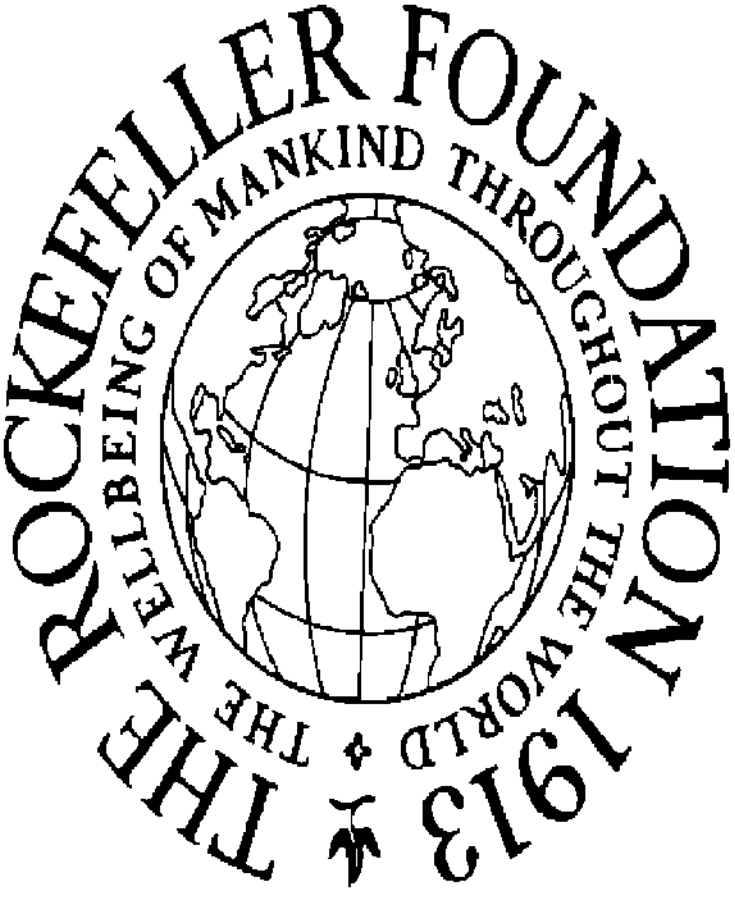
Photograph Excised Here

Child Research Council of Denver: Play as a technique used to reveal personality development



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Animal quarters in the Department of Tropical Medicine at Tulane University School of Medicine

to be of service in clinical psychology and the amelioration of widespread psychological ills.

Child Research Council of Denver

CHILD DEVELOPMENT

The attention of medicine, as well as of psychology, is in the main focused on disease and variations from the usual. There is fairly general agreement on what constitutes disease, but as yet no uniformly accepted definition of normality exists. Dr. Alfred H. Washburn, director of the Child Research Council of Denver, and his associates are convinced that the answer lies in a thorough understanding of the whole life cycle of the human organism during growth and development. With this in mind, a group of physicians, anthropologists, psychologists, biochemists and other specialists under Dr. Washburn's direction has for a number of years been making a systematic study of children from infancy to adulthood.

The study is directed at the children as individuals and at all the characteristics of each child in an attempt to determine what is normal *for each* in body, mind, temperament and social relationships. The examinations thus fall into three categories: 1) physical characteristics, such as weight, height, chest depth and hip width; 2) functional or physiological characteristics, including basal metabolism, heart rate and muscle ability and coordination; 3) psychological characteristics, principally mental growth as it is reflected in the intelligence quotient (I.Q.),

personality measurement using mainly the Rorschach ink-spot tests, and evaluation of the child's school, home and other environments. The information obtained is all correlated, and from it is emerging a clear picture of normal and aberrant growth and behavior patterns. In addition, much immediately useful knowledge has been gained. For instance, it was noted that mental growth does not proceed uniformly. Most children slow down at about the fifth year and show a period of relatively low I.Q. until about the seventh year. Widespread recognition of this important fact may modify the present frequent practice of deciding a child's place in school by his I.Q. at the first or second grade level.

The long-term nature of Dr. Washburn's work is particularly significant. Childhood characteristics are important to study chiefly in the way they relate to the future happiness and health of the adult. The completeness of the data gathered by the council and the length of time covered by them permit a fairly accurate assessment of the factors determining the total character and personality of a mature individual.

The Rockefeller Foundation has aided the work of the Child Research Council of Denver since 1939. This year a grant of $125,000 over a five-year period was made.

Princeton University

Psychology of Perception

Physical science has progressed to its present advanced state by means which have circumvented the

fact that no two human beings see the world in exactly the same way. Scientists have devised methods of observation with criteria so clear as to result in substantial agreement among a variety of experimenters. These methods, however, are not always applicable to the study of the nature of man himself. The understanding of man's emotional life and social behavior is probably very closely interwoven with the problems of perception. And in this realm it is the subjective differences ignored by physical science which may be most significant.

For a number of years the Foundation supported the research of Professor Adelbert Ames of the Dartmouth Eye Institute in the field of visual perception. Professor Ames has invented many new techniques and pieces of apparatus for exploring the formation of individual perceptions and judgments. His observations have stimulated other investigators in a wide range of fields. At present the Department of Psychology at Princeton University, under its new chairman, Professor Carroll C. Pratt, is adapting Professor Ames' devices to the quantitative study of visual perception.

It is well known that perceptions are the result of a synthesis of a great many different sensory data, such as color, space relationships and brightness. The weighting given to each depends, among other things, upon the individual's past experience and future purposes. Dr. Pratt's group intends to determine how much weight a given individual attaches to each of the several elements which compose a

single perception. Results of such work promise to be of two sorts. First, one may expect further evidence on the theoretical question of how it comes about that different people make different judgments when confronted with the same stimuli. On a more practical level clinical psychologists could use the tests in quantitative estimates of personality traits.

The Rockefeller Foundation has granted $45,000, available for three years, to aid this project in the psychology of perception at Princeton University under the direction of Dr. Pratt.

DERMATOLOGY

University of Pennsylvania

It is a matter of common knowledge among medical men that the specialty of dermatology has been permitted to suffer from the lack of the application of the methods of medical science. The very ease with which skin lesions can be observed has perhaps discouraged the development of refined measurements and experimental techniques. Relatively few skin diseases result in dramatic emergency, a fact which to some extent may have deterred brilliant and enterprising young men from entering the field. Whatever the explanation, the situation is unfortunate. Diseases of the skin not only cause endless distress through disfigurement and discomfort but frequently reflect disorders of the whole body. Increasingly they are being recognized as signals of emotional disturbance. Early diagnosis and effective treatment of der-

matologic lesions might serve to head off disorders of more serious consequence.

However, the status of dermatology is now improving. In the recent war it was revealed that 15 to 70 per cent (depending on environmental conditions) of military disability was due to skin disorders. This disclosure has stimulated a number of able young men to enter the dermatological field. Developments in the basic sciences of bacteriology, mycology, biochemistry and physiology are providing new and improved methods for investigating the functions and disturbances of the skin.

One of the most promising departments of dermatology is that at the University of Pennsylvania School of Medicine, Philadelphia. In the two years of Dr. Donald M. Pillsbury's chairmanship, both clinical and research facilities have been enlarged. There is an affiliation with the Skin and Cancer Hospital of Philadelphia, a well-equipped institution of about 50 beds. The department also has at its disposal some 15 beds at the Hospital of the University of Pennsylvania, which also conducts a large outpatient department. Relations with other clinical specialties are close, and the consultation service provides a wide range of conditions useful in graduate teaching and research. Space for research laboratories and offices is provided by the School of Medicine and the Skin and Cancer Hospital. In addition, research in virus diseases is carried on in conjunction with the excellent laboratories at the Children's Hospital. Promising projects are already under way on the ba-

sic physiology, biochemistry, pathology and microbiology of the skin.

A large part of the department's income comes from temporary funds for medical research, which has made it difficult to offer secure posts to relatively advanced men. It is precisely such men, however, who are needed for the growth and progress of the dermatological program. The Rockefeller Foundation grant of $100,000 outright is intended as a guarantee or buffer fund, to be husbanded in prosperous years and expended in lean ones. With an adequate income thus assured for from five to ten years, the department expects to provide four permanent positions at a salary level of $4,000 to $6,000 each.

Harvard University

The specialty of dermatology is being advanced at Harvard Medical School also. Prompted by the retirement of the former head of the department, the school recently reviewed the entire question of teaching and research in this field, in order to determine what, if any, changes might be desirable.

The committee appointed to choose a new professor found it unwise to recommend a continuation of the old pattern. Instead, it was decided to establish a new department in close association with the school's Department of Medicine at the Massachusetts General Hospital. Dr. Chester N. Frazier was named Professor of Dermatology and full-time head of the new department. Dr. Frazier, formerly chairman of Dermatology and Syphilology at the Peiping Union

Medical College and until recently head of the Department of Dermatology of the University of Texas, is highly skilled in general medicine as well as in his own specialty. His long experience in organizing research and advanced teaching should be of great value in the reorientation of Harvard's dermatology program.

Development of a scientific foundation for the specialty of dermatology is the core of the program. Undergraduate and graduate instruction is being increased. At least ten of the beds assigned to the Harvard Medical School Department of Medicine at the Massachusetts General Hospital are at the disposal of Dr. Frazier for research purposes. Adequate laboratory facilities have been made available conveniently near the medical wards, and every effort is being made to bring dermatology into close relationship with the more comprehensive discipline of internal medicine. In order to get the new department off to a sound start, The Rockefeller Foundation has granted $100,000, available until the middle of 1955, to Harvard Medical School.

GENETICS

Harvard University

GENETIC STUDY OF THE RAMAH NAVAHO

For several years Dr. Clyde Kluckhohn, Professor of Anthropology at Harvard University has been studying a small group of approximately 500 Navaho Indians living in an isolated community near Ramah,

New Mexico. The Ramah Navaho are now one of the best documented social groups in the United States. There is a comprehensive record of the genealogy, kinship, environmental and economic situation, character structure, behavior and other sociological attributes of the entire population. With the aid of a Rockefeller Foundation grant of $12,000 over a two-year period, Dr. Kluckhohn is now investigating the biological and genetic factors which may be related to the cultural patterns.

The Ramah Navaho are ideal subjects for such a study since, in contrast to most American urban populations, the entire community shares much the same environment in regard to occupation, procedures for child care, home life, education and other activities. However, a fair amount of physical heterogeneity exists. Most important, there is an opportunity to examine not merely a sample of the community, but every individual in the group.

The genetic work is under the supervision of Dr. James N. Spuhler of Ohio State University. It includes formal investigation of both normal (e.g., blood type) and pathological (e.g., albinism) physical variations. The mode of inheritance of many physical characteristics is not entirely understood, and this study hopes to establish additional definite marker genes. A number of physiological traits, such as blood pressure and salivary output, are being analyzed in order to see how much of the variation between individuals is due to genetic factors and how these factors are inherited. The correlating of physiological func-

tions with behavior patterns is expected to yield results of great importance in the field of psychosomatic medicine. Also in progress are a genetic study of body build in terms of Sheldon's theory of the relationship between body types and physical constitution, a physical anthropological survey and a public health survey.

It is becoming increasingly evident that the understanding of both normal and abnormal behavior cannot be approached purely from the standpoint of individual psychology. The reactions of any single human being are not only influenced by his own physical make-up, but are closely interwoven with the reactions of the people around him and the cultural standards of his community. The society as a whole as well as the individual must be explored. Dr. Kluckhohn's project will fill out the gaps in an otherwise unusually complete account of a significant primitive culture. At the same time it will establish principles and methods applicable to the study of more complex, highly civilized groups.

University of Copenhagen

GENETICS OF MENTAL DEFECTIVENESS

The University of Copenhagen has received $21,120 over a five-year period for support of the work of Dr. Tage Kemp in the genetics of mental defectiveness. Dr. Kemp is director of the university's Institute of Human Genetics, whose establishment in 1936 was aided by a Rockefeller Foundation grant. The International Center for Medical Genetics, until

recently in London, is now located at the genetic institute here in Copenhagen.

Medical genetics is making more rapid progress in the Scandinavian countries than in any other part of the world. This is due in part to the unusual opportunities for genetic work that these countries present. Their populations are stable, and in line with their advanced social organization they have developed complete and accurate medical and public health records. Furthermore, additional information needed for any particular study may be readily obtained because of the small size of the area and the excellent means of communication. The institute at Copenhagen, which enjoys the close cooperation of the Danish government's Department of Vital Statistics, is one of the most promising institutions devoted to genetics. Its files contain complete medical information on upwards of 145,000 individuals.

In connection with the general work of the institute in recording the familial incidence of a large number of medical conditions, Dr. Kemp has given special attention to defects in the development of the central nervous system. At present he is concerned with a special analysis of Mongolian idiocy. This distressing congenital defect, although relatively common, is not very well understood. It is characterized by an apparent (but not actual) slant of the eyes, a small head, prominent tongue, weak, flabby muscles and frequently a heart lesion. The children display the mental signs of idiocy and are usually rather docile. Mongolian idiots do not as a rule live long because of

their defective hearts and other physical weaknesses. There have been a few cases of Mongolian idiocy in the Negro race and several cases in the Chinese people, where the Mongoloid features were exaggerated along with the other physical signs. The disease usually occurs among whites, however, and it is not known why the regressive mental state in a child born of Caucasian parents should be associated with Mongoloid features.

At present the evidence suggests that Mongolian idiocy is primarily hereditary in origin, but that in some measure it is a result of certain environmental influences during prenatal life. Dr. Kemp is investigating both aspects of the subject in his present detailed study. Further work is important not only for better understanding of Mongolian idiocy itself but also for clarification of the general problem of mental development.

MEDICAL EDUCATION

UNIVERSITY COLLEGE, UNIVERSITY OF LONDON

MEDICAL STUDENT SELECTION

While the need for medical care increases, facilities for the education and training of physicians remain both limited and costly, making it vitally important that schools succeed in choosing the men most fitted for medicine from among their applicants. As a result there has been a great deal of interest recently in the study and revision of the methods of medical student selection.

In 1948 The Rockefeller Foundation granted $20,250 for a five-year period to Dr. John Z. Young, Professor of Anatomy at University College, London, in support of a program designed to improve procedures for medical student selection. With the cooperation of Professor Frederick C. Bartlett of the University of Cambridge and Dr. M. L. Johnson, Dr. Young proposes to examine the correlation between the scores on various selective examinations and the later academic and professional records of the students. Where tests are found to be ineffective new ones will be devised.

Dr. Young is concerned also with the failure or inadequacy of school courses supposed to train powers of observation and reasoning. The teaching of basic medical sciences will therefore be reviewed; new techniques, based in part on advances made during the war in the utilization of visual and auditory aids, will be developed where the old ones are not satisfactory.

Many institutions both in the United States and abroad have considered the subjects of student selection and methods of instruction in a general way. Dr. Young's group renews along fresh lines a systematic investigation of these topics. The results of his study are certain of a wide and receptive audience.

Meharry Medical College

CURRENT EXPENSES

The cost of medical education has been increasing steadily throughout the country. It has grown especially rapidly at Meharry Medical College, Nash-

Photograph Excised Here

Pediatric Clinic, Meharry Medical College

Photograph Excised Here

Members of the Navaho Community, Ramah, New Mexico, under study by Harvard and Ohio State Universities

Photograph Excised Here

The covered wagon is still used for transportation by the Ramah Navaho

ville, one of the two Negro schools of medicine in the United States. There are several compelling reasons for this, apart from the general rise in all prices since the war.

Meharry has continually been strengthening and improving its staff in an effort to meet the standard set by the other American schools of medicine. The addition of more and better qualified teachers naturally necessitated greater expenditures for salary. Through aid from the Kellogg Foundation starting five years ago, Meharry is expanding its teaching facilities. The need for continued education for Negro practitioners has greatly increased. Meharry now has teaching affiliations with Negro hospitals in Alabama, Mississippi and Kentucky as well as Tennessee. This graduate training has been of value in improving the quality of Negro medical care, but it has required considerable funds for staff salaries and for travel expenses of both instructors and students. Meharry is also obliged to recompense its instructors in clinical subjects. In most other medical schools many of these men serve part time and receive little monetary compensation, but few Negro physicians can afford as yet to donate their services.

Meharry occupies a key role in providing medical care for Negroes not only in the Nashville area but throughout the country. Its graduates practice in almost every state in the Union. The short refresher courses, long-term specialty training and extension work in affiliated hospitals which it offers to graduate physicians constitute one of the most important

programs in the country for continued education of Negro physicians. Until premedical training in colleges for Negroes approaches that of whites the Negro will not be able to compete successfully with white students for admission to other medical schools. Meanwhile Meharry will receive and must supply training for an important number of Negro physicians.

Meharry is a privately endowed school, and in spite of assistance from such organizations as the General Education Board, the Kellogg Foundation, the Rosenwald Fund, the Harkness Foundation and others, it faces difficulty in maintaining both its academic and its hospital program. To help meet expenses through the end of 1949 while supplementary financing is being arranged, The Rockefeller Foundation has granted $185,000. Of this, $100,000 is available as needed. The additional $85,000, intended for expenses of the teaching hospital, is contingent upon Meharry's matching each dollar from the Foundation by two dollars from local sources. Meharry has received the encouraging support of the newspapers and people of Nashville in this regard.

Tulane University

ANIMAL QUARTERS

A grant of $20,000, available until the end of 1949, was made to Tulane University School of Medicine, New Orleans, for improving and enlarging its animal house facilities.

Tulane's significant role in southern medicine has been recognized by a number of agencies, such as the

National Institute of Health and the Nutrition Foundation. These organizations have given generous support to Tulane's vigorous research program. The school has received for the years 1948 to 1951 nearly $300,000, but none of this money was intended for buildings or permanent equipment. Prompt improvement of the inadequate animal quarters was a need which remained, and on which depended the success of the research program, including projects already well under way in nutrition, amebiasis and vascular injuries.

The Rockefeller Foundation's grant, together with $5,000 provided by the university, has made possible correction of this need. Renovations are now in progress and will be completed shortly.

OTHER FIELDS

National Society for Medical Research survey on animal experimentation

The National Society for Medical Research was organized in 1946 to promote a better public appreciation of the methods and principles of medical investigation. It grew out of a widespread concern over the difficulty of obtaining, under satisfactory circumstances, an adequate supply of animals for experimental purposes. In the two years of its existence it has attracted the support of the 79 medical and 46 dental schools in the country, and of some 125 other organizations engaged or interested in medical research. Its long-term objective is the establishment

everywhere of suitable regulations for procuring experimental animals.

For many years medical research has been under a steady attack from well-meaning but not too well-informed organizations and individuals, who wish to prohibit by law any experiment whatsoever on living animals. These organizations have received the active support of certain sections of the press. The antivivisectionists remain unconvinced by evidence of the tremendous advances in both human and veterinary medicine made possible by animal experimentation. The insulin treatment of human diabetes and the vaccine against canine distemper, to cite only two of many examples, both resulted from experiments on dogs. Antivivisectionists also disregard the fact that every year public pounds destroy more animals than those required for medical work by means usually far less humane than those employed in medical laboratories. The goal of an antivivisection movement, if it were to be reached, might serve as an example of the triumph of sentiment over logical thought in the determination of human activity.

In the past the medical profession as a whole has refused to take a positive stand in defense of well-established experimental methods until the time when bills which would close down every laboratory in a state have come to the last reading in the various legislatures. Little by little, this policy has brought about increasing restriction, and medical schools are now faced with a dangerous shortage of experimental animals. A constant and assured supply of animals

is of crucial importance in medical research, yet in 1947 only 19 of 64 medical schools queried stated that their situation in this regard was satisfactory. Only 12 of these 19 were able to obtain animals from city dog pounds.

The National Society for Medical Research believes that the best defense against this threat to medical progress is a positive campaign to convince the public of the merits of animal experimentation. In particular, the conditions under which it is carried out should be publicized. In order to direct this educational campaign most effectively, the society intends first to make a scientific survey of public attitudes on the question. The Rockefeller Foundation has granted $12,000 for the expenses of the survey, which will be conducted by Mr. Clyde Hart of the National Opinion Research Center.

National Health Council, Inc.

COORDINATION OF VOLUNTARY HEALTH AGENCIES

The National Health Council, Inc., is an association of national voluntary agencies established in 1920 as a conference body. It includes such organizations as the National Tuberculosis Association, the American National Red Cross, the American Cancer Society and the Maternity Center Association. The United States Children's Bureau and the United States Public Health Bureau are advisory members. The purpose of the council is to confer and collaborate on problems of common interest, to help in avoiding duplication and to improve both programs

and performance of national, state and local voluntary health organizations.

From 1941 to 1945 the National Health Council, Inc., received a total of $90,000 from The Rockefeller Foundation. These funds were for a survey, directed by the late Selskar M. Gunn, of the organization, interrelationships, policies and opportunities of voluntary public health agencies in the United States, and for the publication of the conclusions. In line with published recommendations, the council developed a nation-wide program for the coordination of voluntary health organizations. The operations of community funds have already shown conclusively that coordination of voluntary health services within a city saves money and increases effectiveness. Equally good results may be expected from the integration of health services on a national basis. The National Health Council is in a position to lead the way in the realization of this aim. The Rockefeller Foundation contributed $78,500 through 1947 to carry out this much needed work. The present grant of $225,000 over a three-year period continues the Foundation's support of the project.

FELLOWSHIPS

Seventy-five active fellowships were administered out of a fund of $150,000 by the Medical Sciences division of The Rockefeller Foundation in 1948. Of these, 45 were new grants (including 4 second fellowships), 28 were continued from 1947 and 2 from 1946.

The Medical Sciences fellows came from the following countries: France, Lebanon and the United States, 6 each; Sweden, Finland, Poland, Denmark, Czechoslovakia and Chile, 4 each; Argentina, Brazil, Mexico, the Netherlands, Norway, Peru and Yugoslavia, 3 each; Canada and the Philippine Islands, 2 each; and 1 each from Belgium, Cuba, Greece, Haiti, Iceland, New Zealand, Spain and Venezuela.

Sixty-one of the fellows studied in the United States, 5 in England, 4 in Canada, 2 in Switzerland, 1 in Belgium, 1 in England and the United States, and 1 in England, Scotland, Belgium and Holland. Their fields of study included physiology, allergy, psychobiology, gynecology, bacteriology, histology, metabolism, psychiatry, nutrition, anesthesia, experimental medicine, metabolic diseases, internal medicine, thoracic surgery, endocrinology, electroencephalography, child psychology, pediatrics, pathology, virus diseases, surgery, child psychiatry, neurosurgery, roentgenology, neurology, preventive medicine, histopathology, pharmacology, neurophysiology, anatomy, hematology, clinical research, pediatric surgery, hygiene, psychoanalysis and obstetrics.

In addition to the fellowships administered by the Medical Sciences division itself, a total of 65 fellowship grants in medical sciences were made by other agencies with Rockefeller Foundation funds. The Medical Research Council of Great Britain administered 15 of these out of a fund of $50,000 granted by the Foundation for a period of two and one half years. The council has complete autonomy in the

awarding of these fellowships. The primary aim, however, is to promote the progress of research and teaching in the medical sciences, with secondary interest in the practice of medicine. In this they have succeeded. Only 9 of the 98 fellows appointed from 1923–1939 have given up academic work for consultant or general practice. The fellows appointed since 1945 give promise of maintaining this record. Of the remaining 50 fellowships, 10 were awarded by the National Health and Medical Research Council, Department of Health, Canberra, Australia; and 40, including 3 Welch Fellowships in internal medicine, by the National Research Council in this country.

The sum appropriated by The Rockefeller Foundation for fellowships to be administered by the Medical Sciences in 1949 was $175,000.

GRANTS IN AID

In 1948 the Medical Sciences administered a grant-in-aid fund of $150,000, out of which 68 grants in aid, ranging from $400 to $7,500 and totaling $149,776, were made. Nearly all the grants went to foreign countries. France received 11; England and Australia, 6 each; Norway, Brazil and Italy, 5 each; New Zealand, 3; Finland, Peru, Denmark, Switzerland and Argentina, 2 each; and Cuba, Poland, Yugoslavia, the Netherlands, China, Germany, Chile, Czechoslovakia and Sweden, 1 each; 7 grants were made within the United States, and 1 grant established a fund for aid of various kinds in amounts up to $500 for foreign scientists and schools. Allocations

are made from this fund at the discretion of the director of the Medical Sciences.

The largest number of grants — 31 — was for travel and living expenses away from home for distinguished surgeons, physicians, pathologists, psychiatrists, physiologists and other specialists from 14 countries. These were distributed as follows: England, 5; Norway and Australia, 4 each; France and New Zealand, 3 each; Italy, the United States and Denmark, 2 each; and Switzerland, the Netherlands, Germany, Sweden, Argentina and Peru, 1 each. Most of the grants were for travel in the United States and Canada; one man visited the Netherlands, one France, Switzerland and England, and one traveled to England as well as the United States and Canada.

Another large group of grants in aid went to schools and laboratories abroad to permit them to purchase supplies and equipment. Such help is essential today because of shortages of dollars and materials in foreign countries. Much scientific equipment and many books and other supplies can be bought either only in the United States or only with dollars. Among the institutions aided were: the University of Lyon, France, a polarizing microscope for the Department of Histology of the Faculty of Medicine; the University of Rio de Janeiro, Brazil, equipment for the Department of Biophysics of the Faculty of Medicine; the University of Warsaw, apparatus and materials for the Neurological Clinic; the State Laboratory for Experimental Biology and Medicine, Novi Sad, Yugoslavia, apparatus for tissue culture work;

the Pei P'ei Rural Health Unit of National Chungking University, China, a pick-up truck, a moving picture and slide projector, a calculating machine and other supplies; the University of Paris, France, equipment for the Physiological Laboratory; the University of Marseille, France, an electroencephalographic analyzer for the Laboratory of Neurobiology; the University of Bologna, Italy, a Beckmann spectrophotometer for the Institute of Histology and General Physiology; the University of São Paulo, Brazil, a spectrophotometer, a Warburg apparatus and other equipment for the Laboratory of Histology and Embryology; the University of Toulouse, France, equipment to be used in teaching anesthesia; and the University of London, England, clinical research supplies and equipment for the Hammersmith Postgraduate Hospital.

Grants in aid were made also to Northwestern University, Evanston, Illinois, for a visiting professorship in experimental neurology; to Atlanta University, Georgia, and Dillard University, New Orleans, Louisiana, for expenses in connection with a conference on Negro medical education; to the University of Oslo, Norway, for investigation of the incidence of mental disease; to the Child Guidance Clinic, Buenos Aires, Argentina, toward a study of psychotherapeutic techniques; to New York University for research in pharmacology; to the National Nursing Council, Inc., New York, for distribution of the report *Nursing for the Future;* and to the University of Zürich, Switzerland, for research in nervous and mental disease.

THE NATURAL SCIENCES

THE NATURAL SCIENCES STAFF

During 1948

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WARREN WEAVER

Associate Directors

H. MARSHALL CHADWELL[1]
HARRY M. MILLER, JR.

Assistant Director

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AGRICULTURAL PROGRAM IN MEXICO

Advisory Committee for Agricultural Activities

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EDWIN J. WELLHAUSEN

[1] Resignation effective September 30, 1948.

THE NATURAL SCIENCES

THE NATURAL SCIENCES

THE Rockefeller Foundation appropriated $2,799,098 in 1948 for its program in the natural sciences. This sum represented 20 grants, totaling $1,605,500, to universities and other institutions for the furtherance of research in experimental biology, which is the Foundation's chief field of interest in the natural sciences; four grants, amounting to $345,325, for assistance in the development of modern agricultural programs in Mexico and Colombia; and three special grants — $300,000 to cover the cost of the final adjustment and corrections necessary to the proper functioning of the 200-inch telescope on Mount Palomar, $50,000 toward the completion of the building which is being erected to house the Institute of Experimental Pathology of the University of Iceland and $20,000 for small emergency research grants for Italian scientists. It also included appropriations of $250,000 for grants in aid and $228,273 for fellowships, to be available for allocation in 1949, to a large extent for assistance to men and women working in the field of experimental biology.

EXPERIMENTAL BIOLOGY

California Institute of Technology
CHEMISTRY-BIOLOGY PROGRAM

"At the present time there is at the California Institute of Technology, in the Division of Biology and the Division of Chemistry and Chemical Engineering, a group of scientific workers who are cooperatively and vigorously attacking the great fundamental problems of biology and medicine — those problems which deal with the structure and nature of proteins, nucleic acids and other constituents of living matter; with the structure of the gene and the mechanisms of inheritance, of cell division, and of growth; with the molecular-structural basis of the physiological activity of chemical substances; and with the structure and properties of antibodies, enzymes, viruses and bacteria."

With these words Professors George W. Beadle and Linus Pauling, respective chairmen of the divisions mentioned, some two years ago opened a program of combined research which called for the full use of the tools and techniques of chemistry, physics and mathematics in solving many baffling problems concerning the nature and behavior of living matter. In general the joint program was to uncover basic principles rather than to attack specific practical problems. It provided for long-term planning and extensive expansion of existing facilities over the next 15 or 20 years.

Space permits only a brief mention of the projects that have developed under this program. X-ray diffraction studies of amino acids, their derivatives and the simple peptides are already well under way. To make adequate progress in this work and to extend it to structures of greater complexity, new X-ray spectrometers and more powerful X-ray tubes and accessories have been designed. Vigorous attacks on the amino acid analysis of proteins by chromatographic and other methods have begun. During the past two years considerable research has been done on the mechanism of action of the more common protein-splitting enzymes. Some workers are studying the enzyme systems of fungi and of higher plants. A large program of immunochemistry concerns the physical and biological nature of antibodies.

Members of several teams are continuing their attempts to find out more about the chemical activity of specific genes. A number of new systems of metabolism are being investigated from that point of view in the now famous bread mold, *Neurospora*. A group of men is working on serological genetics to discover how certain drugs bring about inhibition of growth, and another research unit is studying the processes of development and cellular specialization in animals. An important unit for the study of viruses has become firmly established under the leadership of a man especially well trained in biophysics. Work in the general field of mammalian physiology continues, and many new projects on intermediary metabolism in plants and animals are being actively pursued.

The Foundation has long given financial aid for these and other natural science projects at the California Institute of Technology. In 1948 it appropriated $700,000 for the joint chemistry-biology program over a seven-year period.

Yale University

PROTEIN METABOLISM

Since proteins are the basic materials of which every cell of every living organism is made, it is clearly of importance to understand how organisms build the proteins they require for growth and cell repair. In other words, how do they break down food proteins and utilize the constituent parts of these substances to construct cell proteins? Processes of this kind, the metabolic transformations of proteins, are activated by and are under the general control of chemical agents known as enzymes. The study of enzymes involves tremendous difficulties, for these entities are present in extremely small amounts and are often unstable except at low temperatures.

At Yale University Professor Joseph S. Fruton and a group of associates are investigating the role of enzymes in protein metabolism. They are proceeding along two main lines. One of these is the study of such enzyme-activated chemical processes as may provide the amount of energy required to synthesize proteins out of constituent parts. Actually, because the processes involved are so complicated, these investigators usually deal not with actual proteins but with

the somewhat simpler, closely related substances known as peptides. The other line of activity is the study of the specificity and mode of action of the proteolytic enzymes present within the living cell and the isolation and purification of these enzymes, whose role it is to activate the decomposition of proteins. An essential part of both aspects of this program is the synthesis of new peptides and peptide derivatives for use in metabolic studies and as specific substrates in enzyme experiments.

By a grant of $23,400 in 1948, the Foundation is continuing for three years the support of Professor Fruton's work which it began in 1945.

Birkbeck College, University of London

X-ray analysis of proteins

One of the modern techniques for determining the structure of molecules is the method of X-ray crystallography. In this procedure a beam of X-rays is reflected from the various planes of atoms within a crystal of the substance under study and photographs are taken of the reflections. Then, through lengthy and tedious calculations, information about the actual positions of the individual atoms can be obtained. The calculations are so complicated that, with the methods of computation in use up to now, about three and a half years are required to determine the molecular structure of a compound containing as few as 20 atoms. Since one of the simplest protein molecules has at least 2,000 atoms, the computing time in the case of such molecules would be so

lengthy as to be entirely impractical. Recent developments in the design of electronic computing machines, however, encourage the hope that, with the use of one of these systems, X-ray determinations of protein structure can be computed in a reasonable length of time.

At Birkbeck College, University of London, a computing center for X-ray crystallographic analysis is being established in connection with the Biomolecular Research Laboratory. At this center a general purpose electronic computer, now in process of construction, will be available for the use of X-ray crystallographers and other research workers. Birkbeck College provided the space for the center and will share operating costs with the University of London. The university is financing the construction of the building and funds for part of the equipment required for the computer have been obtained from various British sources. The Rockefeller Foundation is participating in the project through a grant of $20,000 to Birkbeck College for the purchase of computer parts that can be procured only in the United States, for the salaries of extra staff needed during the construction period and for X-ray equipment.

The project is to a large extent the work of Andrew D. Booth, director of the center, who recently spent a year in the United States, partly under a Rockefeller Foundation fellowship, studying computer developments. The computer will be a digital one; that is, separate digits of each number are stored in the machine at every stage, in contrast to analogy machines such as the differential analyzer, in which the

numbers are represented by directly measured physical quantities. It will be of the parallel operation type, with all the digits of a number available at the same time. The machine will have a memory of a new type. This will consist of a drum coated with ferromagnetic material, rotating at a speed of between 30,000 and 50,000 revolutions per minute and having a capacity of about 4,000 numbers, each of 40 digits.

Stanford University

PROTEIN STABILIZATION

Wartime studies on the preparation of blood plasma and some of its components for use in the treatment of hemorrhage, shock and other conditions raised many new questions in protein chemistry and opened up several additional lines of approach to these questions. Professor J. Murray Luck of Stanford University, one of the scientists who took part in the studies, is now investigating a number of problems which grew out of his research on methods of stabilizing serum albumin in solution to prevent its denaturation under exposure to high temperatures in the tropics and elsewhere.

Professor Luck found that certain salts found in the human body stabilize serum albumin when added to aqueous solutions of the protein. He and his associates are now investigating the chemical details of the mechanisms by which stabilization occurs.

Because of their electrical properties, molecules of matter are attracted or repelled by one another. Protein molecules combine with other smaller organic

molecules and ions through electrical association. Professor Luck and his group have found that some extremely simple organic anions (ions with a charge of negative electricity) have a great stabilizing influence on serum albumin. They are studying the nature of the positively charged groups in serum albumin with which the anion becomes associated. They are also extending their work to other proteins with the hope of eventually working out a complete theory of stabilization.

Elucidation of the mechanisms whereby ions and small molecules are bound by proteins should contribute to knowledge of enzyme-substrate association and thus expedite enzyme studies. For medical science, an established theory of protein stability should have great practical value. For if the nature of the chemical compounds necessary to the stabilization of given proteins were known, solutions of these substances to be used in therapy and immunization could be insured against denaturation in warm temperatures. Furthermore the solutions could be prepared at pasteurization temperatures, thereby greatly reducing the risk of bacterial contamination.

The Rockefeller Foundation has contributed to Professor Luck's work for the past ten years. In 1948 it appropriated $17,000 for a three-year period.

Stanford University

Chemistry of Nucleic Acids

Because nucleic acids and nucleoproteins are found in all typical plant and animal cells, are most abun-

dant in the cell nucleus and are the chief chemical constituents of the chromosome mass within the cell, scientists all over the world are investigating their chemistry, their variability and their mode of action.

Professor Hubert S. Loring of Stanford University believes that the nucleic acids may be sufficiently complex in their chemical structure to account for chromosome, and perhaps gene, specificity. To test this hypothesis he is examining in detail the chemical nature of acids derived from different strains of the ribonucleic acid-rich yeasts and the tobacco mosaic virus. In addition he is analyzing the substances resulting from the breakdown of ribonucleic acids by ribonuclease enzymes derived from various sources. If by these methods of attack it can be shown that different nucleic acids have different chemical bonds or specially resistant groups located at different points, it will be of enormous importance in explaining some of the phenomena of cell activity. It will also contribute much to our understanding of the mechanism of heredity.

The Rockefeller Foundation has contributed toward equipment and research assistance for Professor Loring's work since 1945. It made a grant of $29,600 to Stanford University in 1948 in continuance of this support until August 31, 1951.

University of Wisconsin
Enzyme Institute

At the University of Wisconsin a building to cost approximately $300,000 is being erected to house a

new institute for research in enzyme chemistry and for postdoctoral training of persons planning careers in this field. The Rockefeller Foundation has made a grant of $100,000 to the university toward the purchase of the elaborate and specialized equipment needed for the program to be carried out by the institute.

Enzyme chemistry is of comparatively recent development. It was only 22 years ago that Professor J. B. Sumner of Cornell University isolated the first enzyme in crystalline form. This was followed four years later by the isolation of crystalline pepsin by Dr. J. H. Northrop of the Rockefeller Institute for Medical Research. Up to the present time some 30 pure enzymes have been isolated. So sensitively and powerfully do enzymes act, that a single molecule of an enzyme can, per minute, activate chemical change in 5,000,000 other molecules.

Europe, and particularly Germany, used to have great laboratories and training centers for enzyme chemistry. England, Denmark and Sweden are still strong in this field, but the bulk of the activity is now in the United States. Although this country has many capable individual workers in enzyme chemistry, there has been no institution with the physical equipment or rounded staff to serve as an important center for research and graduate training in this discipline. The University of Wisconsin, building on a large and able group of workers in various aspects of biochemistry, plans to meet this need. The staff of the new institute will consist of two teams of

workers, the first chiefly concerned with the separation and purification of enzymes and the second with the use of isotopes in enzyme studies. The over-all program will include a systematic study and isolation of enzyme systems and the exploration of the events of intermediary metabolism, with a view to recognizing the enzyme systems that are responsible for these transformations.

UNIVERSITY OF CALIFORNIA

BIOCHEMICAL EQUIPMENT

The University of California is establishing in Berkeley a new Department of Biochemistry and a Virus Laboratory, which will be housed together in a building soon to be constructed on the campus. The existing Department of Biochemistry in Berkeley is a division of the Medical School and is to be moved to the campus of that school in San Francisco when the building it will occupy has been completed.

The new university Department of Biochemistry and the Virus Laboratory are being gradually built up, in temporary quarters, under the direction of Professor Wendell M. Stanley, a Nobel Laureate in chemistry for 1946 and a recognized leader in the use of chemical techniques in attacking the problems of biology. Plans are being developed for a broad program of research in biochemistry, including work on proteins, enzymes, nucleic acids, carbohydrates and lipids, and for investigation of the fundamental properties of human, animal and plant viruses. The Rockefeller Foundation has appropriated $100,000

to the university to assist it in equipping the biochemical and virus laboratories.

Concerning his initial scientific plans at California, Dr. Stanley writes: "One of the primary objectives of the Virus Laboratory at the University of California in Berkeley will be the elucidation of the nature of virus reproduction. At present it is not known whether viruses reproduce by growth and division or by means of some new and as yet undescribed process. Obviously, specific information on this point would be of great importance in any consideration of the basic growth process characteristic of living things, of the nature of virus diseases and especially with respect to the possible utilization of chemotherapy in connection with virus diseases. One important aspect of virus reproduction is the mutation of viruses, for this is the process by means of which viruses change or adapt themselves to new conditions. This process can provide the new strains which may cause new epidemics and which may enable the viruses to keep abreast or ahead of control measures on the part of man. . . . It seems highly probable that further investigations conducted in this general area will prove most fruitful. In fact, this approach may prove of great value in connection with the mutation process in higher organisms.

"Another important phase of the laboratory will be the preparation of chemical derivatives of purified viruses. Work already completed has demonstrated the feasibility of this attack, which provides a unique opportunity to correlate chemical structure with

biological activity. In addition, work will be carried out on the concentration and purification of new viruses, on special insect relationships connected with virus transmission, on the relationship of nutrition of host to virus susceptibility and on virus chemotherapy. It is also hoped that means will be found which will permit special investigations centered about the electron microscope to be made on the Berkeley campus."

Columbia University

ENZYME CHEMISTRY

The Department of Medicine at Columbia University is notable for its sponsorship of basic investigative work in biochemistry as an activity which should be closely related to the clinical problems of medicine. Since 1942 The Rockefeller Foundation's program in the natural sciences has included aid to a group in this department working on enzyme research under the direction of Dr. David E. Green.

The early work of the Columbia group consisted chiefly in the isolation of enzymes and the study of their action outside the body. More recently this team has included several men qualified in medicine who intend to follow careers in this field but who wish to combine basic research with practical work. These men are now extending the enzyme studies to the next level, the correlation of specific enzyme activities with specific organ functions in intact living animals. In 1948 the Foundation appropriated $13,000 to Columbia University, primarily for the

studies of one of the members of the medical team, Dr. John V. Taggart, holder of a Welch fellowship.

Dr. Taggart has been working for some time with a complex of enzymes, known as the cyclophorase system, which catalyzes the oxidation of pyruvic acid (an intermediary substance in carbohydrate metabolism), the fatty acids and certain natural amino acids. The energy liberated in the oxidative process is available for driving certain chemical syntheses and for the general work of the cell. This enzyme complex is obtained from rabbit kidneys; for various reasons it is thought to play an important role in renal function.

Using techniques introduced by Dr. Donald D. Van Slyke of the Rockefeller Institute for Medical Research, major advances have been made in recent years in the understanding of the complex filterative, reabsorptive and secretory processes which go on in the kidney. It has become clear that the renal tubular transfer requires energy which must be furnished by cellular metabolic processes. Thus it is tempting to assume that the cyclophorase enzyme system, which catalyzes many major energy-yielding reactions, may be an integral part of the tubular transfer process of the kidney.

Dr. Taggart is investigating this possibility. He plans to study, *in vitro*, the ways in which a variety of chemical agents which are known to interfere with the several tubular functions affect the enzyme activity of the cyclophorase system. If, as is suspected, these agents inhibit one or another enzymatic activity, this fact can be correlated with information

A corner of the genetics laboratories at California Institute of Technology

At California Institute of Technology roots are used to study substances promoting or inhibiting plant growth

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Photograph Excised Here

Large scale culture of the red bread mold for biochemical investigations at Yale University

as to the type of renal impairment caused by the same agent. This would link the various enzyme activities with individual aspects of the transfer system. Dr. Taggart will also study the nature of the protein complex which forms the cyclophorase system, particularly with respect to the influence of varying ion concentrations on enzymatic activity.

Massachusetts General Hospital
ENZYME CHEMISTRY

The Massachusetts General Hospital received a Foundation grant of $12,000 in 1948 toward the support of research in enzyme chemistry under Dr. Fritz Lipmann for a two-year period. Dr. Lipmann, an emigré scientist, is now director of the Biochemical Research Laboratories of this hospital and an associate in biochemistry at the Harvard Medical School.

Dr. Lipmann's field of research is energy utilization in the body, particularly the mechanism of acetic acid metabolism in cellular reactions and its role in detoxication. He and his coworkers have been investigating especially the functions of pantothenic acid in intermediary metabolism. They have observed the action of a new coenzyme shown to contain pantothenic acid bound in a rather complex form. To this they have given the name coenzyme A. They have identified parts of the coenzyme, but the exacting work of purifying the protein portion of the system and completing identification of all its parts remains to be done. To accomplish it they require additional research assistants and special apparatus.

The Rockefeller Foundation's grant is to enable them to obtain the necessary help and equipment.

New York University
Enzyme Chemistry Laboratories

To assist New York University in completing the modernization of the laboratory quarters occupied by Professor Severo Ochoa and his associates in enzyme chemistry research, The Rockefeller Foundation made a grant of $7,000 to the university in 1948.

The university renovated a portion of this laboratory space in 1947 and installed some essential modern scientific apparatus. This was purchased with funds furnished by the Foundation, in the form of a modest grant in aid, and in larger amounts by other agencies interested in Professor Ochoa's work. The Foundation's new grant will assure completion of two additional rooms, one a graduate students' working laboratory and the other an isolation room for isotope research. It will also cover the cost of certain necessary equipment which had not been previously provided for.

Professor Ochoa is an emigré scientist from Spain and now occupies the Chair of Pharmacology at New York University. He and his collaborators are studying the enzyme systems concerned with intermediate carbohydrate metabolism. More specifically, they are working on a well-integrated series of investigations of the enzymatic mechanisms of carbon dioxide assimilation and of the chemical processes of oxidative recovery associated with muscular activity.

COLUMBIA UNIVERSITY

IMMUNOCHEMISTRY

When bacteria are present in our bodies the toxins secreted by these minute organisms set into motion a sequence of chemical actions which result in the production of antitoxins that neutralize the bad effects of the toxins. Not only the toxins secreted by bacteria but the mere materials of which the surface membranes of the bacteria are made can, in many instances, stimulate chemical retaliation of this sort. Various kinds of substances, known as antibodies, are turned out by the body to combat bacteria. Some, called agglutinins, make the bacteria sticky so that they adhere together in clumps. Others, called lysins, make them break up and dissolve. Still another substance, called complement, is normally present in blood serum and cell protoplasm. It is of great subsidiary importance, for only in association with this substance are the lysins able to act.

Dr. Michael Heidelberger of Columbia University is the leading American authority on the more chemical aspects of the processes whereby the body protects itself against dangerous invaders and builds up immunity to them. He has contributed to the understanding of many of the factors involved in these processes. He and his associates have succeeded in developing new methods for the study of the mechanism of complement activity which are simpler and more accurate than those previously known. They are now ready to proceed with a new series of investi-

gations in this field, possible only because of the preliminary work. An important feature of the new program will be the study of the components of complement.

The Rockefeller Foundation has contributed toward Professor Heidelberger's studies for the past two years. It is continuing this support through a grant of $30,000, to be used for the salaries of a research associate and laboratory helpers and for the purchase of equipment and supplies during the three years beginning January 1, 1949.

Harvard University
Chemotherapy studies

Chemotherapy, the treatment of disease by means of chemical compounds, is just beginning to move out of the empirical stage. Until recent years, search for a drug that might be useful in the treatment of some ailment followed the tedious and wasteful course of trying vast numbers of compounds in the hope that some one of them would work. Often the end result was complete failure. Even today the development of a synthetic drug for a specific disease is a long and arduous task, with results frequently falling far short of expectations. But a new approach to a problem of this kind is now possible. Modern developments in physical and chemical techniques have enabled chemists to learn more exact details of the molecular structure of many chemical compounds. With such knowledge at hand investigators have begun to study the relationship between the architecture of the mole-

cules of a chemical substance and the physiological action of the substance.

Professor Louis F. Fieser of the Department of Chemistry at Harvard has established a firm reputation in this field. For about ten years he conducted a large program of research on chemicals related to the cancer problem. This led to studies on the chemistry of sex hormones, vitamins and drugs. Later he began extensive investigations on antimalarials. In recent years he has worked on new chemotherapeutic agents that already offer preliminary promise for the treatment of several refractory diseases.

Continuing its previous support of Professor Fieser's work, the Foundation appropriated $60,000 in 1948 for similar aid during the ensuing three years.

STANFORD UNIVERSITY

BIOCHEMISTRY OF BACTERIA

Bacteria furnish uncomplicated and easily reproducible systems in which to follow the processes of cellular metabolism, especially those which underlie growth and development. Certain bacteria build up their cell structures by means of a form of photosynthesis simpler than that used by the green plants equipped with chlorophyll. Through study of these bacteria, Professor C. B. van Niel of the Hopkins Marine Station of Stanford University has thrown new light on the metabolic mechanisms of living organisms.

It had not been thoroughly appreciated before Professor van Niel's work that some bacteria are able

to produce their own food and cell materials by the utilization of light, water and the carbon dioxide which they obtain from the air. He showed how they accomplish this and demonstrated the points of both similarity and dissimilarity between bacterial and green plant photosynthesis. He has studied stages in the utilization of carbon dioxide by bacteria, employing radioactive atoms of carbon to trace its pathways. He has also isolated the pigments which absorb the light in photosynthetic bacteria, finding them to be very different from those in higher plants which carry on photosynthesis.

Professor van Niel's work has now reached a point where it is desirable for him to extend and intensify certain phases of his studies of photosynthesis and chemosynthesis in bacteria through the employment of techniques not previously available to him. The Rockefeller Foundation is assisting him in developing this expanded program by a grant of $20,000 for the purchase of necessary special equipment and supplies and for the salary of a full-time technician over a period of three years.

Yale University

PLANT PHYSIOLOGY AND GENETICS

The Rockefeller Foundation made a $50,000 grant to Yale University in 1948 toward the support of a program of interrelated studies in plant physiology and plant genetics in the Department of Botany.

Several members of the department are participating in the studies. One group, under the direction

of Dr. D. M. Bonner, is giving particular attention to the relation between individual genes and the enzyme activities of the organism. The group is using mutant strains of *Neurospora* (red bread mold) and other microorganisms as tools in the investigation of the chemical mechanisms by which amino acids are built up into cell protein. There is much evidence that the basic chemical procedures are the same in the bread mold as in the cells of man.

Professor P. R. Burkholder has under way a program in which he is extending biochemical techniques found effective in studying microorganisms to the investigation of green plants. He and his associates are working with corn, with crepis, which is an herb of the chicory family, and with green algae.

A group directed by Professor Hempstead Castle is inducing mutations in mosses by means of irradiation and chemical treatment of spores, and is making morphological, physiological and genetic studies of the resulting mutants.

Another group is investigating the mechanisms which induce genetic changes in plants. Working with a variety of mutagens, both physical and chemical, the group is developing techniques for obtaining comparative data on the kinetics of mutation for specific genetic loci. They hope that such data will provide a basis for biophysical analysis of the mutational process for individual genes.

In addition to these four projects the program includes studies on enzyme behavior patterns as taxonomic criteria in microorganisms, under Professor

V. M. Cutter, Jr.; on cellular differentiation, under Professor E. W. Sinnott; on growth substances, under Professor A. W. Naylor; and on wood-destroying fungi, under Professor J. S. Boyce.

Columbia University

GENETICS AND EXPERIMENTAL ZOOLOGY

At Columbia University The Rockefeller Foundation is aiding in the development of two interrelated research programs concerned with the growth of the young organism. One of these, in genetics, is a joint project of the Departments of Zoology and Botany; the other is a program in experimental zoology.

The program in genetics centers on the relationship of genetic constitution to the development of individual organisms and of populations. It deals specifically with the role of genes and chromosomes as structural units in heredity, development and evolution. The senior staff members participating in the program in 1948 were Professors L. C. Dunn and Theodosius Dobzhansky of the Department of Zoology and Professor M. M. Rhoades of the Department of Botany.

Professor Dunn has been studying the effect of genic and chromosomal change upon the early development of the mouse embryo. He has transplanted mouse embryos in their earliest stages into developing hens' eggs. The embryos continue for a time to develop normally in the new environment. Then, a significant part of their embryological development having taken place, they die. By using mutant races

of mice with marked physical characteristics it is possible to discover when the genes begin to act in the development of various organs and structures.

Professor Dobzhansky has been conducting breeding experiments with caged populations or "artificial universes" of drosophila. Through examination of resulting forms by cytological and genetic techniques, he is obtaining information on the processes of speciation and natural selection in whole colonies of flies. Professor Rhoades, also using the combined methods of genetics and cytology, has been analyzing the genetic factors underlying mutability as exhibited in the maize plant.

The zoology group has been centering its attention on the chemistry and cytology of cellular structures. Two of the senior members, Professors Franz Schrader and A. W. Pollister have been working with differentiated cells. A third, Professor L. G. Barth, has been devoting his attention to embryonic tissue.

Professor Schrader has been investigating the origin and activities of cell structures which are built up at the time of mitosis only to lose form in the resting stage of the cell. Professor Pollister has been employing exact and delicate techniques, developed in his laboratory, in quantitative studies of the chemical composition of cell nuclei. He has been able to determine the amounts of protein and nucleic acid present in nuclei down to infinitesimal fractions of a gram. Professor Barth has been studying the ways in which energy is transferred, in the embryo, between energy-yielding chemical reactions and the actual

sites of energy utilization in the developmental processes. Junior members of the group have been engaged in research in the biochemistry of cell proteins, the general biochemistry of early embryos and the embryology of endocrine glands.

Foundation support of this work has been for salaries of research assistants. In 1948, $82,500 was appropriated, to be available for this purpose over a period of five years.

Roscoe B. Jackson Memorial Laboratory

RABBIT GENETICS

Dr. Paul B. Sawin has recently joined the staff of the Roscoe B. Jackson Memorial Laboratory in Bar Harbor, Maine, taking with him stocks of mutant lines of rabbits which were turned over to him by Professor W. E. Castle of Harvard University. During some 35 years preceding his retirement, Dr. Castle built up genetic strains of rabbits containing most of the known valuable rabbit genes. For a number of years before the war Dr. Sawin continued the development and study of these stocks at Brown University. When at the close of the war he resumed the study of blood group variations in these animals, he made three new observations which he felt merited intensive investigation.

First, evidence was obtained which seemed to indicate that several rabbit antisera (sera containing antibodies) each carry at least two separable agglutinins. This throws light on the behavior of the antigen concerned, from both the serological and the genetic

standpoint. Second, antibodies were found in at least one of 12 new antisera which corresponded to the blocking, or incomplete, antibodies in man described by Wiener. Further studies of this phenomenon should supply information which would increase the usefulness of the rabbit in immunological and tumor studies. Thirdly, adjuvants (substances auxiliary to the specific antigen employed in immunization) appeared to enhance greatly the immunological response of all rabbits. Thus the use of such substances should facilitate the measurement of antibody production and should open up a new practical approach to the study of genetic problems in immunization.

The Rockefeller Foundation contributed toward Dr. Sawin's early work at Brown University. During the past year it appropriated $15,000 to enable him to have the services of a full-time assistant in his present studies at the Jackson Memorial Laboratory and to expand his rabbit colony.

Connecticut Agricultural Experiment Station research in genetics

The experimental projects that come within the province of an agricultural experiment station are of a practical nature, having as their purpose the improvement of the principal cultivated crops of the area served by the station. While such projects are being carried out, problems arise from time to time that have much theoretical importance. As a rule there can be no certainty that investigation of these problems will produce results of sufficient immediate use-

fulness to justify their inclusion in the station's continuing research program. Often, however, the material involved is of such unique value that it seems thoroughly worth-while to follow up a promising lead. To make possible the investigation of a basic problem of this kind at the Connecticut Agricultural Experiment Station, The Rockefeller Foundation appropriated $21,000 to the station in 1948 for use over a five-year period.

This experiment station is a partly endowed institution operated by the State of Connecticut. Its work includes an extensive program of applied plant genetics, with considerable emphasis on the breeding of corn. The station's geneticist, Dr. Donald F. Jones, was one of the leading figures in the genetic aspects of the development of the so-called hybrid corn, which is now practically the only type of corn grown in the United States.

Recently, while Dr. Jones was spending a period of leave at the California Institute of Technology, the discovery was made there that genes are of two general types: cell limited and cell diffusible. With the former type any changes during development originate in the nucleus, producing their visible effects in the cytoplasm. These effects do not go beyond the cell membrane. In other cases it is seen clearly that the effect of a gene may diffuse through many cells, the influence gradually diminishing as the diffusing activator substance becomes more dilute. Sometimes the diffusing substances produce interactions between various closely related genes of one organism which

seem to be analogous to the effect of hybrid vigor when two different lines are crossed.

Since hybrid vigor is one of two bases for the use of hybrid corn and for the newer development of cross-bred livestock, any information bearing on this field is important, and a program of basic research on the nature of gene action as shown by cell limited and cell diffusible gene products seems desirable.

UNIVERSITY OF WISCONSIN

CYTOGENETICS

During its first quarter century of development, up to 1900, cytology was concerned with the exciting business of describing the hitherto unknown detailed phenomena of cellular structure, division and growth. There followed a quarter century during which cytology teamed up with the rapidly developing science of genetics, furnishing many important specific details, directly observed under the microscope, which checked and guided genetic theory.

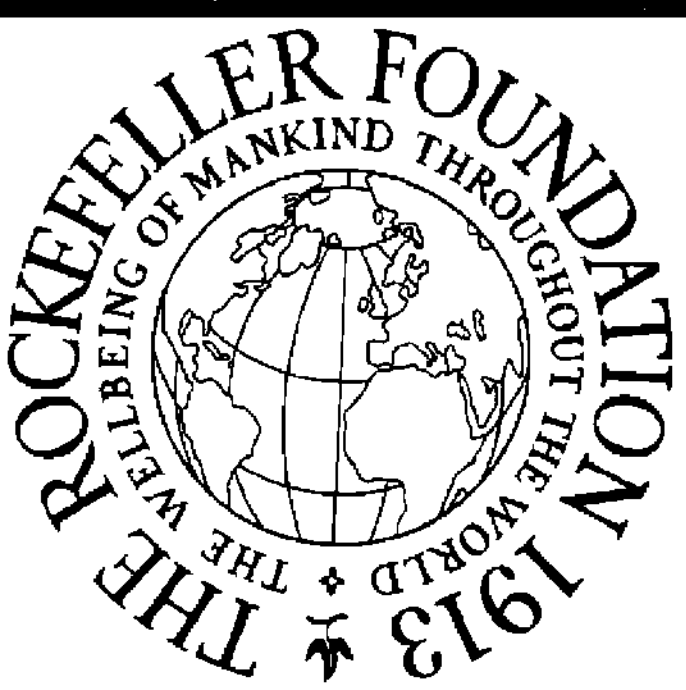
As the third quarter century of cytology comes to a close, it becomes more and more clear that earlier generalizations in this field are no longer surely tenable. Where once it was classical to say that every cell in an organism has the same chromosome and gene constitution as the original fertilized egg from which it arose, it is now not at all clear that this statement is in fact true. Similarly the ordinary picture of a non-germ cell containing pairs of chromosomes which divide longitudinally when and only when the cell divides is also subject to doubt.

Among the investigators who are turning up evidence that these and other concepts may require revision is a group at the University of Wisconsin, headed by Professor C. Leonard Huskins. The Rockefeller Foundation has contributed toward Professor Huskins' work in cytology and genetics for a number of years. In 1948 it appropriated $20,000 to provide research assistance and supplies needed in connection with his program over a two-year period.

Marine Biological Laboratory, Woods Hole

Founded over 60 years ago, the Marine Biological Laboratory at Woods Hole, Massachusetts, is not only one of the world's foremost marine laboratories but also an international center for research in all fields of modern biology. Its outstanding role is that of a summertime research institution to which biological scientists and students come from laboratories and classrooms all over the world. It offers them opportunities for investigative work, specialized training and for the interchange of ideas with other men and women working in the various biological disciplines. One of the laboratory's most valuable facilities is its excellent biological library, consisting of about 60,000 volumes, nearly 150,000 reprints and over 1,200 current journals.

The Rockefeller Foundation's interest in the laboratory dates back almost a quarter of a century. In 1924 a grant of $500,000 from the Foundation helped to provide the laboratory with adequate buildings and equipment. In 1940 an appropriation



Laboratory research in chemotherapy, Harvard University

Photograph Excised Here

A section of the new Institute of Experimental Pathology, University of Iceland

Photograph Excised Here

Laboratory demonstration in invertebrate zoology,
Marine Biological Laboratories, Woods Hole

Photograph Excised Here

Photograph Excised Here

A refrigerated centrifuge, one of the tools of
enzyme chemistry research at New York University

of $110,400 made possible the addition of a wing to the main building which insured sufficient space for library expansion over many years.

In recent years the laboratory has been confronted with a number of problems. Its buildings require repair and renovation, much of its equipment is outdated and should be replaced and its income has been insufficient to cover increased operating costs. To assist the laboratory in solving its most pressing problems the Foundation has made it an appropriation of $250,000. Of this sum, $150,000 is for the repair, enlargement and modernization of the original main building erected over 50 years ago; the remainder will be available over a five-year period for current expenses. The remodeled building will provide research and teaching space for all members of the staffs in physiology, embryology and invertebrate zoology.

Union of American Biological Societies
BIOLOGICAL ABSTRACTS

The Union of American Biological Societies, which sponsors the journal *Biological Abstracts*, received a Foundation grant of $35,000 in 1948 to meet a difficult situation caused by the inrush of abstracts of articles appearing during the war in foreign scientific publications that were not generally circulated at that time or in the early postwar period. The abstracts had been arriving at the journal office in large numbers since the end of hostilities, but especially during 1947 and 1948. They are chiefly from the 350 European journals that are covered by *Biological Abstracts*. Unbroken

coverage of these publications for the war years is obviously desirable, since many of them may carry reports of interesting research done during that time. By the middle of 1948 it was estimated that three quarters of the abstracts from these sources had come in, and that a total of 30,000 would be on hand by the end of the year. Of this estimated total, 8,000 had been printed. The current income of *Biological Abstracts* was not sufficient to enable it to handle the remaining accumulated material, and Foundation aid was given so that publication could proceed.

Large-scale Foundation support of *Biological Abstracts* in previous years has helped to establish firmly the position of this important service to biological and medical scientists. Except for the emergencies of the war it has become self-supporting, and its position of eminence among scientific journals has brought it a steadily increasing number of subscribers throughout the world.

AGRICULTURE

Mexican Agricultural Program

The Mexican Agricultural Program is a collaborative effort of the Mexican government and The Rockefeller Foundation, aimed at the improvement of the volume and quality of the basic food crops of Mexico and the training of Mexican personnel for careers in agriculture. In contrast with the Foundation's other projects in the natural sciences, this is an operating program. That is, the research and other

aspects of the work are directed, and to a large extent carried out, by staff employed by the Foundation. Only in the field of public health has the Foundation heretofore conducted operating programs of this type. In its other fields of interest the procedure has been to give funds to universities or other institutions for research which they themselves organize and conduct. But a country-wide program in agriculture obviously requires a different form of approach.

The program, which was drawn up by Mexican agricultural authorities and Foundation representatives following a survey of the status and needs of agriculture in Mexico, provides for the following specific projects: development of highly productive disease-resisting stocks of corn, wheat and beans; the introduction, testing and distribution of forage legumes and grasses; the study of methods of soils management and conservation; control of destructive insects, particularly those that attack corn and beans; the production and distribution to the farmers of improved seed; training of personnel; and cooperation with other Latin American countries in their agricultural programs. Work is now progressing along all these lines.

An Office of Special Studies was established as a division of the Mexican Department of Agriculture to carry out the program, and a group of American agricultural scientists was selected to form the nucleus of the staff of this office. The group includes specialists in plant pathology, plant genetics, soil

science, agronomy, entomology and botany. The government assigned a number of plots of land in various parts of the country for experimental plantings, and work was begun early in 1943. The next year the National College of Agriculture at Chapingo, about 25 miles east of Mexico City, provided a large tract of land on its property for the purposes of the program, and this has become the chief experimental field. At the present time plantings there cover 225 acres.

The first task which the program staff set itself was to determine the varieties of corn best suited to the different regions of the country. Of 1,500 varieties tested, 15 were shown to be superior. Six of these that gave especially good yield were extensively multiplied and the seed furnished to the farmers. But since varieties better than any original native stock can be obtained by crossing two or more types, the staff's next step was experimentation with a method of breeding known as "synthesis." In this method the two varieties that are to be crossed are planted in an open field in alternate rows and left to pollinate each other through action of the wind. In the course of three years of successive combining of different varieties several synthetic stocks have been produced that have given excellent average yields. Under optimum conditions, yields 20 per cent higher than those from native stocks have been obtained with the most satisfactory synthetics. As a third step in this phase of the work, hybrid corn stocks have been produced by single crossings of the best native varieties. This work, which entails close control and hand pollina-

tion, is costly and time consuming, but under proper conditions hybrid stocks can be expected to yield at least 35 per cent greater crops than the native varieties. Test and increased plantings of the hybrid varieties are now being made.

An important advance in the improvement of wheat has been the production of several rust-proof varieties. Rust attacks wheat in moist weather, and as summer is the rainy season in Mexico the farmers have confined their wheat growing to the winter months. This, however, involves dependence on irrigation. If the rust-resistant varieties can be adapted to summer planting, a major problem in wheat production in Mexico will be solved.

At the end of 1948 the persons connected with the Agricultural Program included 13 American scientists on the Foundation's staff, ten of them stationed in Mexico; 47 young Mexican agriculturalists assigned to the project by their government; 6 Mexican agriculturalists in the United States on training scholarships; 7 fellows from various Latin American countries working with the group in Mexico; and 16 persons in service capacities. In addition, there are 56 field laborers regularly employed by the Mexican government, and seasonally this figure is about doubled by temporary labor paid for by the Foundation.

The Foundation made two appropriations for the Mexican Agricultural Program in 1948, one for the sum of $321,555 and another of $6,000. These grants bring the total amount of its support for the program to $1,306,835.

Mexico

NUTRITION RESEARCH

The agricultural program in which the Mexican government and The Rockefeller Foundation have been cooperating for nearly six years has led to the production of a considerable number of improved varieties of corn, wheat and beans. It is now clearly of great importance to investigate the nutritional characteristics of these improved varieties and to learn the effects of such factors as soil management, soil composition, fertilization, climate, humidity and altitude on the nutritional composition of plants. Only when such knowledge is available will it be possible fully to utilize all phases of agricultural research in the production of improved plant materials of maximum nutritional values. Furthermore, since native wild plants of Mexico are being studied for possible use as forage or as human food, information concerning their nutritional value is of much interest.

The need for nutrition studies closely integrated with the Mexican Agricultural Program has been recognized for some time. Recently tentative plans for such studies have been formulated by Mexican nutrition, health and agricultural authorities and by the Foundation's natural sciences staff in Mexico. It is expected that later the International Health Division of the Foundation will take part in the studies, but the initial phases of the work are agricultural-biochemical in nature and thus fall within the field of the natural sciences.

According to provisional plans, the Mexican Department of Nutrition will provide laboratory facilities and personnel for the analysis of seed or plant material, and the staff of the Agricultural Program will furnish the plant material for analysis. The Foundation will contribute toward the salaries of full-time key personnel for the studies and toward the cost of the chemical supplies and special equipment required.

During the past year the Foundation appropriated $5,770 for preliminary expenses in connection with the nutrition studies.

National University of Colombia

Agricultural training fellowships

One of the important features of the Mexican Agricultural Program is the cooperation of its staff with agricultural departments and institutions in other Latin American countries. Among the institutions making use of the educational and training facilities available in connection with the program are the two faculties of agronomy of the National University of Colombia. One of these, the oldest faculty of agronomy in Colombia, is situated in Medellín; the other, a newer and smaller institution, is in Cali.

Since 1945 The Rockefeller Foundation has assisted the Medellín faculty in sending one of the best-qualified students of each year's graduating class to Mexico for a year of practical work in plant pathology, plant breeding, applied entomology or soil science. Choice of appointees has been made by a local committee

consisting of the Dean of the faculty and two past Foundation fellows. In 1947 the Foundation provided funds to enable the Faculty of Agronomy at Cali to make similar training awards over a three-year period.

The training periods are proving exceedingly worthwhile. Two of the first three appointees from Medellín now hold posts at the faculty, and the institution is desirous of continuing the awards. The Foundation has helped to make this possible by a grant of $12,000 to the National University of Colombia to finance appointments for a total of six men from the Medellín graduating classes of 1948, 1949 and 1950 for approximately a year's training each in Mexico. Recently, the Director of Agriculture of Colombia sent one of the young members of his technical staff to Mexico for training under the program staff.

OTHER FIELDS

University of Iceland

Institute of Experimental Pathology

In 1945 the Foundation appropriated $150,000 to the University of Iceland toward the cost of building and equipping an Institute of Experimental Pathology, on condition that the Icelandic government would share equally in the expense of the undertaking.

The project is now about 90 per cent completed, but since 1944, when the original estimates were made, building costs and the price of equipment have risen 50 per cent in Iceland. Because of these mounting costs the university found itself with commitments

in excess of available funds. The Icelandic Treasury, faced with unexpected demands occasioned by changing economic conditions, was unable to meet in full the new needs of the institution. In 1948, therefore, the Foundation appropriated $50,000 to supplement its original grant. This sum has again been matched by local sources, so that the successful completion of the project seems assured.

The Institute of Experimental Pathology was originally designed as a center for research in animal and plant pathology, in the control of animal diseases and in the improvement of animal stocks so essential to the agricultural economy of the country. In 1946 it was made a part of the Medical School of the university, and its future contributions to research in the detection of human ills will no doubt equal in importance its potential contributions to veterinary medicine and plant pathology.

California Institute of Technology

THE PALOMAR TELESCOPE

On June 3, 1948 the California Institute of Technology dedicated the giant 200-inch telescope on Mount Palomar as the Hale Telescope, in memory of George Ellery Hale. For 20 years Dr. Hale had visualized and planned a vast and intricate machine which would enable man to search the heavens for a distance of a billion light years, twice as far as it had been possible for him to explore before. Since then a devoted group of engineers and physicists and astronomers have labored long and skillfully so that this

unbelievably complex instrument can become the everyday working tool of those who chart our universe. They have still to complete the last delicately precise adjustments of the drive and control mechanisms and to correct the last infinitesimally small errors on the surface of the massive glass mirror.

Work on the telescope project began in 1928 when the Rockefeller International Education Board appropriated $6,000,000 to enable the California Institute of Technology to carry out Dr. Hale's plans for the building of an instrument powerful enough to permit astronomers to answer puzzling questions about the structure of the universe. The board had paid $1,390,200 of this amount before it terminated its program in 1932. The remaining $4,609,800 was provided by the General Education Board. Because of unexpected difficulties encountered in construction and delays and increased prices occasioned by the war, the amount originally appropriated proved inadequate for the completion of the telescope. In December 1946 The Rockefeller Foundation made a supplementary grant of $250,000 to the institute, which according to the estimates made at that time would cover the cost of the work still to be done. However, several factors upset that estimate. It was found that more time than had been expected would be required for the major construction work and that many unanticipated necessities must be provided for. These included various auxiliary instruments essential to the proper functioning of the telescope, increased water supply for the observatory area and

repair and extension of roads. To enable the institute to meet these final needs and bring the project to completion, the Foundation in 1948 appropriated $300,000, to be available until December 31, 1950.

An excellent plan has been drawn up for the operation of the telescope. The Carnegie Institution of Washington, owner of the Mount Wilson Observatory, and the California Institute of Technology have agreed to merge the control and operation of their astronomical equipment and staffs in a single joint organization, officially designated as the Mount Wilson and Palomar Observatories. All astronomers associated with either institution, whether they work on one or both mountain tops, are members of the staff of the combined observatories. The two institutions have adopted a joint budget to which both contribute. The agreement provides for an educational program as well as a research program. A department offering instruction in astronomy is being set up in the California Institute of Technology. Members of the combined staff will take part in the teaching program as opportunities arise in their respective fields of interest. The Institute of Technology is distinguished as a center for graduate study in physics and chemistry. The partnership between the two observatories will thus not only link research with teaching activities, but will also make possible a close association between the research of the astronomical observatories and that of physical and chemical laboratories. Dr. Ira Sprague Bowen has been appointed director of the combined observatories.

Italy

EMERGENCY RESEARCH AID

In connection with the Foundation's program of emergency aid for scientific reconstruction in Europe, officers of the Natural Sciences division visited Italy in March 1948 to confer with Italian scientists on the status of research in the country, especially in the field of experimental biology. They made visits to universities and research institutes in nine important centers: Naples and Rome in the south, two cities in central Italy and five in the north. They met twice with officials of the National Research Council of Italy to discuss the present program of the council and the programs projected for the future.

Italian scientists were found to be working devotedly and productively despite the great handicap of shortages of scientific literature, consumable supplies and equipment. They especially lack those items obtainable only abroad. Furthermore, many of the excellent pieces of equipment manufactured in Italy are prohibitively expensive because of the general inflation.

To give modest help to a few of the scientists laboring under these difficulties, the Foundation appropriated $20,000, of which $15,000 was principally for assistance to six former Foundation fellows working in experimental biology in Naples, Rome, Bologna, Padua, Turin and Pallanza. The other $5,000 was granted to enable the National Research Council to purchase equipment and supplies for the microfilm

and bibliographic center which it is organizing and for minor research allocations.

FELLOWSHIPS

In 1948 the $150,000 fellowship fund administered by the Natural Sciences division of The Rockefeller Foundation permitted 54 persons from 20 countries to pursue advanced studies in their chosen fields. This figure does not include the Mexican scholars in training under the Mexican Agricultural Program. The countries represented in the Natural Sciences fellowship training program were the United States, 10 fellows; Brazil, 6; Colombia, 5; Denmark and England, 4 each; Mexico and Sweden, 3 each; China, France, the Netherlands, Norway, Switzerland and Uruguay, 2 each; and Australia, Belgium, Costa Rica, Czechoslovakia, Finland, Iceland and Venezuela, 1 each. Twenty-seven of the fellowships were new grants; 21 were continued from 1947, 5 from 1946 and 1 from 1945.

All of the fellows studied outside of their own countries, the majority in the United States. Four went to England, 4 to a group of European countries, 3 to Sweden, 2 to Switzerland, 1 to France and 1 to European centers as well as the United States. The subjects they studied included physiology, ecology, biochemistry, physics, genetics, mathematics, plant physiology, embryology, irrigation methods, plant pathology, food inspection, plant breeding, organic chemistry, ions and isotopes, kidney physiology,

physical chemistry, peptide chemistry, agronomy, chemical engineering, cytology, microbiology, mathematical biology and molecular biology.

An additional 84 fellowships in natural sciences were granted by other agencies with Rockefeller Foundation funds. The National Research Council administered 56 of these. Fifteen were regular awards; the other 41 came under the council's predoctoral fellowship program, which was organized to enable young scientists whose training was interrupted by World War II to resume work toward advanced degrees. The other 28 fellowships were all in the field of mathematical biology. Through grants from The Rockefeller Foundation, Brown University made 16 such appointments and New York University 12.

The Foundation appropriated $175,000 for fellowships to be administered by the division of Natural Sciences in 1949.

GRANTS IN AID

In addition to appropriations toward the support of research projects over varying periods of years, the Foundation sets aside funds to be used for smaller contributions, designated as grants in aid. These grants are made chiefly to investigators who need temporary short-term assistance in order to start promising new studies or to bring important pieces of work to completion. In some instances the assistance is given for travel or for study visits. From the sum of $175,000 available in 1948 for aid of this kind in the

field of the natural sciences, 42 grants, ranging in amount from $300 to $7,500 and totaling $167,490, were made to individuals or groups. In addition, a fund of $7,500 was provided for allocation by the director for the Natural Sciences to persons requiring aid in amounts up to $500 for a specific project.

Of the 42 grants mentioned above, 34 were for assistance to research projects in the following fields: biochemistry, 14; genetics, 9; plant physiology, 3; embryology, 2; and molecular biology, nerve physiology, agronomy, organic chemistry, mathematics and climatic fluctuations, 1 each. These grants were distributed to persons in 11 countries: 14 in the United States; 4 each in France, Sweden and Switzerland; 2 in Uruguay; and 1 each in Chile, England, Hungary, the Netherlands, South Africa and Spain. One grant assisted the development of the Biometric Society, an international organization established in 1947 and concerned with the mathematical and statistical aspects of biology. Another contributed toward the cost of publishing in French, under the auspices of the Pasteur Institute, the collected works of S. N. Winogradsky, a Russian scientist who devoted 50 years to research on microbiology of the soil. A grant to the University of São Paulo enabled 1 Swiss and 6 Brazilian geneticists to study under Professor T. Dobzhansky of Columbia University during his stay in São Paulo as visiting professor.

The remaining five grants were for travel. Two of these will help defray the expenses of foreign delegates to an international conference on the nervous

system at the University of Chicago in 1949 and to the International Congress of Mathematics in Cambridge, Massachusetts, in 1950. Of the other 3 grants for travel, 1 permitted the Director of the Agricultural Experiment Station at Palmira, Colombia, to visit agricultural experiment stations and research institutions in other Latin American countries; 1 financed visits by the Dean of the Faculty of Veterinary Medicine of the National University of Colombia to other South American countries for study of teaching and research methods in various institutions; and 1 covered the cost of a survey of agricultural libraries in Latin America by the Librarian of the United States Department of Agriculture, under the auspices of the Inter-American Institute of Agricultural Science at Turrialba, Costa Rica.

In 1948 the Foundation appropriated $250,000 to finance grants in aid in the natural sciences to be made in 1949.

THE SOCIAL SCIENCES

THE SOCIAL SCIENCES STAFF

During 1948

Director

JOSEPH H. WILLITS

Associate Director

NORMAN S. BUCHANAN

Assistant Directors

LELAND G. ALLBAUGH
LELAND C. DEVINNEY
ROGER F. EVANS
PHILIP E. MOSELY
BRYCE WOOD[1]

Consultants

ANNE BEZANSON
CARL I. HOVLAND
FREDERICK F. STEPHAN

[1] Resigned June 11, 1948.

THE SOCIAL SCIENCES

THE SOCIAL SCIENCES

THE seriousness of the strains placed upon all phases of our national life by war and the period of postwar readjustment has led the officers of the Social Sciences to emphasize during 1948 grants in the fields of interpersonal and intergroup relations, international relations and the functioning of our political democracy. A total of $2,229,300 has been appropriated by the Social Sciences during 1948 and may be classified as follows:

Interpersonal and Intergroup Relations	$266,620
Functioning of American Political Democracy	242,700
Functioning of the Economy	195,400
International Relations	214,000
Social Sciences in Europe	66,080
Moral and Ethical Problems in Modern Society	142,500
Population Problems	127,000
Research and Training Agencies	475,000
Joint Operations in Crete	25,000
Grants in Aid and Fellowships	475,000

A growing concern on the part of the trustees and officers about the urgency of moral and ethical problems in modern society, and the determination to employ Foundation resources in a more direct attack on these problems than has heretofore been made,

have led to considerable thought and consultation concerning an effective social science program in this area. The grants in this field herein described are largely exploratory in nature, but the officers hope that they will lead to some specific recommendations.

Economic research continues to be a major interest of the Social Sciences which is perhaps best reflected in 1948 in the grant-in-aid and fellowship programs. Population problems are also in the forefront of social science interest. During 1948 the Foundation financed an exploratory reconnaissance by two leading demographers and two officers, one from the Social Sciences and one from the International Health Division, under the chairmanship of Dr. Frank W. Notestein, Director of the Office of Population Research of Princeton University.

A significant portion of the funds which the Social Sciences administered during 1948 was allocated to research and training agencies and for the division's own fellowship and grant-in-aid programs. The acute shortage of adequately trained research personnel has been all too clearly demonstrated in the past ten years, and the officers in the Social Sciences feel a keen responsibility to direct funds toward improving both the quantity and quality of personnel in this field. For example, the demobilization awards administered by the Social Science Research Council from Foundation appropriations made it possible for returning veterans to continue their scholarly work without undue economic pressure, and saved for social science research many men who might have

been forced to abandon their studies. Ways are constantly sought to strengthen and improve research training in the social sciences so that this personnel problem may be alleviated.

INTERPERSONAL AND INTERGROUP RELATIONS

OHIO STATE UNIVERSITY

EXECUTIVE LEADERSHIP

Ohio State University's Personnel Research Board, established in 1944 to coordinate research in industrial and personnel relations, is conducting a long-range study of leadership in human relations. The aim is to find out what the functions of the leader are, what emphasis he gives to different functions and how he organizes his relations with his colleagues. During the past two years a research team working under Professor C. L. Shartle and an advisory committee composed of specialists in various fields have carried out an investigation of executive positions and organization structure in the United States Navy and in four wholesale farm cooperatives. In all, approximately 170 leadership positions have been studied.

In 1948, with support from The Rockefeller Foundation in the amount of $45,000 over a three-year period, the Personnel Research Board initiated a similar program in educational institutions. Educational leadership positions and the structure of educational organizations are being studied at the primary, secondary and college levels. Histories of about 15 schools together with analyses of the functions and

activities of the boards of education and a survey of the community backgrounds are in progress. Following the collection of factual information Professor Shartle plans to analyze the relationships between such factors as responsibilities, work patterns, levels in the organization, types of organization structure, objectives of the organization, compensation, persons with whom most time spent, proportion of time spent in individual efforts, methods of getting work done and methods of working with staff. The study of educational institutions is expected to provide a sufficient variety of structures to give the presently developed research methods thorough trial and evaluation.

The studies at Ohio State University have been undertaken in the conviction that leadership is a vitally important element in the survival and growth of our democratic society. An unhurried systematic approach to the development of appropriate research techniques and to the application of these techniques in various organization structures is valuable. As college graduates will play an important role in solving our leadership problems of the future, the universities need more information so that their curricula can be better adapted to training for some form of leadership in human relations. The studies in progress should reveal the patterns of activities of persons in high positions and make it possible to relate these patterns to the kinds of organizations and the goals which the organizations seek. They should help to set criteria for evaluating leadership and for designating useful

classifications in the selection, training and assignment of personnel in leadership capacities.

YALE UNIVERSITY

COMMUNICATION AND ATTITUDE CHANGE

How and why individuals change their attitudes is the subject of a new experimental program directed by Professor Carl I. Hovland, Chairman of the Department of Psychology at Yale University. During the past 25 years workers in the social sciences have accumulated considerable knowledge on the measurement of attitudes and opinions. Not so much is known about the processes which lead to the adoption and change of attitudes. It is apparent that attitudes and opinions are based in part on relevant knowledge, but an individual often stubbornly refuses to consider facts contrary to his opinions and concentrates instead only on those facts which uphold his general point of view.

With support from The Rockefeller Foundation in the amount of $68,400 over a three-year period, Professor Hovland has planned two experimental studies. One will compare individuals who are influenced and those who are not influenced by specific communications. In what degree does the individual choose the material to which he will be exposed? What influences his acceptance or rejection of material? Information on these matters should throw light on the barriers to communication. The second experimental study will attempt to secure information on the problem of how

the group affects the individual. The effectiveness of decisions made by the group in influencing individual behavior will be studied to discover whether informal surveillance of an individual's behavior by the group or the individual's own commitment to a promise made in a group situation is the significant factor.

An understanding of communication and attitude change is important to our educational system, to those who lead great organizations, and to those who are concerned with political opinion and behavior. More dependable knowledge of how effective communication may be achieved in the area of attitude and opinion is essential to this understanding.

Cornell University

GROUP HOSTILITY AND PREJUDICE

Elmira, New York, is the center for new experimental research in the field of group hostility and prejudice. With the assistance of a three-year grant of $94,270 from The Rockefeller Foundation, Professor Leonard Cottrell and Professor Robin Williams of Cornell University are directing a field investigation of the community context of intergroup tension. They believe that if real life situations are studied in order to find out how different peoples define their relations to each other and to the community it will be possible to plan workable programs for reducing the tensions.

The objective of the present investigation is an understanding of the whole structure of social relations in a medium-sized industrial community con-

taining several minority groups. An effort will be made to find what causes the psychological distances between the various racial-ethnic groups; whether they arise from economic, political or religious factors, at what points they are most extensive and what forms they take. On the basis of a survey of religious, educational, social and industrial groups, the fundamental social perspectives will be analyzed.

After the analyses are complete the investigators plan to enlist the help of leading representatives of the different groups in Elmira to diagnose the problems and prescribe remedies. Responsibility for action will thus be placed automatically in the hands of key individuals who have been enabled to view the problems objectively and sympathetically within the total social context. By means of group discussions, for example, the gentile may learn what the Jew thinks of him, and the Negro what the Caucasian thinks of him, and the reverse reactions. Each will be aided to understand himself in the light of the discussion of his own attitude conditioned by the particular role he plays in the community and of the attitudes of others similarly conditioned. This investigation offers an opportunity to test the possibilities of social diagnosis in a specific local situation and to appraise the effectiveness of specific remedial techniques.

University of Puerto Rico

CULTURAL ANTHROPOLOGY

Through its newly established Social Science Research Center the University of Puerto Rico is spon-

soring a program of studies on the social anthropology of Puerto Rico. The center was created in 1945 for the purpose of studying Puerto Rican problems. Advisory committees and directorial groups are made up of visiting professors from American universities who work in close association with local personnel and offer training in scientific research techniques.

The purpose of the field study to which The Rockefeller Foundation has contributed $18,650 is to collect information about the cultural background of Puerto Rico through a series of intensive community studies. Such data should make it possible to determine what makes for rejection or acceptance of various cultural influences. An understanding of this behavior is important to the development of practical measures dealing with the island's current social problems.

In February 1948, following participation in a training seminar offered by Dr. Julian Steward at Columbia University, a research team under Dr. John Murra of the University of Chicago left for Puerto Rico. Its work complements several previous studies of a more extensive nature on the economy and demography of the island, and parallels a survey of historical sources of the cultural background of Puerto Rico started by Mr. Raymond Scheele of Columbia University last year.

Cornell University

JAPANESE AMERICANS DURING THE WAR

Immediately following Pearl Harbor the United States government took steps to segregate the entire

population of Japanese Americans, numbering some 112,000. Lacking machinery to investigate individual cases the government was forced for a time to question the loyalty of the whole group. In the interests of security the Japanese Americans were evacuated from the West Coast, where most of them had settled, to relocation centers in different parts of the country. For most of them it was their first experience with new social, economic and psychological patterns. Forced by American social attitudes to gather in isolated communities within cities, they had imported their own culture and formed an unassimilated minority in the population.

Little by little the government was able to re-evaluate individuals, and some of the Japanese Americans moved out of the centers to work on farms, in war plants or to join the army. For the first time they had an opportunity to break racial ties and disperse themselves throughout the country. However, large numbers of these people lived in the relocation centers throughout the war. Most of them have now voluntarily returned to the West Coast communities from which they originally came.

During the war the War Relocation Authority appointed resident social science consultants in the Japanese centers. In the course of their duties these men supervised the collection of detailed records on events in the centers, the policies initiated by the administration, the personnel and means whereby the policies were carried out, the characteristics of the residents and their behavior. Professors Alexander H.

Leighton and Morris E. Opler, who were resident consultants in the centers at Manzanar, California, and Poston, Arizona, respectively, are now both at Cornell University. Professor Leighton is a physician with training in psychiatry and anthropology. Professor Opler is an anthropologist. With university support and a $10,000 grant from the Foundation they have assembled these materials and are subjecting them to systematic analysis. A full-time research associate who worked with them during the war has indexed the materials and now directs graduate student assistants in special phases of the analysis.

By this investigation Professors Leighton and Opler hope to find out why the centers did or did not function successfully; how leadership patterns among the residents developed in relation to patterns established in their home communities; how sentiment patterns evolved among residents and administrative staffs; and the effect of the changing social scene on individual Japanese Americans and administrators. The study at Cornell should be helpful in identifying principles of human behavior and human interaction with special attention to conditions of stress and rapid change. It represents a further contribution to the field to which the studies of Dr. Dorothy Thomas have already contributed.

Columbia University

Social Philosophy

Dr. Frank Tannenbaum, Professor of History at Columbia University, has for some years been work-

ing out a comprehensive theory of society. In an article entitled "The Balance of Power in Society," (*Political Science Quarterly*, December 1946), he views human society as the interplay between four basic institutions: the family, the church, the state and the business organization. These institutions are themselves organic to society. Prevailing through time, they manifest themselves in almost infinitely variable forms, but always fulfill the same role. They are, however, competitive. Each of the institutions tends to be all-embracing, laying claim to the entire man and showing an impelling tendency to assume all responsibility for the governance of society. Progress could then come to mean progress in the method of reducing the area of imbalance that is always present in society. In the final analysis, however, the true well-being of a society lies in diversity rather than in identity of interests. Conflict, strife, divergence, difference of interest and opinion over many things for many reasons, and in varying degrees of intensity, are the conditions of social peace.

In 1948 The Rockefeller Foundation appropriated $15,300 to permit Dr. Tannenbaum to elaborate his theme and to explore it from various angles. He has a special interest in the problems of the Western Hemisphere and has drawn liberally on his experience in the Latin American field to outline his theories on social balance. The Foundation grant will make it possible for him to make annual trips to South America, as well as to obtain research and secretarial assistance for his philosophical researches over a

three-year period. He will continue to conduct a seminar in Columbia's Center of Latin American Economic and Historical Studies.

Tufts College

SOCIOLOGY AND PSYCHIATRY

During the past three years Dr. A. Warren Stearns, formerly Dean of the Medical School at Tufts College, has developed a new department of sociology emphasizing the psychiatric aspects of social problems. While the department offers the usual training in sociology it stresses carefully supervised field experience for students who plan professional careers in medicine, dentistry and applied sociology. As physicians these young men will need special training to deal with social problems, which, although partially medical, are predominantly due to poverty and various forms of criminal behavior. State departments of welfare and correction should in the future be able to rely more heavily on sociologists who have experience and familiarity with the realities of social work.

Field work offered by the department takes the form of actual work in nearby institutions. During the summer of 1947 selected students had an opportunity to spend two months as regular employees in residence at the Massachusetts State Hospital and Infirmary at Tewksbury. The infirmary receives the unsettled poor of the state, including cases of old age, chronic neurological disease, juvenile delinquency, alcoholism, brain and heart disease. These persons represent a large, more or less permanent group of

social disorders. The students performed ward work of various kinds throughout the infirmary and each afternoon attended clinical demonstrations and case presentations.

With the aid of a grant of $15,000 from the Foundation, Dr. Stearns and his associates are giving more time to field research, notably in the field of forensic psychiatry. Dr. Stearns served four years as Commissioner of Correction and at the present time is closely connected with the state farm for the criminal insane at Bridgewater and the infirmary at Tewksbury. Sociology today can benefit from case experience in the formulation of theory. He wishes, therefore, during the next two years to make a systematic recording of his own experience in the handling of inmates of the two institutions with which he is associated, and to interpret these cases in the light of all the complexities of their medical, psychiatric and sociological character.

THE FUNCTIONING OF AMERICAN POLITICAL DEMOCRACY

CORNELL UNIVERSITY

CIVIL LIBERTIES AND THE CONTROL OF SUBVERSIVE ACTIVITIES

Throughout history nations have faced the dilemma presented by the conflicting claims of national security and civil liberty. Wars, economic crises or fear of national calamity lead governments to curb the normal democratic freedoms in order to safeguard

the state. Present efforts of the United States government to eliminate disloyal or subversive persons from the federal service represent a modern phase of this very old conflict.

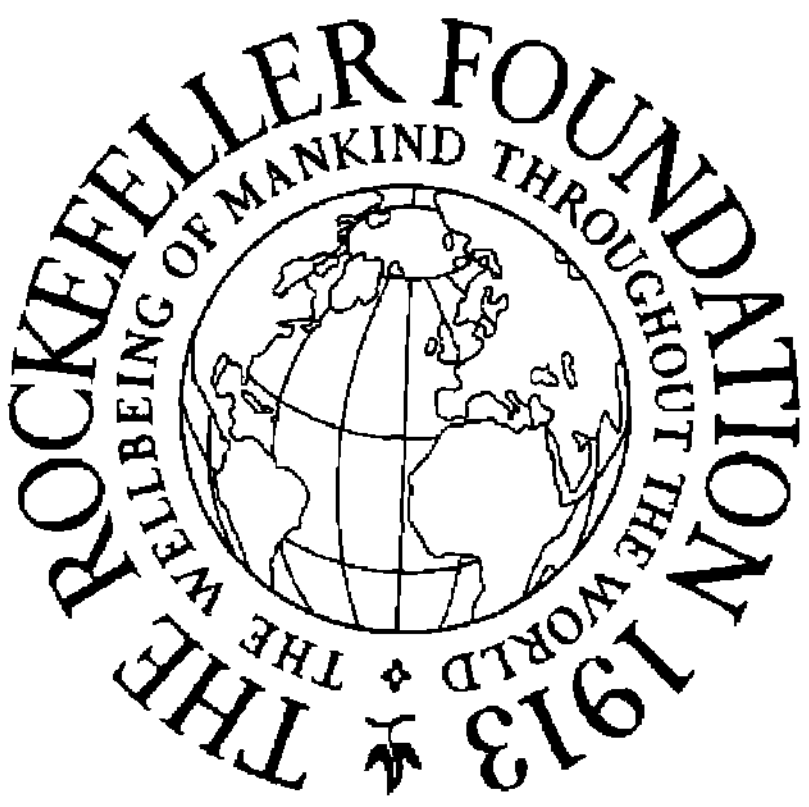
As a result of the President's Loyalty Order (No. 9835, March 21, 1947), the work of the House Committee on Un-American Activities, and the rigid loyalty requirements in so-called sensitive agencies, employees and applicants for civil service are under investigation by various boards. State governments are following the federal example. Some six states have un-American activities committees, and several are establishing their own loyalty tests for public officers and employees.

Those familiar with the techniques of fascist and communist groups do not question the necessity for measures to protect national interests and scientific secrets against espionage or sabotage. Nevertheless it is an important task of political democracy to reconcile, if possible, the claims of national security and civil liberty.

To find out more about these problems Professor Robert E. Cushman of Cornell University and his colleagues are conducting some studies of the loyalty tests for scientists and of federal and state loyalty programs. Their aim is to provide a factual basis for analysis of the loyalty measures in force in the United States and their relation to civil liberties. The studies at Cornell are receiving support from The Rockefeller Foundation in the amount of $110,000 available for two years.

Photograph Excised Here

Staff of Columbia University's Institute for Urban Land Use and Housing Studies confer with the Philadelphia City Planning Commission



Photograph Excised Here

This little girl and her parents are among the half million Finnish persons forced to evacuate Karelia and Lapland. They must now build a new home in western Finland

Photograph Excised Here

COLUMBIA UNIVERSITY

URBAN LAND USE AND HOUSING STUDIES

Urban and rural improvements in land represent a large segment of the economic and social resources of our society. The influence of housing upon social organization, political behavior and economic activity is both intimate and pervasive. It seems probable that the near future will bring further elaboration of public housing programs and the investment of unprecedented amounts of private capital in the creation and redevelopment of the land resources of the country.

Reflecting the widespread concern about urban housing problems in the United States, Columbia University established an Institute for Urban Land Use and Housing Studies last year. Although the volume of housing data available for study has increased rapidly in recent years, facilities for their use and analysis have been inadequate. Dr. Ernest M. Fisher, the director of the institute, states that one of its major purposes is to utilize the resources and techniques of several fields in studying the nation's housing problems and the trends which influence the growth of centers of population. To this end the institute's administrative board was appointed from the faculties of the Schools of Business, Law and Architecture, and from the Departments of Economics, Sociology and Public Law and Government.

With the aid of a three-year grant of $100,000 from The Rockefeller Foundation, the Institute for Urban

Land Use and Housing Studies plans to complete several basic research projects. These are concerned with public housing programs, the redevelopment of urban areas, the financing of private housing, the provision and management of large-scale housing projects, and the analysis and improvement of basic statistical series on urban land use and housing. All of the projects have a direct bearing on the more systematic and effective use of real estate in our cities and villages. They are the concern of every individual — the small businessman, the home owner and the man who rents an apartment, as well as the large investor and public authorities. Yet many decisions, public and private, are being made without adequate information about housing requirements and demands over a long period of time and without an appreciation of their economic, social and political implications. Dr. Fisher believes that coordinated research in this area will contribute substantially toward the guidance of both public policy and private decisions.

University of Wisconsin

THE LAW AND THE LUMBER INDUSTRY

Although legal institutions and controls have served as important instruments in the economic development of the United States, research in legal-economic history is only in its beginning stages. Historians have given little attention to the social functions performed by the law in the growth of the nation. As a first step toward a nation-wide study

of the law in its relation to the economy, Professor Willard Hurst of the University of Wisconsin has embarked on an investigation of the law and the lumber industry in the State of Wisconsin. An appropriation of $32,700 was approved by the Foundation in 1948 for support of this work.

Wisconsin offers a rich and varied field for pilot work in legal-economic history. As a regional unit it has presented a good balance of agriculture, commerce and industry, of national origins, of urban, rural and small-town populations, and of conservatism and agrarian revolt in politics. It had one of the first successful income taxes in the country and one of the first two workmen's compensation systems. Through a rural zoning system it pioneered in land-use planning. More than many states it has been acutely conscious of issues involved in the local application of regulatory policies of the federal government.

Because the lumber industry has been a dominant factor in the business and politics of the state for two generations it provides a logical starting point for a history of the law in the economy of Wisconsin. To understand what the law meant to the industry and how in turn the pressures of the industry shaped the legal institutions and policies of the state, Professor Hurst proposes to investigate several key areas. These include the land-use policies of the law regarding public and private lands, land financing, land-use planning and conservation; the development and control of the waterways for transportation, power and recreation; the railroads and their challenge to

the balance of power in the community; the early development of corporation law; and the rise of pressure group tactics.

THE FUNCTIONING OF THE ECONOMY

UNIVERSITY OF CHICAGO
COWLES COMMISSION

The Cowles Commission for Research in Economics is one of the major institutions in the world devoted to research in econometric methods. Established in 1932 at Colorado Springs, the commission moved in 1944 to the University of Chicago, where it has continued its research program in the statistical testing of economic theories and the measurement of economic relations which can be used to explain and predict business fluctuations. Mathematical and statistical techniques are being worked out and applied to the American economy and its various sectors. In addition, the Cowles Commission has from time to time studied special subjects of current interest, such as wartime price control and the economics of atomic energy. The commission is closely associated with the Econometric Society, an international organization for the advancement of economic theory in its relation to statistics and mathematics.

The development of statistical tools for use in economic research is one of the four main research problems under investigation by the Cowles Commission. As most economic data are nonexperimental,

in that they are generated by the interplay of simultaneous structural relations rather than by autonomous forces alone, new methods of statistical inference are needed to estimate the effects of a given economic policy. This implies formulating economic structural relations in probability terms.

Two other problems to which the commission has applied itself are the construction of dynamic economic models and the revision of economic fundamentals. Simple models of the economy as a whole have already been developed. They are now to be replaced by more realistic approximations. More attention will be given to manufacturing, agriculture and foreign trade, and attempts will be made to get a more comprehensive analysis of markets to provide a rational foundation for the practical work of market analysts. The work on economic fundamentals consists of the development of hypotheses regarding human behavior in the field of economics. Examples are the behavior of business firms and households under conditions of uncertainty and the reaction of legislators to economic conditions.

In connection with its investigations of business fluctuations, the Cowles Commission has also undertaken some special studies of the secular trends and the long-run effects of technological, demographic and institutional changes.

The Cowles Commission receives regular support from the Cowles family and the University of Chicago. As a further contribution toward the research

program The Rockefeller Foundation in 1948 appropriated the sum of $100,000 available over a five-year period.

Harvard University

ENTREPRENEURIAL HISTORY

The function and influence of the entrepreneur, the man who initiates and carries through industrial undertakings, have been largely ignored by the historians of economic progress. At Harvard University a small group of specialists in economic history representing several of the eastern universities have gathered to form a center for the study of the entrepreneurial phase of industrial history.

The function of the entrepreneur has not been constant. It has been shaped by social and economic forces which themselves have changed through time. By its innovational capacities, by its improvement of business administration and by its power of adjustment to external forces, it has been incessantly at work to change the structure of economic life.

A study of the decisions made by entrepreneur groups thus focuses attention on one of the guiding elements in economic evolution. In the American field, for example, it is generally assumed that the entrepreneur has played a dominant part in our development. But we need to know more about the conditions under which he operated and how he responded to such conditions before any thorough understanding of the American system can be realized. Comparisons with similar analyses of other

areas and periods should make it possible to test current theories of economic development or to work out a new or modified explanation that is more solidly based upon historical fact.

In a series of informal meetings the group at Harvard has already explored the problem of defining the functions of the entrepreneur, the literature and the research problems in the field. They now feel the need for more concentrated individual effort and for a chance to develop a series of related studies in order to clarify the role of the entrepreneur in economic progress. To aid the research program of the new center, The Rockefeller Foundation in 1948 appropriated $10,000 available for one year.

The research group is headed by Professor Arthur H. Cole of Harvard University. Other senior members are Professor Thomas Cochran of New York University and Professor Leland Jenks of Wellesley College. Both have appointments as visiting lecturers in entrepreneurial history at Harvard. Several junior members who are working toward the doctorate at Harvard together with a number of professors from institutions near Cambridge are participating in weekly seminars held by the center.

University of Chicago
AGRICULTURAL ECONOMICS

At the University of Chicago, a group of social scientists directed by Professor T. W. Schultz are engaged in a program of research in agricultural economics. Drawing on the techniques of economics,

sociology, social psychology, anthropology and political science, they hope to work out some practical theories on the full and efficient use of resources in agriculture. Of national concern, this problem involves broad policy issues and requires an analysis of social goals and objectives. Professor Schultz and his colleagues propose to analyze the conditions necessary for maximum efficiency in the use and distribution of human effort and capital in agriculture. They will then try to determine how circumstances affecting resource-use can be modified to raise the low levels of efficiency associated with widespread unemployment and depressed living standards.

The first step in a three-year program is the establishment of a set of hypotheses that would explain the empirical phenomena of a decline in agriculture accompanied by a rise in the level of real income in industrialized countries. Research will then focus on the significance of mobility of the population in achieving better resource utilization. Why do people move from country to city, and how do the communities which lose population adapt themselves to new conditions? What are the barriers to movement, and what can be done to reduce them? How much excess labor exists in agriculture, taking into account real returns and the resources? The answers to these questions are needed to help establish a migration and mobility policy designed to promote the maximum efficiency in our agricultural economy.

The Rockefeller Foundation has allocated $45,000 to the University of Chicago in support of the pro-

gram in agricultural economics. Results of the research will appear as articles and monographs, with possibly a final summary volume dealing with policy implications.

UNIVERSITY OF CHICAGO
INDUSTRIAL RELATIONS

Collective bargaining today has been accepted as an established institution in American society. There are sharp differences of opinion among different groups, however, as to what constitutes good, or constructive, bargaining. Labor has one set of criteria for judgment; industry another; and the rest of the public perhaps many others. The proper objectives of collective bargaining and the components of constructive relationships between labor and management merit further consideration.

In 1948 the Industrial Relations Center at the University of Chicago started a five-year investigation of union-management relations. Professors Frederick H. Harbison and Robert K. Burns, both of whom have a long-standing interest in this subject, are in charge. Funds to make the program possible come from industrial firms and labor unions, as well as from other sources, including the University of Chicago. The Rockefeller Foundation has made available $15,000 for two years.

The Industrial Relations Center approached this problem by examining the various criteria used by different groups and different authorities in judging labor-management relations. In an attempt to de-

termine the broad goals for collective bargaining in a free society the center has now proceeded to an analysis of different types of labor-management situations and the relationships between them. General Motors, United States Steel, International Harvester, Goodyear Tire and Rubber and several smaller industrial organizations have been selected for study. There is special interest in the "power centers," or industrial empires, which generate satellite types of labor-management relations, thus establishing patterns in industrial relations for large segments of the economy.

In concluding its investigation the center expects to give careful consideration to the techniques and methods likely to be most effective in achieving constructive relations. The ultimate objective is to work out principles and standards which can serve as a guide for the improvement of relations between employers and workers.

Social Science Research Council
COMMITTEE ON ATOMIC ENERGY

In an age influenced to an ever larger degree by the discovery of atomic energy, specialists in every field are banding together to study the changes it may bring in the social structure. The economic, social and psychological implications of atomic energy cannot be ignored even in the face of a military weapon capable of destroying the very fabric of our civilization.

Following discussions with the United States Atomic Energy Commission, the Social Science Re-

search Council has established a Committee on the Social Implications of Atomic Energy. The committee's work is carried on in consultation with the National Research Council, natural scientists as well as social scientists being included in its membership. Funds toward the first two years of operation have been supplied by The Rockefeller Foundation through a grant of $20,000.

Of immediate concern to the committee are the problems of adjustment to technological change that must take place as atomic energy is developed and applied. Consequently one of its main tasks is to encourage more social scientists to study representative problems such as labor relations, occupational hazards and insurance in atomic installations; the relationships of the Atomic Energy Commission to industry and to other government entities; the disposal of radioactive wastes in the community; and the cooperation of civil and military authorities concerned with atomic energy. Another responsibility of the committee is to identify new problems as they appear and arrange for prompt study of their significance.

Yale University

LABOR AND MANAGEMENT CENTER

Supplementing a grant of $43,800 provided in 1946, The Rockefeller Foundation has appropriated $5,400 for the completion of a study of labor market structure and wage determination.

As set forth in the annual report for 1946, a research team under Professor E. W. Bakke, Director

of the Labor and Management Center, has set out to obtain information on the characteristics of labor demand and supply and their interaction in the labor market. This information is needed to provide a sound basis for reasoning about the effect of particular wage changes.

INTERNATIONAL RELATIONS

COLUMBIA UNIVERSITY
RUSSIAN INSTITUTE

During the war, as it became increasingly evident that Americans need to know more about Slavic languages and civilization, a group of social scientists at Columbia University met to consider what the university could do to further the training of specialists in foreign relations. Two years ago with the aid of a $250,000 grant from The Rockefeller Foundation, Columbia University set up a graduate institute for the study of Russian history, economics, law and government, international relations, literature and civilization. The Russian Institute is the first of five regional institutes scheduled for establishment within the framework of the School of International Affairs. The two-year program of study is designed for students who wish to prepare for scholarly or professional careers in one of the five fields, and only those who have completed the A.B. degree with high academic standing may qualify for admission. In the present enrollment of 93 regular students a large group is preparing for government service, a third or

Photograph Excised Here

Harvest scene in Japan

Photograph Excised Here

Rare books in the Slavic collection of the Russian Institute, Columbia University

Tufts College: Conference on sociopsychiatric studies at the Massachusetts State Hospital and Infirmary, Tewksbury

Photograph Excised Here

more plan careers of teaching and research, and several are training for careers in journalism.

When the institute was organized serious gaps were discovered in the Slavic materials in the university libraries, and a special assistant was appointed to locate new collections. During the past year about 5,000 books and pamphlets have been added. Through a grant of $37,000 made in 1948 The Rockefeller Foundation is facilitating the purchase of three important collections, one Polish and two Russian. The first of these is the Perlstein Collection numbering about 4,000 items of books and periodicals in the field of Polish history, law, literature and science, dating from 1347 to the Nazi occupation. The Aleksinsky Collection consists of the unpublished archives of a former member of the Russian State Duma, who belonged to the Bolshevist Party. The archives comprise 1,400 original documents bearing on the activities of the Bolshevist faction of the Social Democratic Party in the period from 1900 to 1917. They are an important source for research on the history of the Russian revolutionary movement.

Documentation for prerevolutionary activities of Russian underground groups, including Bolshevists and anarchists, are contained in the Bernstein Collection, which was accumulated over a period of 50 years by Mr. Leon Bernstein, a journalist and author. It contains over 2,000 individual items, 145 periodicals and 15 titles of newspapers published between 1855 and 1922. Of special interest is original material pertaining to the Conference of Members of the Rus-

sian Constituent Assembly held in Paris in 1921. Related publications, including 7,800 Russian newspapers for the period 1910–1925, have been added to the collection.

STANFORD UNIVERSITY

SOVIET RUSSIAN ECONOMY

Several years ago the Food Research Institute at Stanford University began the preparation of a twenty-volume series of studies on the international history of food and agriculture during World War II. In 1948 the institute appointed Mr. Naum Jasny, Russian-born specialist in grains and agriculture, to undertake the research for two volumes in the series. These will deal with Soviet Russian economic developments and potential, and food and agriculture in the U. S. S. R. in World War II. To assist this project the Foundation has made available the sum of $35,000 over a four-year period.

Mr. Jasny, a collaborator of long standing with the institute, has been studying various aspects of Soviet Russian economy for many years. The study of Soviet economic development is planned primarily as an examination of the factors which permitted the great increase in Soviet industrialization during the years 1928 to 1940. An attempt will be made to analyze these factors in order to appraise the economic strength of the Soviet Union. Agricultural development, trends in labor productivity in industry and transportation, in fact all aspects of the economic

development of the Soviet Union which lend themselves to statistical and economic analysis will be explored. In spite of limitations in the data available, Mr. Jasny's study should be helpful in reaching dependable conclusions on the economic development of Russia.

COLUMBIA UNIVERSITY

FAR EASTERN STUDIES

Without question East Asia will remain for a long time to come one of the great problem areas of the world. The United States has need of specialists who possess at once high technical competence in the social sciences and a knowledge of the languages and cultures of the area. Looking toward the establishment of a research institute in the East Asian field, the School of International Affairs at Columbia University has started a program of Far Eastern studies through the various social science departments. Owing to recent expansion in the fields of Chinese and Japanese languages, literature and history, Columbia has a firm foundation for these studies. The aim at present is to promote a similar expansion in the social sciences, in order to provide advanced training in economics, political science and social analysis as related to China and Japan. Toward the development of this program The Rockefeller Foundation is providing $120,000 for four years. Sir George Sansom, a member of the Allied Far Eastern Commission for the British government, will act as director of the

program, with Professors Hugh Borton and John Orchard as associate directors.

Cornell University

FRENCH AND ITALIAN POLITICAL AND ECONOMIC ISSUES

Dr. Mario Einaudi, Professor of Government at Cornell University, proposes to make a study of political and economic issues in contemporary France and Italy. While German and Russian problems of this nature are the subject of considerable concern among statesmen and students of international relations in the postwar period, France and Italy have not received commensurate attention. These two countries emerge today as sensitive and important sectors in western Europe. In both far-reaching changes are taking place. Dr. Einaudi believes that a knowledge of these changes and their significance will add substantially to our understanding of the times in which we live.

Because of their common intellectual and legal backgrounds and similar political developments, the two countries lend themselves to treatment as a unit. Both possess definite constitutional patterns, and these are broadly similar in their republican structure. By 1949 the French and Italian constitutions should be tested sufficiently to permit analysis of their major characteristics and their adequacy for meeting current problems. Of the major political issues, Dr. Einaudi will give special attention to political parties and freedom of the press, as they reveal parallel development of democratic and com-

munistic ideologies. Chief problems in the economic field are the nationalization of industry and a possible economic union between France and Italy.

The Rockefeller Foundation has appropriated $6,900 toward the preliminary stage of Dr. Einaudi's study. Provided that he is successful in obtaining European collaboration an additional fund of $15,100 will be available for two years.

Swarthmore College
Peace Collection

In 1930 Swarthmore College received a donation of books and private papers dealing with the problem of peace from Jane Addams, founder of Hull House. With this gift as a nucleus the school established the Swarthmore College Peace Collection, a special group of materials on international peace activities. Other contributions of relevant literature soon led to the appointment of a curator, who has made systematic efforts to build up the collection through contacts with peace societies here and abroad.

As the collection becomes better known it is visited more and more by scholars and research workers from all parts of the world. Historians and political scientists recommend the collection to doctoral candidates who are preparing theses in this field. At present, however, the usefulness of the collection is somewhat impaired by the fact that new materials are accumulating more rapidly than they can be catalogued. Last year a survey of the more important holdings

was published as a *Guide to the Swarthmore Peace Collection.* There still remains a great variety of unclassified books and literature, some of it rare or unavailable elsewhere. To supplement the funds provided by the college, The Rockefeller Foundation in 1948 appropriated $10,000 for completion of the Peace Collection catalogue.

REHABILITATION AND DEVELOPMENT IN EUROPE

Social Science Research Council

PERIODICALS FOR EUROPEAN UNIVERSITIES

While European scholars have made great strides in cultural and scientific reconstruction necessitated by the war, their work is still hampered by the lack of foreign literature. After years of intellectual famine, an unusually large number of students are working hard and living precariously in order to prepare themselves quickly to assume positions of leadership in their countries. In the field of the social sciences they are particularly eager to learn about American research and methodology. The periodicals that are being shipped abroad through the good offices of the Social Science Research Council and other agencies often bring the first word of important new lines of research. They indicate new methods and sources and become the basis for selection of important studies in the various fields. Without this sort of guidance European scholars, all more or less confined within their national boundaries, are unable to relate their research interests to those of other countries.

Although numerous agencies have already contributed gifts of wartime periodicals, the transition period has proved longer and more complex than could have been anticipated in 1941 or 1945. In most European countries the government bodies which regulate access to the scarce dollar exchange, and hence to foreign scientific works, are under pressure to supply the material needs of their countries. In countries which were cut off from the United States during the war, and even in Great Britain and Sweden, the problems of obtaining books and scholarly journals have increased in recent months.

Supplementing its 1946–1947 program, by which some 40 sets of 300 outstanding social science books were distributed to European libraries, the Social Science Research Council is supplying sets of periodicals to 110 European universities. A Rockefeller Foundation grant of $43,000 to the Social Science Research Council makes this program possible.

United Nations Economic Commission for Europe Training Scholarships

The United Nations Economic Commission for Europe has received a grant of $12,000 from The Rockefeller Foundation to provide social science scholarships for selected European students.

Owing to the intellectual isolation brought about by war conditions, professors in many European countries have been unable to keep abreast of recent developments in their fields. Consequently the younger men studying under them at present receive

an incomplete preparation for advanced work. Rather than attempt to bring large numbers of these students to Great Britain or the United States, the Economic Commission for Europe has supplied a few scholarships for predoctoral study under the supervision of its staff members. Direct contact with mature scholars working on specific problems for one year will help to equip students for high quality postgraduate research, or for responsible positions with their respective governments.

An operational body which deals with virtually all aspects of European recovery and development, the commission has attracted to its staff an international group of competent economists. These men can offer promising graduate students an introduction to the international approach to economic problems while they are acquiring first-hand knowledge of applied economics. The Research and Planning Division headed by Mr. Nicholas Kaldor, formerly of the London School of Economics, carries on work which is closely linked with the technical economic problems encountered in the operational activities of the commission. Dr. Gunnar Myrdal of Sweden, executive secretary of the commission, has established a special committee to administer the program.

Helsinki School of Social Sciences

STUDY OF DISPLACED PERSONS IN FINLAND

The plight of hundreds of thousands of displaced persons, victims of World War II, constitutes a worldwide problem. Many of these individuals were forced

to leave their homes and move on to new territories. Their problems of adjustment to unknown customs and institutions are serious. In Finland, for example, a wide territory including extensive areas of Karelia and Lapland was ceded to Soviet Russia by the terms of an armistice signed in 1944. The inhabitants of these provinces, some half a million in all, or 11 per cent of the total population, migrated west into other parts of the country. Their physical settlement in new areas has recently been completed, but the trying processes of adjustment have only begun.

The Finnish evacuees differ somewhat in their character and popular traditions from other Finnish people. A considerable number belong to the Greek Orthodox Church, whereas the rest of the people are predominantly Lutheran. Some difficulties of assimilation thus arise from intermarriages between displaced and local people. Other problems have to do with differences in cultural organizations, farming practices and political attitudes. The latter have special importance in view of the parliamentary elections held in July 1948.

The School of Social Sciences in Helsinki has started a study of the assimilation of these evacuees by Finnish society. The Rockefeller Foundation is aiding this study through a grant of $11,080 available during 1948 and 1949. A statistical and sociological field investigation based upon the interview method has been planned. Rural and small urban areas settled by homogeneous groups have been selected for study. As Finland is a small country the study con-

ducted by the School of Social Sciences can be made more thoroughly than in some other European countries. At the same time, the Finnish research may be expected to yield information of a general nature, applicable to displaced persons in other parts of Europe.

MORAL AND ETHICAL PROBLEMS IN MODERN SOCIETY

Exploratory Studies

The Rockefeller Foundation in 1948 appropriated a fund of $25,000 to be used by officers of the Social Sciences in exploring opportunities for research on the moral and ethical problems in modern society. It is planned to make a few grants to other agencies and to invite memoranda from men of affairs who have significant ideas to contribute.

Social Science Research Council

A grant of $17,500 was made to the Social Science Research Council for preliminary investigation of research possibilities in the study of values. The council believes the most effective means of initiating a research program is to encourage a selected group of scholars to give their time and thought to a discussion of specific ways in which social science research can be related to ethical problems in contemporary life. A small group of interested men at five leading universities have agreed to devote five or six months to this work. Their role is to plan and recommend specific

research projects. Some younger men associated with the group propose to review relevant literature, prepare materials for consideration by the senior group, aid in designing possible research projects and report on discussions at their universities. Following the planning stage the group will meet in conference to compare conclusions and draft joint recommendations for an integrated research program.

Federal Council of the Churches of Christ in America

Since its beginning in 1908 the Federal Council of the Churches of Christ in America has been actively concerned with the moral foundations of national and international life, including economic activities. Today the council believes that moral issues involved in the problems of economic life have a new urgency. Such ethical considerations start with the individual and his place in modern economic life — a place which is increasingly determined by group rather than individual decisions and actions. How is the individual in this situation to function as a being endowed with moral freedom and responsibility? Sustained frustration at this point may lead to moral confusion and despair, which in turn may bring about the abdication of individual responsibility. Moral concepts seem irrelevant unless the individual is capable of significant moral action in a highly organized and complex form of economic life. The Federal Council feels that special attention given to this field now will result in a contribution to the integrity of national

institutions and to the economic well-being of the people as a whole.

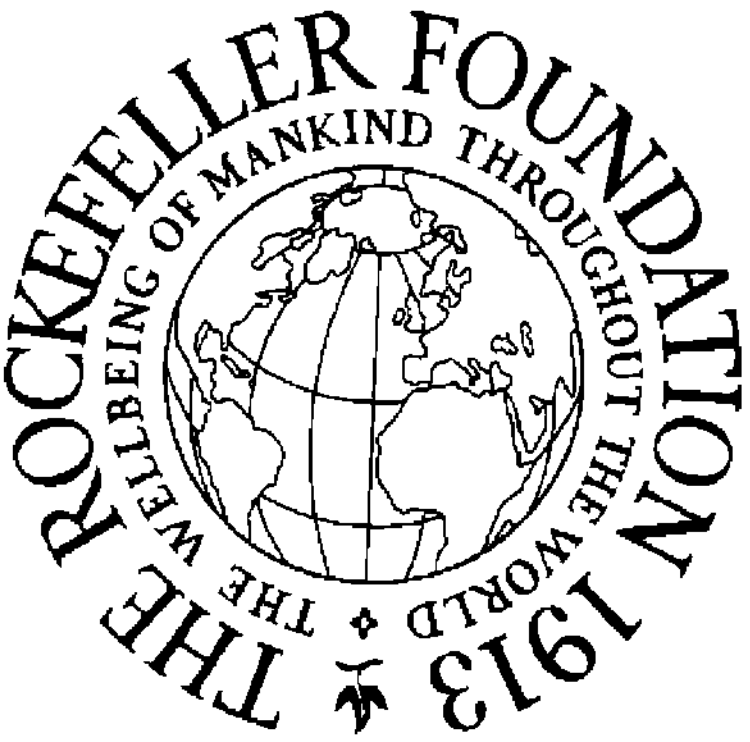
The council has called a series of conferences for discussion of a research program in this general area. They have resulted in the decision to give first priority to study of the ethical and social responsibilities of organized economic groups, such as corporations, trade unions and agricultural organizations. The conclusions will be assured of a wide audience since they will be published for distribution among churchmen and others. They will also furnish the subject of regional conferences attended by representatives of the church, business, labor and the academic world. The Rockefeller Foundation has appropriated the sum of $100,000 available over a three-year period for the expenses of this program.

POPULATION PROBLEMS

Princeton University

Office of Population Research

The Office of Population Research under Dr. Frank W. Notestein at Princeton University was created in 1936 as a clearinghouse for research on population problems. It is now a laboratory of the social sciences in which data on peoples, their rates of birth and death, net reproduction rates and migrations are analyzed to reveal influences upon economic, social and cultural changes. All of these materials help to forecast future growth or decline in populations. The



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A Puerto Rican sugar worker and his family

Farmers in a Japanese American relocation center displaying daikon, a large radish like vegetable

Photograph Excised Here

Photograph Excised Here

The early days of the Wisconsin lumber industry: a logging camp in 1882

(Wisconsin State Historical Society)

results of extensive bibliographical work are made available to outside scholars and institutions through the quarterly *Population Index*, edited and published for the Population Association of America. In addition the Office of Population Research provides instruction at all levels, from undergraduate study to postdoctoral specialization.

The professional staff consists of ten persons, most of them leading authorities in special fields. During the war much of their research was carried out at the request of government agencies. Books published during the past three years include *Europe's Population in the Interwar Years* by Dudley Kirk; *The Population of the Soviet Union* by Frank Lorimer; *Economic Demography of Eastern and Southern Europe* by Wilbert E. Moore. These, together with an earlier volume, *The Future Population of Europe and the Soviet Union* by Frank W. Notestein, complete a League of Nations project. More recently some work has been done for the new Population Division of the United Nations, in which Dr. Notestein served as consultant-director. Drs. Kingsley Davis and Irene Taeuber are at present completing studies on India and Japan, respectively. These represent the beginning of a major program of studies on Far Eastern population problems.

The Rockefeller Foundation began to support the work of the Office of Population Research in 1944. At that time a grant of $200,000 over a ten-year period was made. In 1948 a new grant in the amount

of $100,000 was made to provide additional support over the next five years.

Population Association of America
International Union for the Scientific Study of Population

To stimulate international exchange among demographers The Rockefeller Foundation in 1948 appropriated $15,000, available over a two-year period, for the establishment of a central executive office of the International Union for the Scientific Study of Population. Funds are administered by the Population Association of America.

Initial steps toward the formation of an international organization of population authorities coincided with the 1927 World Population Congress held in Geneva. An International Union for the Scientific Investigation of Population Problems was launched in Paris the following year. Structurally it was an association of autonomous national committees which set out to encourage population studies in each country and to secure funds for the support of the union. This system had some disadvantages, and when the union was able to resume its functions after World War II a change in structure was effected. Approximately 140 members, selected on an individual basis for their scientific qualifications, are associated with the union at present. Thirty-two countries are represented. Any country with five members or more may form a national committee. The international congress of 1947 further made provision for the estab-

lishment of a permanent international headquarters headed by a salaried director.

Members of the American committee, with the cooperation of the Population Association of America, have been asked to take the initiative in setting up such a headquarters for an experimental period. Dr. Frank Lorimer, Professor of Sociology at the American University, Washington, D. C., has agreed to serve as executive director. The union plans through the new executive office to facilitate the exchange of scientific information among demographers all over the world, and to stimulate related studies on population problems of international concern. Its first tasks are to survey current research activities and personnel, and to organize an international congress in connection with the next United Nations Assembly.

Reconnaissance of Far Eastern Population Problems

Population experts are deeply concerned with problems in the Far East, where social innovation in areas of dense population pressure and limited food resources present an ominous prospect. Some believe that this area, which contains half of the world population, is in a stage of potential growth similar to that of Europe during the last two centuries. Unless positive checks like famine, war or pestilence offset the trends of recent decades, India's present population of nearly 400 million may well double in the next 60 or 80 years. Java's population trebled between

1860 and 1930. Although reliable figures for China are lacking, it is well known that scores of millions of her people lead a precarious existence, and that she strongly desires social and economic innovations which historically have always brought an initial bulge in the population. In Japan births have exceeded deaths by more than a million in each of the last two years. In all of these countries there are serious problems to be met if agricultural and other production is to be increased more rapidly than the population so that there can be sustained advances in health and levels of living.

Officers and trustees of The Rockefeller Foundation have for some time been convinced that the study of population problems was exceedingly important from the standpoint of its broad interest in human welfare. In 1948 the Foundation appointed a mission of four experts in public health and demography to undertake an exploratory reconnaissance in the Far East. The sum of $12,000 was set aside for travel and other expenses of the mission. Dr. Frank W. Notestein of the Office of Population Research of Princeton University was chairman of the group, which included Dr. Irene Taeuber, also of Princeton, Dr. Marshall C. Balfour, Regional Director for the Far East, International Health Division, and Mr. Roger F. Evans, Assistant Director for the Social Sciences, The Rockefeller Foundation.

The mission arrived in Japan on September 13 and during the remainder of the year visited representative areas of Japan, Korea, China, Java, Formosa and

the Philippine Islands. The immediate aims are exploratory and include the securing of materials, contacts and ideas as a basis for long-range work.

RESEARCH AND TRAINING AGENCIES

Social Science Research Council

ADMINISTRATIVE EXPENSES

The Social Science Research Council is actively concerned with factors which assist or hamper the development of favorable attitudes and effective facilities relating to the improvement of research in the social sciences. Its role is that of a central agency to promote a unity of effort in attacking social problems that will assure a maximum return from the work of many individual social scientists and independent private and public institutions.

The direct concern of the council is with the quality of research as it is affected by the level and training of research personnel, the accessibility of information and the appropriateness of research plans and methods. The work is carried on through a central secretariat serving the numerous permanent committees which plan research and allocate the fellowship and grant-in-aid funds. Leaders in the various branches of the social sciences give freely of their time and thought to serve on the committees. There is urgent need for a better understanding of social behavior and for increased effort to raise the level of social science research. Progress toward these objectives requires the kind of research planning which the council can

provide, and it is a steady and important force in the direction of higher standards and abler personnel in these fields.

In the past 25 years the Social Science Research Council has received more than $800,000 from the former Laura Spelman Rockefeller Memorial and The Rockefeller Foundation for its administrative expenses. During the past ten years this has been at the rate of $30,000 annually. In 1948 a four-year grant of $120,000 raised the subsidy to $40,000 annually, corresponding to approximately one half of the council's administrative budget.

Social Science Research Council

FELLOWSHIPS

The fellowship program has always been one of the major interests of the Social Science Research Council. For the past three years the program has been supplemented by demobilization awards designed to aid persons returning from government or military service to resume scholarly work. With the experience of administering these special awards the council has reexamined its fellowship responsibilities in general, as well as more specific policies and practices. Several changes in operating policy have been adopted to insure greater flexibility in the regular program.

The prime concern of the council continues to be the advanced training of younger men with high research abilities. Staff and committee members make a point of obtaining all possible information on each

candidate for a fellowship. From now on they intend to take greater initiative in seeking out potential candidates. In the past, moreover, some excellent candidates have been denied fellowships because of immature or impractical study projects. It has therefore been decided to study the project of each candidate in the light of the individual's needs and training facilities. Priority is given to persons engaged in post-doctoral research, and to those whose preparations for social science careers are well under way. The council plans to keep in close touch with each fellowship holder during and after his study period. In view of unstable price levels and general unsettled conditions the council makes use of considerable freedom in setting the conditions of individual fellowships.

In accordance with its policy of supporting the training of advanced social science personnel The Rockefeller Foundation contributed $330,000 toward the fellowship program of the Social Science Research Council over the next three years. The council administered 113 fellowships in 1948.

Canadian Social Science Research Council

General program and fellowships

The Canadian Social Science Research Council, corresponding to the Social Science Research Council in the United States, is sponsored by the Canadian Historical Association, the Canadian Committee of the International Geographical Union, the Canadian Political Science Association and the Canadian Psychological Association. Through its committees on

publications, grants in aid of research, predoctoral fellowships and problems of graduate work in relation to smaller institutions, it performs valuable services in coordinating Canadian research and teaching in the social sciences.

Since 1942 The Rockefeller Foundation has supported the council's general program at the rate of $10,000 a year. The major portion of these funds during the past two years has been used to further research and publication of research. Eleven manuscripts have been published in this way. In addition, the Foundation has contributed approximately $70,000 toward specific projects, fellowships and grants in aid. In continuation of this policy the Foundation in 1948 appropriated $10,000 toward the general program and $15,000 for fellowships.

The Canadian council administers fellowships at the postgraduate level for advanced study or for completion of theses. Four awards ranging in amount from $860 to $1,500 were granted for the year 1948-49. The 1948 grant from the Foundation has permitted the council to expand this program.

JOINT OPERATIONS COMMITTEE

Survey of Crete

A grant of $25,000 was made on recommendation of the Social Sciences division to supplement a grant of $60,000 made earlier through the International Health Division to cover the expenses of a survey of Crete. The objects of the survey from the point of

view of the International Health Division are described in the section of this report dealing with public health (see page 97).

To the Social Science division this study represents an opportunity to assist the International Health Division in finding a more solid economic and social foundation for improving public health; and a chance to examine the problems of an industrially undeveloped area as well as to explore the ways in which modern knowledge and skills can be brought to bear upon the problems of its people.

FELLOWSHIPS AND GRANTS IN AID

In 1948 the Foundation appropriated the sum of $125,000 to be allocated for fellowships in the social sciences during 1949. A similar sum was allocated during 1948 from funds appropriated during the previous year and this was supplemented by $25,000 during 1948, making a total of $150,000 available for fellowship awards during that year. Twenty-eight awards were made during 1948 and 46 fellows were active during some part of that year. In the group of 46 fellows the following countries were represented: Australia, Belgium, Brazil, China, Czechoslovakia, Denmark, Finland, France, Great Britain, Greece, Italy, Japan, the Netherlands, New Zealand, Norway and Sweden. The fields represented include economics, sociology, population, political science, anthropology, industrial relations, statistics, geography and social psychology.

A total of 113 persons appointed through funds appropriated by The Rockefeller Foundation to the Social Science Research Council were on fellowship during 1948. Of this group 37 were appointed during the calendar year 1948, and others were carried over from previous years.

A fund of $250,000 was appropriated by the Foundation for allocation by the Social Sciences officers as grants in aid during 1949. The fund available to the officers for allocation in 1948, and appropriated in 1947, amounted to $175,000 which was supplemented during the year 1948 by a further appropriation of $75,000, making a total of $250,000 available for allocation during 1948. Seventy-two grants were active during 1948. As in previous years, and particularly since the end of the war, many of these grants were made for the purpose of aiding scholars from other countries to renew their professional contacts outside their own national boundaries. Among those who were invited to the United States by the Foundation during 1948 were Professor Arthur Montgomery of the University of Stockholm, Sir Alexander M. Carr-Saunders of the London School of Economics and Political Science, Dean Sargant Florence of the University of Birmingham, Professor Hugo E. Pipping of the University of Helsinki, Professor Richard Stone of the University of Cambridge and Professor Volrico Travaglini of the Institute of International Economics in Genoa. In addition the Foundation made several grants to permit American professors to visit foreign countries, as for example Professor

Friedrich Lutz of Princeton University to Europe, Professor Louis M. Hacker of Columbia to Great Britain, Professor Edward M. Earle of the Institute for Advanced Study to Europe and Professor Robert Redfield of the University of Chicago to China. Funds for specific projects were granted to the University of Chicago, Columbia University, Dartmouth College, the University of Wisconsin, Smith College, the Council on Foreign Relations and the Netherlands Society for International Affairs. A small sum was set aside for the purchase of social science books for research institutes in Europe, and special grants for books were made to organizations which will purchase and ship them to research institutes in the Far East. The majority of the grants under this program supplement the work currently supported under the regular program of the division.

THE HUMANITIES

THE HUMANITIES STAFF

During 1948

Director

DAVID H. STEVENS

Associate Director

JOHN MARSHALL

Assistant Directors

CHARLES B. FAHS

EDWARD F. D'ARMS

THE HUMANITIES

OTHER SUBJECTS

FELLOWSHIPS AND GRANTS IN AID

THE HUMANITIES

IN granting $1,495,846 under its program in the Humanities during 1948, the Foundation continued its effort to bring to realization the contribution that humanistic studies and the arts can make to contemporary life and thought. The largest allocation of the year, $500,000, was for fellowships to be awarded by the American Council of Learned Societies and by the Foundation, to assure the constant development of men and women for humanistic work. Thirteen major grants, totaling $399,500, were for Studies in Language and Foreign Cultures; three totaling $80,000 for American Studies; one of $15,000 for work in Drama. During the year no major grants were made under the headings of Libraries and Museums or Radio and Film which have figured in reports for earlier years. Grants to a total of $200,246, classified under Other Subjects, reflect a continuing interest in contemporary literature and a developing interest in the more general aspects of the study of history, particularly as a means to better understanding of the world of today. An allocation of $325,000 provided for smaller grants in aid, and $25,000 for surveys, studies and conferences relating to the program of the Foundation in the Humanities.

One noteworthy characteristic of the year's activity is the part which the Foundation has had in assisting work that is international in scope and implication. A grant to the American Council of Learned Societies for translating into English significant materials in Near Eastern languages will give readers in other parts of the world new knowledge and understanding of that region. A grant to the University of Hawaii will aid a conference of Western and Far Eastern philosophers in creating, directly and indirectly, a better understanding of the similarities and divergences of Western and Far Eastern thought. The University of Stockholm received further aid toward the training of young Scandinavian scholars qualified to interpret the Far East for their countrymen in Sweden, Norway and Denmark.

Other grants aimed at developing men and resources for humanistic interpretation in countries where the need and opportunity for development are similarly clear. Assistance to Germany took the form of a grant to Columbia University which enabled a group of German editors and publishers to study the ways in which the practices of the American press could apply in the development of German journalism. A grant to the Korean Language Association provided paper, ink, bindings and other materials needed to publish the first general dictionary of Korean in Korean characters. The University of the Philippines received help to encourage work in Philippine history and to assemble materials of study

to replace those lost during the Japanese occupation. Grants to the Colegio de México and to the National Institute of Anthropology and History in Mexico recognized the opportunity for the further development of work in history, philosophy, literary and linguistic studies in a country that now has an international center for work in the humanities.

Ninety-five smaller grants in aid went to recipients in 15 countries; of these some 20 were toward the cost of international travel by individuals to become acquainted with work in their fields in countries other than their own. The first assistance of the Foundation to the work of the United Nations Educational, Scientific and Cultural Organization took the form of a grant in aid for an inquiry related to UNESCO's Pilot Project in Fundamental Education in Haiti. Fellowship appointments during the year to a total of 94 covered 17 countries, and were in most cases for study abroad.

STUDIES IN LANGUAGE AND FOREIGN CULTURES

University of Hawaii

PHILOSOPHY

The cross-fertilization of Asiatic and Western cultures has for many years been the aim of the University of Hawaii. The first steps toward this goal were taken by developing special libraries of anthropology, Oriental studies and resources of the South Pacific and by appointing visiting professors from the

United States, East Asia and India. Faculty members of the University of Hawaii were granted an unusual amount of time for research work on race relations and Far Eastern history, and were encouraged to study or teach at centers of international culture in other countries.

Among the most constructive results of the efforts of the University of Hawaii toward the mutual understanding of Asiatic and Western cultures were those brought about by an international congress of philosophers and a summer session of advanced teaching in philosophy in 1939. The conference gave rise to international studies such as Charles A. Moore's *Philosophy — East and West*, F. S. C. Northrop's *The Meeting of East and West* and Junjiro Takakusu's *The Essentials of Buddhist Philosophy*.

The University of Hawaii has made plans to hold another summer session in philosophy and an international congress of philosophers during the summer of 1949. The Foundation has donated $35,000, primarily toward the teaching expenses and the preliminary preparation of papers. Professors and teachers of philosophy from many countries will be present. On the basis of the agenda, prepared and circulated by Professors Moore and Radhakrishnan, papers and courses of instruction were assigned a year in advance. The discussion topics deal with the points of antagonism and harmony between Eastern and Western philosophies. One constructive aspect of the program is the completion of a textbook on Oriental

philosophy which is greatly needed at present since no such text exists in English.

University of Stockholm
Far Eastern Studies

The belief that Western culture must broaden its horizons to include the vast, uncharted territories of Eastern civilizations is bringing about a growing demand for a better interpretation of the Far East in Scandinavian countries.

A leading role in the development of Far Eastern studies has been assumed by the University of Stockholm. The university is fortunate to have on its faculty the internationally known Professor Bernhard Karlgren. Under his guidance the university established a training program in 1946 for students from Sweden, Norway and Denmark in Far Eastern studies. This program, made possible by a grant from the Foundation, provided the students with special courses in Mandarin, Chinese script, the elements of literary Chinese, Far Eastern culture and the use of Chinese texts.

To promote further knowledge of Far Eastern culture, the Foundation made an additional grant of $50,000 in 1948 to the University of Stockholm. This grant will enable the students trained under Professor Karlgren to spend one year in the Far East, where they will study philological, historical and archaeological aspects of Oriental culture. During a second year they will travel to the United States

to observe teaching methods and the organization of sinological libraries, then return to the University of Stockholm to prepare the dissertations required for their advanced degrees. Their ultimate aim is to occupy academic posts in their respective countries.

University of the Philippines

History of the Philippines

Southeast Asia is a neglected area in Western historical scholarship. Although extensive documentation exists on Indo-China, Indonesia and Burma, no critical studies have been made of histories which overlap. For example, no study exists on the influence of the Hindu-Javanese Empire of Srivijaya on the Philippine Islands. This lack is caused partly by inadequate historical documentation on the Philippines and partly by the Spanish conquest of the Philippines which obscured the written records and artifacts of earlier cultures. Before the war libraries in Manila had collections of Philippiniana which might have formed the foundation for historical research. During the reoccupation, however, these libraries suffered heavy damage. The University of Manila lost all but one collection, the Bureau of Sciences lost everything and the National Library lost 12,000 of its 15,000 volumes.

To reconstitute the basis for writing their own history, the Filipinos will have to obtain microfilms of the material contained in the surviving Philippiniana collections in Washington, D. C., Chicago, the Vatican City and Seville. For this purpose a new

group of young historians is being trained at the University of the Philippines and extensive bibliographical surveys are being undertaken.

The Foundation has appropriated $18,000 to the University of the Philippines for library development and research in Philippine history to be used over a four-year period. Professor Nicolás Zafra, head of the Department of History, is in charge of the program. Under his guidance two assistants will work on an analysis and bibliography of topics which will eventually form an encyclopedia of Philippine history.

University of California

JAPANESE REFERENCE MATERIALS

The West Coast has several institutions with important programs of Far Eastern studies. Of these programs that of the University of California is the oldest. The Chinese and Japanese collections at Berkeley have been built up slowly over a period of many years. Recently, under a new director of libraries and a new librarian for the Chinese and Japanese collections, these collections have been resurveyed and reorganized. Preliminary discussions concerning the coordination of purchasing policies in these fields of the several major West Coast libraries have also been held. Major gaps were found in the University of California collections, even in some fields which that university is probably best prepared to develop. In 1948 the Foundation donated $7,500 to the University of California for the purchase of Japanese materials to fill some of these gaps.

Korean Language Society

DICTIONARY

Five centuries ago a Korean king named Se-Jong wished to make learning available to more of his people. He sought the aid of musicians and linguists and created a new alphabet. The king, with humanistic dignity, introduced the alphabet to his people in a song and proved its usefulness in competition with the traditional Chinese characters employed in writing Korean. His successors, however, were not of the same mind and neglected the alphabet in favor of Chinese characters. The use of Chinese characters in written Korean still continues. Their complexity and ambiguities have greatly retarded cultural development and mass literacy.

During their occupation of Korea the Japanese discouraged the use of the Korean alphabet as a symbol of nationalism. Despite this the Korean Language Society, composed of over 300 scholars, compiled the the manuscript for the first unabridged Korean dictionary using King Se-Jong's alphabet. By standardizing vocabulary, pronunciation and spelling they hoped to lay the foundation for a truly national language. After Pearl Harbor this manuscript was confiscated and 30 of the scholars were imprisoned for their work. The manuscript, long believed to be lost, was rediscovered after liberation. Publication was begun in Seoul in 1947 but stopped with the first volume because of lack of paper. In order that the five remaining volumes of the dictionary may be

published, the Foundation has granted the sum of $45,000 to the Korean Language Society to be used for the purchase of essential materials such as text paper, binder board, cloth and ink.

Until the dictionary is widely available, the newspapers will continue to use many Chinese ideographs which prevent the great mass of the people from reading the news. The dictionary is necessary not only for the development of new school texts, but also to promote adult education, press, radio and film work, and creative literature. Thus after 500 years, the Korean alphabet is finally coming into use.

American Council of Learned Societies

NEAR EASTERN LANGUAGES

For the English-speaking nations, knowledge of modern social and intellectual trends in foreign countries depends to a great extent upon the available English translations of materials published abroad. The American Council of Learned Societies has been markedly successful in its Russian translation program and is responsible for the English version of *Tolstoy as I Knew Him* by Tatyana Kuzminskaya, Vishinsky's *The Law of the Soviet State*, and *The Economy of the U.S.S.R. during World War II* by Voznesensky, Chief of the State Planning Commission.

The Near East is a critical area. Its political importance has been emphasized by recent events, but the extent and importance of its intellectual and cultural life are hardly realized among Western nations. A recognition of the growing significance of

these factors has been accorded by the United Nations Educational, Scientific and Cultural Organization in its annual meetings in Beirut during November and December of 1948. With the aid of a grant of $75,000 from the Foundation, the American Council of Learned Societies plans to expand its translation program to include Near Eastern languages. The funds will be used for planning and development, editing and translation of works of intellectual, cultural and social significance in Arabic, Turkish and Persian. Special emphasis will be placed on modern materials.

Library of Congress

Monthly List of Russian Accessions

As a result of the rapid development of Slavic studies in the United States, the availability of Slavic materials in American libraries is increasing in importance. The Library of Congress has assumed a leading role in this respect and, with the help of a previous grant from the Foundation, is making a special effort to catalogue and organize its own material and to make an inventory of the possessions of other libraries.

The growing interest in Slavic studies has necessitated special efforts to augment the supply of present materials with additional publications obtainable only from the Slavic countries. The greatest difficulty is to know when valuable material is published. The Library of Congress, through its own accessions and through those of other government agencies, has a

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wider knowledge of material now appearing in the Slavic countries than any other American agency.

With the aid of $7,500 granted in 1948 by the Foundation, the library plans to issue a monthly list of Russian accessions which will include material received by the Library of Congress and other important research libraries. In the case of periodicals, articles will be listed, and it is eventually intended to include certain specialized newspapers which are the house organs of Russian industries and trades.

Wayne University

FREQUENCY LIST OF RUSSIAN WORDS

By directing attention in the first year of language learning to the vocabulary of most general utility, earlier studies of vocabulary frequency in French, Spanish, German and Portuguese have revolutionized elementary language instruction. These word counts have had far-reaching effects on language teaching and are the foundation for almost all new elementary texts. Without statistical evidence on frequency, maximum efficiency in elementary language learning or standardization of teaching and testing materials cannot be obtained. The rapid expansion of instruction in the Russian language makes the further development of this statistical base both necessary and urgent. In addition, the tabulation of different word forms can provide important source material for linguistic research.

The Foundation has appropriated $40,000 to Wayne University, Detroit, Michigan, to be used

during the next two years for the preparation of a frequency list of Russian words. The procedures for the word count were formulated by Professor Harry H. Josselson of Wayne University in conference with other linguists and scholars with experience in comparable studies of other languages. Under the direction of Professor Josselson, a staff will base its count on passages selected from a wide variety of sources, of which 25 per cent were published before 1900, 25 per cent between 1900 and the Russian Revolution, and 50 per cent under the present Soviet regime.

Harvard University

TEACHING OF ENGLISH

In England recently, 200 former displaced persons recruited for mining learned to speak English in weeks instead of years. The simplified method of learning used was developed by Dr. I. A. Richards of Harvard University and was demonstrated in England by Miss Christine M. Gibson, his chief assistant.

Dr. Richards emphasizes audio-visual aids for teaching. Textbooks are illustrated with simple matchstick drawings. Lessons are supplemented with films showing people doing simple everyday things while a sound track describes their actions. Dr. Richards has collaborated with the *March of Time* to produce a series of films for the teaching of basic English. He has also published *The Pocket Book of Basic English* and *Teachers Guide for Learning the English Language.*

In 1948 the sum of $7,500 was granted by the Foundation to Harvard University for the further

development of techniques for the teaching of English, particularly for the training of teachers who are working as research fellows with Dr. Richards.

Cornell University
MODERN LANGUAGES

Instead of including language instruction in departments of literature as is the tradition, Cornell University has created a single Division of Modern Languages. Dr. Milton J. Cowan, who directed the intensive language training program of the American Council of Learned Societies during the war years, is in charge of the division.

The emphasis in language teaching is placed on concentrated oral-aural work. Students are instructed in French, German, Italian, Brazilian Portuguese, Russian and Spanish by native speakers. With the new arrangement, students in the Division of Modern Languages are believed to attain unusual proficiency after one year of study with eight hours of classes a week.

In the modern language courses offered by Cornell University enrollments are rapidly increasing and additional faculty members have been appointed. To help meet the cost of this expansion the Foundation has made a grant of $25,000 to the university for the further support of the Division of Modern Languages.

National Institute of Anthropology and History, Mexico

One of the principal centers in Latin America for the study of American history and anthropology is

located in a castle overlooking Mexico City. Chapultepec Castle, once the summer home of Emperor Maximilian, was formerly used as the executive mansion for the presidents of Mexico. In 1947 it was made available by the Mexican government to the National Institute of Anthropology and History. The institute supervises Mexican antiquities and research programs in Mexican anthropology and history.

Under Dr. Ignacio Marquina's direction, the National Institute organizes and maintains museums and field projects in archaeological research. In addition to providing linguists and field staff for literary campaigns, it advises the Bureau of Indian Affairs and the Ministry of Education. The library at the institute contains valuable records of the colonial friars and others of the period of Cortez, as well as early post-Columbian records written by the Indians which aid in the deciphering of Mextec, Zapotec and Mayan hieroglyphs. The institute school for the personnel needed in its various activities offers training at a graduate level in all aspects of the humanities except philosophy and literature, and in some fields of social studies.

A grant of $26,000 was made to the institute for the reorganization of its library resources, and for the development of its teaching and research program. The funds will be used to train additional personnel for the library, and to purchase books, periodicals and a copy of the catalogue of the Library of Congress. Fellowships will be granted by the institute to students from foreign countries whose governments

wish them to be prepared for responsible positions as directors of national programs in history, archaeology and anthropology.

Colegio de México

ADVANCED STUDY AND TRAINING PROGRAMS

Although the faculty and student body of the Colegio de México number only two score, the Colegio exercises an international influence in the field of the humanities. Possessing an unusually high standard of teaching and research, the Colegio enables Latin American students, Spanish and Mexican scholars to work together in a unified program of teaching and research on all aspects of Spanish and Spanish American cultures.

The Colegio de México, created in 1940, had its origins in the Casa de España which was established by the Mexican government and private citizens as an international center of advanced study in the humanities. When the Spanish Civil War occurred, many scholars sought refuge in the Americas and Mexico City became the new center for humanistic scholarship in the Spanish-speaking world.

About one half of the students in each class at the Colegio are from countries other than Mexico and are granted scholarships with funds from their respective governments and the Foundation. The programs of the Colegio require three years of advanced study toward a doctor's degree, and include studies in linguistics, literature, the arts, philosophies and cultural histories of the Americas.

A Foundation grant of $53,000 has been made to the Colegio de México. The funds will be used partly for linguistic scholarships to train young men as teachers, research workers and editors, and partly for grants to individuals toward the completion of historical projects now in progress. One project, based on the diplomatic files of Spain in Mexico for the years 1836 to 1920, was published in four volumes in 1948.

Colegio de México

HISTORY OF MODERN MEXICO

A history of Mexico in the twentieth century is being prepared by Mr. Daniel Cosío Villegas, director of the Fondo de Cultura Económica, the leading scholarly publishing agency of Mexico. A prominent Mexican scholar, he studied in the United States, England and France and has frequently represented Mexico at diplomatic conferences. He is the author of three volumes on Mexican sociology and five volumes on the subject of Mexican tariffs.

Aided by a Foundation grant of $10,000, Mr. Villegas is interrupting his administrative work to spend two years at the Colegio de México. The time will be devoted to the preparation of his history of modern Mexico. This volume attempts to define the social structure and the educational thought of Mexico. It includes a study of the relations between church and state from 1870 to 1900 and an analysis of the Mexican revolution from an historical point of view. Special emphasis will be placed on Mexico's

present domestic situation and her role in international affairs.

AMERICAN STUDIES

National Archives

MICROFILM STOCKS

The National Archives contain records dating from the Revolutionary War through World War II which have been gathered from the United States Congress, the White House, various government agencies and several of the federal courts. Since 1934, when the archives were established, these vast quantities of materials have been consolidated and the preliminary work of collecting back files of documents and organizing those of each government bureau is now almost completed. Special personnel have been trained to meet the needs of federal agencies who require an isolated item of information or wish to consult a body of records. Until recently the archives served government departments mainly, since research and the duplication of records for scholars or libraries were restricted by various regulations.

To overcome this handicap the Foundation granted $20,000 to the National Archives for producing basic microfilm stocks of research materials and for copying its files for the use of scholars. Part of the fund is being used to produce the basic stock of film copies and the other part serves as a revolving fund.

Scholars have found the records in the archives invaluable. For those interested in the history of

North Carolina, for example, there are volumes on the early period of the federal government containing records of licenses, registers, changes of masters of vessels and other documents relating to the ocean-going commerce of North Carolina. There are muster rolls and statements of clothing issued for the Revolutionary period. Records exist relating to the Cherokee Indians, North Carolina's part in the Civil War and World War I, and there are various documents on agriculture, transportation, education, manufacturing and public health. The availability of such records to scholars opens new fields to historical research and interpretation.

University of Oklahoma

HISTORY OF OKLAHOMA

When the white man imposed his civilization upon that of the Indian in the Midwestern states, little attention was paid to the keeping of records. Records of these early days are mainly in the form of letters, journals, account books and diaries. Many were burned or destroyed unwittingly by the persons who inherited them, but much of great value remains.

With the object of encouraging serious study and interpretation of life in this region the University of Oklahoma has already begun to gather records of the history of Oklahoma. The university's enviable record of production on the history of the Southwest is due in part to the leadership of older faculty members whose knowledge of the state goes back to territorial status. The publication record of the University

Press is among the best in the country with regard to quality. A previous grant from the Foundation was aimed at helping in the preparation of materials by men of letters and historians on the faculty. Their manuscripts in turn influenced large numbers of younger students in Oklahoma to become writers, critics and teachers.

In 1947 the State Legislature of Oklahoma established the archives of the university on a budget sufficient for staffing and operation. As there is now a great need for the development of archival resources on history and contemporary life in Oklahoma, the Foundation has given a grant of $35,000 for this purpose.

Dr. Gaston Litton, the archivist in charge of the program, was an assistant in the National Archives in Washington and has organized libraries in Panama, Brazil and Nicaragua. He is also a specialist on Indian history in Oklahoma and has written several historical works on the subject, the most notable of which is *Cherokee Cavaliers.*

Under Dr. Litton's administration the funds appropriated by The Rockefeller Foundation over a four-year period are being used to assign younger faculty men to field work during the summer terms and to establish new courses based upon the growing historical collections. A faculty committee approves all plans for field work, teaching and the development of particular aspects of Oklahoma history. The records of provisional governments, Indian tribal documents, industrial records and accounts of older

residents of the state are being arranged for reference and use by writers and scholars.

University of Minnesota
Northwestern History

Prompted by its interest in Northwestern history, the University of Minnesota has aided in the publication of regional studies, encouraged creative work among its students and trained teachers particularly interested in literary and historical records of the United States.

The university has tried to promote the cultural potentialities of the Northwest through a fellowship program for writing on regional subjects. As a result it has been responsible for Feike Feikema's *This Is the Year*, a novel on a community of Frisian farmers; Florence Page and Francis Lee Jaques' *The Snowshoe Country*, a study of Canada and Minnesota; an account of the internationally famous Festival of Nations by Alice Sickels entitled *Around the World in St. Paul;* Bruce Nelson's *Land of the Dacotahs; Singin' Yankees* by Philip Jordon, a story of a nineteenth century family of American troubadours; Herbert Krause's *The Thresher*, which is set in the Red River Valley; John Drury's *Historic Midwest Houses;* and a series of 13 radio scripts by Philip Gleb, *This is Our Land*, dramatizing different phases of the development of the Upper Midwest, such as iron, lumber, flour milling and immigrant populations.

To continue the work of the university in regional studies the Foundation made a grant of $25,000 for

studies in Northwestern history. Dean Theodore C. Blegen of the Graduate School and Miss Helen Clapesattle, Acting Director of the University Press, have cooperated with a faculty committee to select manuscripts of regional studies for publication. It is believed that the unusual coordination of research, writing and publication achieved by this regional program will continue to attract writers from Minnesota and other states of the Midwest.

DRAMA

University of Wisconsin

STATE PROGRAM IN DRAMA AND ALLIED ARTS

If the general public in Wisconsin has become drama-minded, some of the credit goes to the University of Wisconsin for its leadership in theatrical arts. The university has aided in the discovery of playwrights, helped to train them and has encouraged dramatic literature based on regional themes.

The program of the University of Wisconsin is state-wide. During the past year the drama staff of the university organized a series of original plays and festivals for the state centennial. Aid was also given to drama projects in 38 colleges and in 37 communities throughout the state. As a regular part of its program, the university offers courses in the production of plays, television shows and radio broadcasts, and holds periodic teacher conferences in the dramatic fields.

Professor Robert E. Gard is the director of this state plan for the University of Wisconsin. He origi-

nally developed this type of program while on the staff of Cornell University. At that time he directed a project to acquire original materials and to develop playwrights in western New York State. In cooperation with the Department of Music he and his colleagues set a pattern for work in rural areas. After leaving Cornell he worked on a similar project in the Province of Alberta, Canada.

To continue the state-wide program in drama under Professor Gard, and to provide for two assistants, the Foundation granted $15,000 to the University of Wisconsin for a two-year period.

OTHER SUBJECTS

Columbia University

PROGRAM FOR GERMAN PRESS PERSONNEL

One of the objectives of the American military government in Germany is to promote the idea of a free press. For decades the German press has been subject to the censorship of government officials and political party leaders. Few Germans are aware of the way in which a democratic press can protect individuals and public rights, expose political corruption, crusade against social and other evils and print uncensored government news.

In order that German journalists might study the organization and functions of a democratic press, the Foundation granted $36,246 to Columbia University for use by the American Press Institute in a training program for German press personnel. The American

Seminar for German press personnel held by the American Press Institute under the auspices of Columbia University

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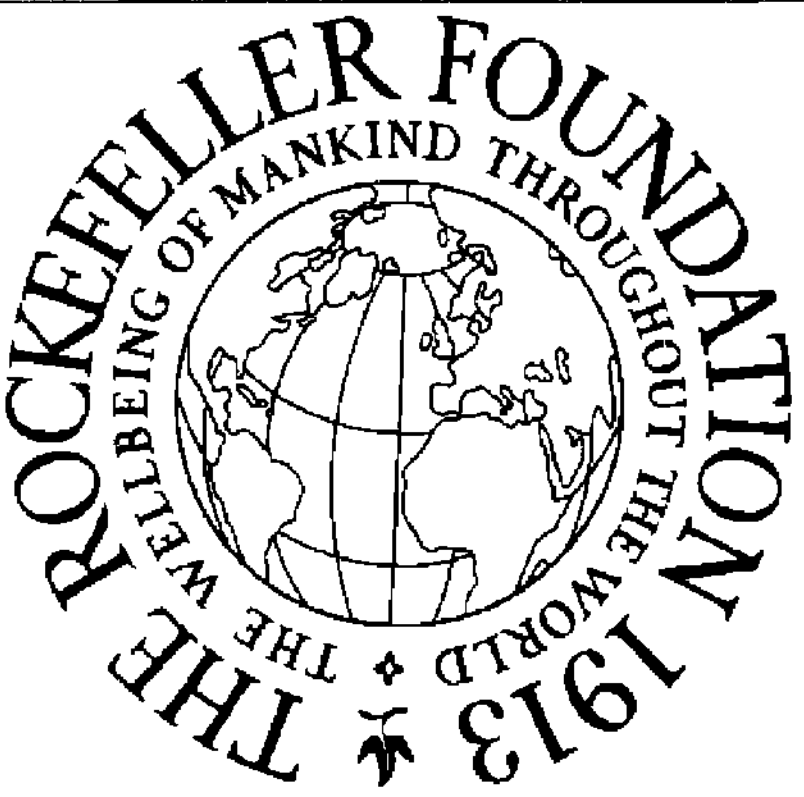

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Research in Philippine history,
University of the Philippines

Colegio de México: Seminar in linguistics

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Press Institute was founded in 1946 by 38 American newspaper publishers in an effort to improve the quality of American newspapers. Each year seminars are held to which newspapers throughout the United States send editors and writers to discuss current newspaper practices and problems.

Through General Robert A. McClure, Civil Affairs Division, Reorientation Branch, Department of the Army in New York, and the American military government in Germany, a group of 15 Germans was selected to travel to the United States in September. They attended a special seminar at the American Press Institute. The group consisted of 14 men and one woman, all of whom had been licensed to print newspapers or magazines because of their support of democratic ideals. Most had suffered before or during the war for their anti-Nazism. One had spent seven years in the Buchenwald concentration camp. Together they represented the daily press, the news associations, the more important weekly magazines and the leading women's magazines of the American, British and French zones of Germany.

On arrival in the United States the German journalists participated for several weeks in conferences at the American Press Institute with American newspaper and magazine editors and writers. Among the topics considered at the round-table discussions were the influence of an editor on his community, the effect of newspapers and magazines on the government, the achievement of readability through clear writing and accurate reporting, the use of pic-

tures, the separation of news from opinion, the correct interpretation and balanced presentation of news. The journalists visited the offices of the *New York Herald Tribune*, the *New York Times* and *Time* and *Life* in New York City. Trips were made to Providence, Rhode Island, and to Trenton, New Jersey, to observe the functions of newspapers in smaller cities, and to Washington, D. C., to study the newspapers of the nation's capital and government news agencies. The entire program was under the direction of Carl W. Ackerman, Dean of the Graduate School at Columbia, Floyd Taylor, Director of the American Press Institute and J. Montgomery Curtis, Associate Director of the institute.

The Foundation also gave a grant in aid for the sum of $4,000, to enable these German journalists to remain in the United States for two weeks following their seminar at the American Press Institute. During this period the journalists supplemented their formal work by traveling throughout the United States.

Humanities Research Council of Canada

PLANNING AND DEVELOPMENT

For the stimulation and re-establishment of contacts among the scattered and isolated groups of humanistic scholars in Canada, the Humanities Research Council of Canada is organizing planning committees and conferences. The council has compiled a survey of the status of the humanities in Canada with a previous grant from the Foundation. On the basis of this survey, the council is evaluating

personnel and library resources in Canada in order to present to university authorities a statement of present and future needs.

The aim is to develop and demonstrate national leadership in the fields of the humanities. It is intended that work in the humanities in Canada shall not only maintain its high quality but also take into account Canada's special responsibilities and opportunities along these lines.

In 1948 the Foundation granted $15,000 to the council for planning and development during a two-year period. The council intends to evaluate the role of the humanities in relation to the existing patterns of university work; the problem of training the scholars of the future; the aims, methods and standards of research; and the potentialities and problems of Canada's bilingual culture. The council is also considering the possibility of developing comparative studies of the culture and letters of the British Dominions with special reference to Canada.

Committee of Vice-Chancellors and Principals of the Universities, Great Britain

PURCHASE OF FOREIGN BOOKS AND JOURNALS

The difficulty of purchasing current books and periodicals from abroad under existing currency regulations constitutes a serious handicap to teaching and research in British universities. Plans made for the development of new work in the humanities and social sciences require the acquisition of additional library resources. To stimulate and reinvigorate

existing programs an appreciable flow of fresh scholarly materials is also needed.

In recognition of this need and in the belief that the most effective distribution can be achieved through a British organization, the Foundation granted $50,000 to the Committee of Vice-Chancellors and Principals of the Universities of Great Britain toward the purchase of foreign books and journals for special programs in the humanities and social sciences.

The program is under the direction of Mr. R. H. Hill, Librarian and Secretary of the National Central Library. Each institution is to receive a small allotment for basic reference works. Approximately three-fourths of the funds are to be assigned for special programs of work in selected universities.

University of Birmingham
Awards in Literature

Among the difficulties experienced by writers under the existing austerity regulations in Great Britain is the shortage of paper for books, magazines and newsprint. This shortage has prevented many young writers from finding an outlet for their work which would enable them to support themselves through writing as a career. After the war some became miners, night telephone operators or steel moulders in foundries. Despite such adversities there has been a resurgence of creative literature.

In this situation the University of Birmingham has done much to encourage young authors through the Atlantic Awards in Literature. The awards are made

to British subjects whose work in creative writing and criticism had shown particular promise before being interrupted by wartime service. The purpose of the awards is to enable the authors to devote themselves to their work, unhampered by acute financial worries for at least a year.

The value of the awards is perhaps best expressed in the words of a recipient who wrote: "The strange world to which we returned from war and imprisonment made many quite unexpected demands upon our confidence — and still does; it was a help to have this expression of confidence in us."

Among the 35 authors aided by the University of Birmingham are Colin Morris, author of *Desert Rats*, George Scott-Moncrieff, poet, John Maurice Lindsay, poet and editor of *Modern Scottish Poetry*, and Percy Howard Newby, who wrote *A Journey to the Interior*.

The Foundation has granted $15,000 to the university for further awards and administrative expenses over a two-year period.

University of the South
SEWANEE REVIEW

Studies of literary journals published by universities show that the *Sewanee Review* is recognized as one of the journals that are "of most use to literature in the United States." Like the *Kenyon Review*, also supported by the Foundation, it accepts work for publication not on the basis of popular appeal, but of literary merit. Consequently, by appealing primarily to those seriously interested in contemporary litera-

ture and criticism, it exerts an influence out of proportion to its small subscription list.

Publication of the *Sewanee Review* has been possible only because writers allowed their work to be published at nominal rates. An increase in rates, as the result of a Foundation grant of $27,600 to the University of the South, which publishes the journal, enables writers to turn to the *Sewanee Review* for the publication of what they themselves consider their more significant work. It enables the editors to commission articles on subjects of importance and will justify more serious work, particularly in book reviewing. Such an increase in quality will augment its appeal to students, teachers and all concerned with contemporary literature.

The new grant rounds out an effort on the part of the Foundation to strengthen small journals which represent an independent force in American literary and academic life. The *Partisan Review* in the metropolitan East has found support from private sources; the *Kenyon Review* in the Midwest, the *Sewanee Review* in the South and the *Pacific Spectator* in the West are reviews that should, by publishing contemporary work of genuine literary importance, pave the way to a wider recognition of all those concerned with literary studies.

Cornell University
HISTORY OF MODERN SCIENCE

Despite the importance of science and its influence on modern society, the history of science is

taught in very few universities and colleges in the United States. As a result there is a shortage of trained personnel and of materials for the courses needed in many institutions for nonscientific students.

In order to develop methods, materials and personnel for the teaching of the history of modern science, the Foundation made a grant of $37,500 to Cornell University to be used during a six-year period. The director of the program is Dr. Henry Guerlac, Professor of the History of Science. Professor Guerlac studied under Professor George Sarton of Harvard University, a leading specialist in this field. During the war he served with the Office of Scientific Research and Development, assisting in the preparation of the official *History of Radar in World War II* and Dr. Vannevar Bush's report entitled *Science, the Endless Frontier.*

Under the program of Cornell University the training of personnel for the history of modern science is concentrated in a workshop seminar. The group is working on a trial edition of a syllabus with collected readings for a course on science in Western civilization. Extensive experimentation is carried on with visual aids for large classes. A basic textbook is also in preparation. Professor Guerlac plans to spend three months abroad in the summer of 1949 to explore the opportunities for using British and European manuscript materials and to secure the necessary microfilms and photostatic copies.

It is because the history of science is taking its place to an ever increasing extent as an integral and

significant part of cultural history that this grant has been made under the Humanities program.

YALE UNIVERSITY
HISTORY OF THE TWENTIETH CENTURY

Dr. Ralph E. Turner, Professor of History at Yale, is the author of a projected six-volume work entitled *The Great Cultural Traditions. The Ancient Cities* and *The Classical Empires*, which comprise the first two volumes, are considered to be among the most satisfactory general histories of the great civilizations and cultural traditions of mankind now available. At present Professor Turner is undertaking the preparation of another volume to be entitled *The Meaning of the Twentieth Century*.

Among the subjects to which Professor Turner will devote special attention are: 1) wealth, including new means of production; 2) power and its changing functions and foci; 3) population with its varied total structure in age groups and rural-urban ratio; 4) learning, in respect to the extension of literacy, the disintegration of the class organization of education and the influence of the objectivity of science; 5) orientation, particularly in relation to specialization of occupation and to social interaction.

With the aid of a $20,000 grant from The Rockefeller Foundation to Yale University, Professor Turner is giving two years to the task of preparing *The Meaning of the Twentieth Century*. Plans have been made for the assembly of research material and

for travel around the world for the purpose of studying main cultural movements.

Humanities Division

EXPLORATIVE STUDIES

A review of the Humanities program for the years 1942–47 has shown the desirability of further exploration, both in fields now included in program and in those with which the Foundation might properly concern itself in the future. For this purpose the Foundation has appropriated $25,000 for surveys, studies and conferences in the program of the Humanities division.

FELLOWSHIPS AND GRANTS IN AID

In addition to the regular fellowship program administered directly by the officers of the Humanities division, The Rockefeller Foundation sponsors fellowship programs in the humanities which are administered by other agencies. Among the agencies which have received continuous support for this purpose over the past few years is the American Council of Learned Societies.

American Council of Learned Societies

The fellowship program of the American Council of Learned Societies began in 1930, and has been largely supported by the Foundation. Its awards have been given to postdoctoral specialists for further training

and research. At the predoctoral level, increasing attention has been paid to the training of promising scholars in under-staffed and under-worked fields of the humanities.

Since the war, there has been a growing need for teachers trained in the broad fields of the humanities, rather than in one specialized field only. The interconnections of knowledge, along with the varying programs of divisional courses and general education courses, have created a demand for persons equipped for such teaching. Many able young men and women have shown the desire and ability for such work, but the usual form of fellowship is awarded for specialization, rather than broad comprehension. The American Council of Learned Societies will now broaden its fellowship program to include candidates having these interests, thereby encouraging them to undertake teaching as a career. In some cases, this will include awards for graduate study to college seniors of exceptional promise.

The Foundation has made a grant of $325,000 to the American Council of Learned Societies over a three-year period to enable it to expand its fellowship program to cover all three of the purposes mentioned above. Administration of the program centers in the office of the council, rather than with a committee occasionally called to consider applications. During 1948, 54 fellowships were administered by the council.

For many years the council has served the interests of humanistic studies in the United States. It has aided the development of the fields of Far East-

ern, Slavic, Latin American, Middle Eastern and Indic studies. It has become internationally known for its work in intensive language instruction and language area courses.

Regular Fellowships and Grants in Aid

In addition to its over-all program in support of projects, the Humanities division in 1948 awarded a total of 189 grants in aid and fellowships to individuals and institutions throughout Europe, the Far East, North and South America and the Pacific and Caribbean areas.

Country	*Grants in Aid*	*Fellowships*
Argentina	–	1
Belgium	1	–
Canada	5	1
Chile	1	2
China	6	6
Denmark	–	2
France	6	1
Germany	1	–
Great Britain	6	2
Guatemala	1	–
Haiti	1	4
Italy	–	1
Korea	–	3
Mexico	1	4
Netherlands	3	4
Norway	3	1
Philippine Islands	–	2
Puerto Rico	1	2
Sweden	2	1
United States	58	57
Total	95	94

The fields in which the funds are employed and the subjects studied follow the pattern of the general program of the Humanities division:

Subject	*Grants in Aid*	*Fellowships*
Languages and Foreign Cultures	47	73
American Studies	4	1
Libraries and Museums Equipment and Training of Personnel	21	12
Music, Drama and Art	11	6
Film, Radio and Television	5	2
Other Grants	7	–
TOTAL	95	94

Grants in aid may be exploratory, such as the one approved during 1947 for preliminary studies at Wayne University which resulted in a proposal for a frequency list of Russian words, work provided for later in the year through a major grant. A grant in aid may be for small projects or investigations clearly related to the program of the Foundation in a given field. Typical of this latter category were grants in aid approved during 1948 to the University of Buffalo for a volume on current trends in philosophy by French and American philosophers; to Princeton University, to enable an advanced student of the Middle East to study modern trends in Islamic

thought; to the University of Minnesota, to enable Professor Joseph Warren Beach to complete a study of twentieth century poetry. The first assistance of the Foundation to United Nations Educational, Scientific and Cultural Organization took the form of a grant in aid for a study of printed and visual materials that could be utilized in fundamental education, particularly in the Pilot Project in Fundamental Education in the Marbial Valley of Haiti. Of the total of 95 grants, 20 were toward the cost of international travel of individuals.

OTHER APPROPRIATIONS

OTHER APPROPRIATIONS

OTHER APPROPRIATIONS

European Rehabilitation Program

ON the basis of a report by Professor Robert J. Havighurst of the University of Chicago on postwar conditions of universities, research institutes and other cultural resources of Germany, The Rockefeller Foundation authorized a program to assist European rehabilitation. The program began to operate about the first of the year, and during 1948 some 40 projects were supported. Many of these represent small travel grants to enable American professors to visit strategic centers of education in the war-wrecked lands; others are of longer range and larger outlay, but all may be classified under two groupings:

1. Efforts to promote the interchange of knowledge and ideas between the former fascist countries of Europe and the democracies on both sides of the Atlantic. 2. Efforts to find young people of promise in the former fascist states and to assist them to obtain training for leadership and experience with democratic ways.

Approximately $420,000 was allocated under this program during 1948.

Professor Havighurst has been serving as adviser to the program. Part of his time is spent at the

Foundation's offices in New York conferring with the divisional officers. During the fall of 1948 he devoted approximately two months to travel in Europe studying current programs and evaluating proposed projects.

An important element in promoting the interchange of knowledge and ideas is the restoration of communication. Even before the outbreak of the war, the circulation of books and periodicals in the totalitarian countries and the exchange of professors and other ambassadors of the arts and sciences had been discouraged, and in some cases actively hampered, by the dictators. When war came, of course all such connections with other countries were abruptly severed. The end of hostilities found a whole generation grown up in isolation. Early in the planning of the rehabilitation program it was decided to provide key institutions with the more important periodicals in representative fields of scholarship and research. Accordingly, a grant of $69,000 was made to the Germanistic Society of America, and some of the major German and Austrian libraries are now receiving more than 200 professional journals. Included in this grant are funds for the purchase of medical books for presentation to medical schools, academies and research institutes of the two countries.

The sending of scholars from American universities to universities in Germany and Austria formed an important part of this program. Travel grants were made to the American Council of Learned Societies, Duke University, Harvard University, the Institute

of International Education, the State University of Iowa, the New School for Social Research, the University of Notre Dame, Princeton University, the University of Rochester, Union Theological Seminary and the College of William and Mary. The grants enabled members of the faculties of these institutions to give lectures, hold seminars, participate in conferences, and serve in many ways as advisers on problems concerned with the rehabilitation of education and research in the two countries.

Communication, however, cannot operate in only one direction. Therefore, in addition to the grants made to send visitors to Germany and Austria, grants have been given to bring selected scholars, educators, journalists, radio specialists, trade union leaders and other key persons to democratic lands on study trips. Tours have been arranged to enable them to inspect our institutions, observe our working methods and other conditions, and meet men and women in their respective fields. In a few instances provision has been made for the visitors to spend periods of several months in training. Among the grants was one to the National Education Association for $24,920 for a visit to the United States of ten German educators. The American Association of Colleges for Teacher Education has undertaken to direct a group of nine teachers from Austria and Germany who are spending a full academic year in this country and attending teachers colleges. A grant of $5,500 was made to the Free Trade Union Committee to enable five trade union leaders from Germany and Austria to make a

study of labor conditions in the United States. The group observed labor management relations, attended union meetings, conferred with officers of trade unions and visited factories.

Of all the projects, the University of Chicago's plan to contribute to the restoration of the University of Frankfurt is both the largest, in terms of manpower and financial expenditure, and the longest established. It has been operating since the beginning of the spring semester of 1948. The plan provides for from six to ten university professors from Chicago to be constantly in residence at Frankfurt, each professor to serve for at least one semester. They are selected primarily from the fields of the social sciences and the humanities, specifically in American culture and history, English language and literature, sociology, political science, psychology, American public law, international law and philosophy. The first faculty group of seven members arrived in Frankfurt in April 1948 and a second group of the same size in the autumn of that year. The Foundation made a grant of $120,000 to the University of Chicago toward the support of this program over a two and one half year period.

In recognition of the importance of young people in the future of Germany, the European Rehabilitation Program has sought to find projects for strengthening wholesome youth movements. German as well as British and American authorities in Germany have set up centers there for the training of youth leaders, but these facilities are limited. The rehabilitation

program has therefore allocated funds for three projects to enable German youth leaders to go abroad for training. A grant of $1,800 was set aside to cover the expense of visits by youth leaders to Great Britain where they were enrolled in short training courses. A grant of $2,000 to the International People's College at Elsinore, Denmark, provided scholarships for ten German youth, church and labor leaders. A third grant of $28,280 to the National Social Welfare Assembly is financing the visits of eight German youth leaders to the United States. Here they are visiting camps and conferences, settlement houses and group work activities and are spending at least one semester at recognized training schools.

The Rockefeller Foundation also contributed to two summer seminars organized in 1948 through the World Student Service Fund. A grant of $13,000 went toward the support of the Salzburg Seminar on American Civilization where 90 students from 14 countries met for study and discussion. Another group, the Alpbach Seminar held in the Austrian Tyrol, received a grant of $2,000.

In the United States a committee was formed under the American Council on Education for the coordination of efforts of the voluntary agencies in the field of cultural relations with the occupied countries. A grant of $25,000 was made to the council for the establishment of the committee's secretariat. The committee operates largely through sub-committees of experts in the various fields whose functions are discussion of policy, stimulation of voluntary ac-

tivities, evaluation of programs and development of recommendations to government departments.

The foregoing pages report on projects which are illustrative of the efforts supported under the European Rehabilitation Program. A complete list of the grants approved under this program follows.

American Association of Colleges for Teacher Education, to bring German and Austrian teachers for year of study in the United States	$42,060
American Council on Education, for German student interchange	25,000
American Council of Learned Societies, Paul Schilpp to the University of Munich	1,000
American Friends Service Committee, books for German libraries	3,000
American Friends Service Committee, German neighborhood centers	5,000
American Music Center, travel expenses for American artists	7,500
Karl Brandt of Stanford University, to spend a year teaching in Heidelberg	6,500
College of William and Mary, Curt Bondy to Göttingen and Hamburg	1,000
Columbia University, to bring German radio specialists to the United States	25,000 *
Columbia University, to bring German journalists to the United States	36,246 *
Cornell University, for visit of Karl von Frisch of the University of Graz to the United States	2,100
Duke University, Herbert von Beckerath to Bonn and other universities	500
Free Trade Union Committee, travel grant for German and Austrian labor leaders to visit the United States	7,000
Germanistic Society of America, for periodicals and books	69,000

* Grant financed from the Humanities.

Gordonstoun School, Scotland, scholarships for 8 German boys	$10,000
Harvard University, Gottfried Haberler to University of Vienna	1,500
F. A. Hayek, to conduct seminars in Austria and Switzerland	1,000
Max Horkheimer, Institute of Social Research, to Frankfurt	1,000
Institute for Advanced Study, travel grant for Max von Laue	2,000
Institute of International Education, Werner Richter to Marburg	500
Institute of International Education, John Ladd to Göttingen	4,600
International Holiday Courses, travel and honoraria for lecturers	6,000
International People's College, scholarships for 10 Germans	2,000
Jella Lepman, International Youth Library, for a visit to the United States	2,200
National Education Association, for 10 German educators to visit the United States	24,920
National Social Welfare Assembly, for training 8 youth leaders	28,280
National Social Welfare Assembly, salary, youth-leader consultant	1,800
New School for Social Research, Eduard Heimann to Göttingen and Hamburg	1,400
New School for Social Research, Eugen Fink of Freiburg to United States	1,700
Princeton University, Oskar Morgenstern to University of Vienna	1,500
M. Rolfes of the Giessen Agricultural College to England	900
State University of Iowa, Emil Witschi to teach a year at Tübingen	10,000
Union Theological Seminary, Paul Tillich to Marburg and Frankfurt	1,500
University of Basel, educational plan for German frontier students	5,000
University of Chicago, exchange professorships at Frankfurt	120,000**

** Grant financed from general fund.

University of Maryland, scholarship in teacher-training for a German	$ 2,400
University of Notre Dame, Waldemar Gurian to Bonn	1,000
University of Notre Dame, Ferdinand Hermens to Bonn and Münster	1,000
University of Rochester, Arthur May to University of Vienna	1,000
World Student Service Fund, for expenses of Alpbach Seminar	2,000
World Student Service Fund, for expenses of Salzburg Seminar	13,000
Youth leaders to study in Great Britain, 9 persons	1,800

United States Book Exchange, Inc.

PROGRAM FOR FOREIGN LIBRARIES

Superseding the American Book Center for War Devastated Libraries, Inc., an international exchange bureau has been set up to meet the specific book and periodical needs of foreign libraries. It was incorporated in 1948 as the United States Book Exchange, and headquarters were set up in Washington, D. C. Officers and members of the board of directors include representatives of the American Library Association, the Catholic Library Association, the National Research Council, the American Council of Learned Societies, the Association of Research Libraries, the Library of Congress and the Social Science Research Council. About 150 American libraries are participating in the program.

In planning its activities the exchange has profited from the experience of the American Book Center. It was decided to distribute materials only on the basis of specific requests from subscribing libraries. The

libraries make their selections from check lists sent out by the exchange. At the same time they agree to make payment in kind and receive credits on the accounts of the Book Exchange. They are asked to confine their contributions of exchange materials to items which meet strict criteria of utility, preferably published during the last 10 or 15 years.

Outright gifts are made only in cases of great need. For the next three years, however, the Book Exchange plans to give priority to libraries outside the United States. The foreign libraries will, in addition, be allowed two items for each one that they make available for exchange, without service charge. After three years they will be expected to pay in kind by supplying materials to participating libraries in the United States under an agreed schedule of charges and credits.

The exchange is set up as a nonprofit organization, supported mainly by service charges received from subscribing libraries. The Library of Congress is providing space, and shipping operations are facilitated by the Smithsonian Institution and other agencies with established shipping departments. The Rockefeller Foundation has provided $90,000 to defray the expenses of the special program for foreign libraries.

American Council of Learned Societies

FULBRIGHT PROGRAM

The United States in 1947 embarked upon a comprehensive program of student exchange. Under the Fulbright Act passed in that year other countries

were enabled to buy U. S. surplus property. The State Department was authorized to use foreign currencies and credits from the sale of this property for programs of educational interchange, and financial assistance was made available to United States citizens for study, research and teaching in schools and institutions in foreign countries. The educational benefits of the act are available to citizens of nations with whom agreements have been signed: China, Burma, Greece, the Philippines, Belgium, Luxembourg, the United Kingdom, New Zealand and France.

Under the provisions of the Fulbright Act, the administration of awards to "professors, research workers and specialists at the higher education levels" was delegated to the Conference Board of Associated Research Councils. The Conference Board is composed of the directors of the Social Science Research Council, the National Research Council, the American Council on Education and the American Council of Learned Societies.

In 1948 the Foundation made a grant of $40,000 to the American Council of Learned Societies toward the administration of foreign scholarships under the Fulbright program by the Conference Board of Associated Research Councils.

National Research Council

Office of Scientific Personnel

The Office of Scientific Personnel of the National Research Council was established in the early stages of the recent war to help meet the emergency demand for specialists in the physical and mathematical sci-

ences. The American Mathematical Society, the Geological Society of America, the American Institute of Physics, the American Chemical Society, the National Research Council and others gave this office cooperative support. Its *National Roster of Scientific Personnel* was the first listing ever made of the names, training and availability of the technical personnel of the United States.

The Office of Scientific Personnel also worked on plans for rehabilitation of young physicists in the armed services and for wider distribution of scientific data not restricted for reasons of national security. Later it expanded to supply investigative and advisory services dealing with supply, training and utilization of scientific personnel.

With funds supplied by the Army and Navy it is now engaged in the formation of a new *Key Roster of Scientific Personnel.* This list will be much more selective and detailed than the old *National Roster.* Studies on various aspects of scientific education and a survey of personnel in the field of guided missile research are under way. The Office of Scientific Personnel also serves as an adviser to various government agencies in handling problems of scientific personnel. Recently it has been asked to undertake the administration of the fellowship program of the National Research Council, including the considerable fellowship activity of the Atomic Energy Commission. As temporary support to insure continued operation of the organization, the Foundation granted $13,500 toward expenses of the Office of Scientific Personnel during the last nine months of 1948.

REPORT OF THE TREASURER

TREASURER'S REPORT

IN the following pages is submitted a report of the financial transactions of The Rockefeller Foundation for the year ended December 31, 1948.

BALANCE SHEET — DECEMBER 31, 1948

ASSETS

SECURITIES (Ledger value)		$151,390,412.52
(Market value $222,723,924.06)		
CURRENT ASSETS		
Cash on deposit		
In New York	$2,830,970.89	
In Canada — Can. $256,836.69 @ .90654	232,832.83	3,063,803.72
Advances and deferred charges	$809,310.65	
Sundry accounts receivable	55,922.70	865,233.35
EQUIPMENT		
In New York		71,155.91
		$155,390,605.50

BALANCE SHEET — DECEMBER 31, 1948

FUNDS AND OBLIGATIONS

PRINCIPAL FUND		$114,883,971.32
COMMITMENTS		
Unpaid appropriations	$31,441,422.91	
Unappropriated authorizations	1,489,036.00	32,930,458.91
FUNDS AVAILABLE FOR COMMITMENT		
Appropriations Account No. 1	$423,698.78	
Appropriations Account No. 2	6,972,345.67	7,396,044.45
CURRENT LIABILITIES		
Accounts payable		108,974.91
EQUIPMENT FUND		71,155.91
		$155,390,605.50

PRINCIPAL FUND

Balance, December 31, 1947		$118,071,816.04
Add		
Balance of Bequest under Will of William O. Wakenight (total amount received $26,802.23)		17,912.52
Amount by which the proceeds of securities sold, redeemed, etc., during the year exceeded the ledger value		2,092,362.76
		$120,182,091.32
Deduct		
Amount transferred to Appropriations Account No. 2		5,298,120.00
Balance, December 31, 1948		$114,883,971.32

APPROPRIATIONS AND PAYMENTS

Unpaid appropriations, December 31, 1947		$30,747,162.29
Appropriations during the year 1948 (For detail see pages 336 to 371)		
General Education Board	$1,500,000.00	
Public Health	3,000,000.00	
Medical Sciences	1,771,845.00	
Natural Sciences	2,799,098.00	
Social Sciences	2,229,300.00	
Humanities	1,495,846.00	
Miscellaneous	663,500.00	
Administration		
Scientific Services	1,081,056.00	
General	362,605.00	
	$14,903,250.00	

Unused balances of appropriations allowed to lapse	$386,664.80	$14,516,585.20
		$45,263,747.49
Payments on 1948 and prior years' appropriations (For detail see pages 336 to 371)		
General Education Board	$1,500,000.00	
Public Health	2,674,824.49	
Medical Sciences	1,691,383.53	
Natural Sciences	2,265,538.27	
Social Sciences	2,134,687.00	
Humanities	1,910,470.72	
Miscellaneous	377,474.88	
Administration		
Scientific Services	963,112.60	
General	304,833.09	13,822,324.58
Unpaid appropriations, December 31, 1948		$31,441,422.91

UNAPPROPRIATED AUTHORIZATIONS

Unappropriated authorizations, December 31, 1947		$1,494,767.00
Add		
Authorizations during 1948 for later appropriation by the Executive Committee		94,269.00
		$1,589,036.00
Deduct		
Amount appropriated from this account during the year		100,000.00
Unappropriated authorizations, December 31, 1948		$1,489,036.00

FUNDS AVAILABLE FOR COMMITMENT

APPROPRIATIONS ACCOUNT No. 1		
Funds available for commitment, December 31, 1947		$389,620.08
Add		
Income and refunds received during 1948		
Income	$8,861,149.06	
Refunds	51,609.51	
Unused balances of appropriations allowed to lapse	385,764.13	9,298,522.70
		$9,688,142.78
Deduct		
Appropriations from this account during 1948	$9,170,175.00	
Authorizations during 1948	94,269.00	9,264,444.00
Funds available for commitment, December 31, 1948		$423,698.78
APPROPRIATIONS ACCOUNT No. 2		
Funds available for commitment, December 31, 1947		$7,306,400.00
Add		
Amount transferred from Principal Fund in accordance with action of the Trustees at meeting of December 3, 1946	$5,298,120.00	
Unused balances of appropriations allowed to lapse	900.67	5,299,020.67
		$12,605,420.67
Deduct		
Appropriations from this account during 1948		5,633,075.00
Funds available for commitment, December 31, 1948		$6,972,345.67

APPROPRIATIONS AND UNAPPROPRIATED AUTHORIZATIONS

Commitments, December 31, 1947			
Unpaid appropriations		$30,747,162.29	
Unappropriated authorizations		1,494,767.00	$32,241,929.29
Add			
Amount appropriated and authorized during 1948			
Appropriated		$14,903,250.00	
Less			
Appropriations for which funds were previously authorized	$100,000.00		
Appropriations lapsed during 1948	386,664.80	486,664.80	
		$14,416,585.20	
Authorized		94,269.00	14,510,854.20
			$46,752,783.49
Deduct			
Payments on 1948 and prior years' appropriations			13,822,324.58
Commitments, December 31, 1948			
Unpaid appropriations		$31,441,422.91	
Unappropriated authorizations		1,489,036.00	$32,930,458.91

EQUIPMENT FUND

	Balance Dec. 31, 1947	Changes during 1948 Expenditures	Depreciation	Balance Dec. 31, 1948
Library	$12,679.00	$836.80	$323.80	$13,192.00
Equipment	54,082.44	10,019.71	6,138.24	57,963.91
	$66,761.44	$10,856.51	$6,462.04	$71,155.91

APPROPRIATIONS DURING 1948, UNPAID BALANCES OF PRIOR YEAR APPROPRIATIONS, AND PAYMENTS THEREON IN 1948

	Appropriations		1948
	Prior Years	1948	Payments
Public Health			
International Health Division of The Rockefeller Foundation *			
Prior Years (RF 43092, 44106, 45108, 46130)	$1,638,275.23	$.....	$2,113,582.24
1948 (RF 47123)	2,200,000.00		
1949 (RF 48121)	.....	2,200,000.00	.....
Revolving Fund to provide working capital (RF 29093)	200,000.00	.....	.....
The Rockefeller Foundation Health Commission * (RF 44107)	592,241.63	.....	341,242.25
Harvard University, Cambridge, Massachusetts. School of Public Health			
General budget (RF 45109)	800,000.00	.....	100,000.00
Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health			
For developmental purposes (RF 48037)	.....	750,000.00	70,000.00
Rockefeller Institute for Medical Research, New York			
Toward general expense of administration and operation (RF 48012)	.....	50,000.00	50,000.00
University of Toronto, Canada. School of Nursing			
Construction of new building (RF 45037)	300,000.00	.....	.....
Total — Public Health	$5,730,516.86	$3,000,000.00	$2,674,824.49
Medical Sciences			
Psychiatry, Neurology and Allied Subjects			
American Psychiatric Association, New York			
Work of Committee on Psychiatric Nursing (RF 45005, 47107)	$22,828.99	$.....	$8,682.00

* A complete financial statement of the work of the International Health Division and The Rockefeller Foundation Health Commission for 1948 will be found on pages 374 to 386.

Burden Neurological Institute, Bristol, England			
Research in neurophysiology and neurosurgery (RF 47088)	$45,584.37	$.....	$10,082.04
Cardiff City Mental Hospital, Wales			
For research in normal and pathological biochemistry of brain tissue (RF 48014)	.....	36,450.00	7,260.19
Catholic University of America, Washington, D. C.			
Teaching and research in psychiatry and child guidance (RF 44059)	8,000.00	.....	6,000.00
Child Research Council of Denver, Colorado			
Studies in child growth and development (RF 46086, 48057)	7,210.00	125,000.00	19,710.00
Columbia University, New York			
Investigation of genetic factors in the incidence of nervous and mental diseases peculiar to old age (RF 45002, 47068)	32,689.97	.....	11,000.00
Research in brain chemistry (RF 47008)	16,250.00	.....	6,500.00
Dalhousie University, Halifax, Nova Scotia			
Development of teaching in psychiatry (RF 47069)	16,553.82	.....	5,892.52
Duke University, Durham, North Carolina			
Teaching and research in psychiatry and mental hygiene (RF 40005)	1,164.55	.....	.....
Georgia State College for Women, Milledgeville			
Research in medical genetics (RF 47055)	8,000.00	.....	1,000.00
Graduate Medical Education in psychiatry under the supervision of the Director, Neuropsychiatry Consultants Division of the Office of the Surgeon General of the Army Service Forces (RF 46073)	11,491.84	.....	.....
Harvard University, Cambridge, Massachusetts			
For a biological study of a small community of Navaho Indians (RF 48024)	.....	12,000.00	12,000.00

	Appropriations		1948
	Prior Years	1948	Payments
Medical Sciences — *Continued*			
Psychiatry, Neurology and Allied Subjects — *Continued*			
Harvard University — *Continued*			
For follow-up work in the Department of Hygiene (RF 48094)	$.....	$10,000.00	$10,000.00
For investigation of the dynamics of personality development (RF 48016)	.....	54,000.00	.....
Research in epilepsy at Harvard Medical School and Boston City Hospital (RF 42109)	36,901.90	.....	19,000.00
Teaching and research in psychiatry in the Harvard Medical School (RF 45033, 48055)	12,123.27	74,880.00	17,650.07
Institute of the Pennsylvania Hospital, Philadelphia			
For research in neurophysiology (RF 48044)	.....	10,000.00	5,000.00
Johns Hopkins University, Baltimore, Maryland			
Research and training in psychiatry (RF 43053, 48054)	20,787.52	100,000.00	119,000.00
Karolinska Institute, Stockholm, Sweden			
Research in neurophysiology (RF 45003, 48095)	13,945.67	9,120.00	15,596.80
Massachusetts Institute of Technology, Cambridge			
Expenses of a project in mathematical biology to be conducted jointly with the National Institute of Cardiology, Mexico, D. F. (RF 47009)	11,000.00	.....	2,750.00
McGill University, Montreal, Canada			
Maintenance of Department of Psychiatry (RF 43046)	51,254.84	.....	26,913.57
Research in brain chemistry (RF 46069)	36,402.26	.....	4,532.58
National Institute of Cardiology, Mexico, D. F.			
Equipment of new research laboratories for physiology and pharmacology (RF 46072)	3,503.55	.....	3,503.55
National Mental Health Foundation, Philadelphia, Pennsylvania			
General purposes (RF 47010)	25,000.00	.....	.....

New York University, New York			
Teaching and research in Department of Psychiatry (RF 43078)	$31,161.47	$.....	$15,000.00
Princeton University, New Jersey			
Research in the psychology of perception (RF 48040)	.....	45,000.00	15,000.00
Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine			
Studies of genetic factors of intelligence and emotional variation in mammals (RF 45008)	92,800.00	.....	46,400.00
Tavistock Clinic, London, England			
Research and teaching in psychiatry (RF 46013)	18,103.23	.....	17,738.88
Tufts College Medical School, Boston, Massachusetts			
Research in brain chemistry (RF 44098)	21,000.18	.....	6,526.64
University College, University of London, England			
Research in physiology (RF 45085)	52,728.12	.....	14,367.87
University of Brussels, Belgium			
Research in neurophysiology (RF 46015)	9,371.86	.....	3,700.73
University of Cambridge, England			
Research in neurophysiology (RF 46014)	41,911.98	.....	13,638.52
Psychological Laboratory. Training and research (RF 46084)	31,646.55	.....	7,986.94
University of Chicago, Illinois			
Teaching and research in psychiatry (RF 47050)	132,500.00	.....	35,000.00
University of Cincinnati, Ohio			
Teaching and research in psychiatry (RF 47121)	175,000.00	.....	35,000.00
University of Copenhagen, Denmark			
For work in the genetics of mental defectiveness (RF 48112)	.....	21,120.00	.....
University of Edinburgh, Scotland			
Research in psychiatry, neurology and neurosurgery (RF 47007)	16,584.80	.....	6,406.61
University of Illinois, Urbana			
Research in the biochemical aspects of schizophrenia (RF 45001)	62,500.00	.....	7,500.00
Research in epilepsy (RF 47106)	22,500.00	.....	4,500.00

McGill University, Montreal, Canada			
Research in endocrinology (RF 46070)	$17,308.78	$.....	$6,345.68
National Research Council, Washington, D. C.			
Committee for Research in Problems of Sex (RF 44002, 46051, 46134)..	126,764.93	.....	74,041.15
University of California, Berkeley			
Research on hormones and vitamins (RF 44064)	7,500.00	.....	7,296.95
Medical Education			
American University of Beirut, Lebanon			
Equipment for the School of Medicine (RF 47065)	70,000.00	.....	20,000.00
Bingham Associates Fund of Maine, Boston, Massachusetts			
Program of postgraduate medical education in certain rural areas and towns in Massachusetts (RF 45073)	158,284.92	.....	34,428.42
Forsyth Dental Infirmary for Children, Boston, Massachusetts			
Expenses of a consultant in dental education (RF 47011)	6,000.00	.....	6,000.00
Graduate Medical Education, Eighth Service Command, Dallas, Texas			
For graduate medical education under direction of the medical consultant of the Eighth Service Command in Army hospitals of that area (RF 45040)	964.90	.....	.....
Harvard University, Cambridge, Massachusetts			
Development of legal medicine (RF 44001)	52,299.71	.....	4,893.42
Development of the Department of Dermatology, Harvard Medical School (RF 48039)	.....	100,000.00	.....
Johns Hopkins University, Baltimore, Maryland			
Institute of History of Medicine (RF 38022)	7,500.00	....	7,500.00
Meharry Medical College, Nashville, Tennessee			
Current expenses (RF 47070, 48053)	50,000.00	185,000.00	181,832.89

	Appropriations Prior Years	Appropriations 1948	1948 Payments
MEDICAL SCIENCES — *Continued*			
Medical Education — *Continued*			
Postwar appointments for medical graduates from armed services (RF 43103, 44135)	$192,175.25	$.....	$86,907.81
Publication of French contributions to medicine during the war years (RF 46028)	744.15	.....	320.01
Royal Society of Medicine, London, England			
Expenses of a Central Medical Library Bureau (RF 45115)	116,572.61	.....	51,714.40
Tulane University of Louisiana, New Orleans. School of Medicine			
Improving animal house facilities (RF 48015)	.....	20,000.00	10,000.00
University College, University of London, England			
Study of medical student selection (RF 48008)	.....	20,250.00	4,033.12
University of Brussels, Belgium			
Teaching and research in preventive medicine (RF 47122)	33,000.00	.....	9,140.15
Teaching and research in social medicine (RF 45090)	5,522.66	.....	4,289.23
University of Iceland, Reykjavik			
Scientific equipment for School of Medicine (RF 42039)	261.48	.....	.....
University of Pennsylvania, Philadelphia			
Development of the Department of Dermatology, School of Medicine (RF 48038)	.....	100,000.00	100,000.00
University of San Marcos, Lima, Peru. Faculty of Medicine			
Equipment and supplies for Department of Pathology (RF 46087)	4,679.09	.....	3,022.36
University of Zagreb, Yugoslavia			
Teaching public health to medical students (RF 46088)	11,991.70	.....	11,991.70
Washington University, St. Louis, Missouri. School of Medicine			
Maintenance (RF 38059)	31,818.90	.....	20,000.00
Teaching of preventive medicine (RF 44062, 47042)	27,737.35	.....	7,095.76

General			
Columbia University, New York			
Study of the effects of fetal and neonatal injury on growth and functional development (RF 47051)	$57,545.00	$.....	$.....
Medical Research Council, London, England			
Purchase of scientific equipment (RF 47066)	20,000.00	.....	6,708.21
National Health Council, Inc., New York			
Program in the coordination of voluntary health agencies (RF 48009)	.....	225,000.00	31,250.00
National Society for Medical Research, Chicago, Illinois			
To conduct a survey of public opinion on the question of animal experimentation (RF 48045)	.....	12,000.00	6,000.00
Research Council of the Department of Hospitals, New York			
Research on chronic diseases (RF 45056)	175.30	.....	.....
Fellowships and Grants in Aid			
Fellowships			
Administered by The Rockefeller Foundation (RF 44084, 44139, 46102, 46135, 47134, 48101, 48138)	243,349.66	200,000.00	108,587.94
Medical Research Council, London, England (RF 45042, 46029, 48013)	64,876.91	50,000.00	1,304.50
National Health and Medical Research Council, Department of Health, Canberra, Australia (RF 47017)	22,500.00	.....	22,500.00
National Research Council, Washington, D. C.			
Medical sciences (RF 46133)	181,601.63	.....	69,476.00
Welch fellowships in internal medicine (RF 41028)	104,180.31	.....	14,791.92
Scholarships for British medical students (RF 43101)	1,721.22	.....	.....
Grants in Aid			
Administered by The Rockefeller Foundation (RF 43122, 44143, 45123, 46120, 46139, 47089, 47138, 48142)	323,140.28	200,000.00	134,884.14

	Appropriations Prior Years	Appropriations 1948	1948 Payments
Medical Sciences — *Continued*			
Fellowships and Grants in Aid — *Continued*			
Grants in Aid — *Continued*			
Special Emergency Grant-in-Aid Fund			
For scientific equipment to medical science laboratories of universities and technical schools in the Netherlands (RF 45089)	$23,168.05	$.....	$14,368.22
Total — Medical Sciences	$3,261,610.99	$1,771,845.00	$1,691,383.53
Natural Sciences			
Experimental Biology			
Amherst College, Massachusetts			
Research in biology (RF 46095)	$25,775.47	$.....	$8,275.47
California Institute of Technology, Pasadena			
Support of combined research programs in biology and chemistry (RF 47043, 48030)	25,000.00	700,000.00	125,000.00
Carlsberg Foundation, Copenhagen, Denmark			
Research in biochemistry (RF 46107)	19,517.84	.....	5,989.35
Catholic University of America, Washington, D. C.			
Research on decomposition and synthesis of certain polynuclear ring systems (RF 40059)	15,062.73	.....	.....
Columbia University, New York			
Research in biochemistry (RF 46098)	16,000.00	.....	Cr. 23.58
Research on enzymes in the Department of Medicine, College of Physicians and Surgeons (RF 48043)	.....	13,000.00	3,250.00
Research in genetics and experimental zoology (RF 48076)	.....	82,500.00	13,750.00
Research in immunochemistry (RF 46010, 48066)	8,000.00	30,000.00	8,000.00
Research on variation in genetic constitution in relation to growth and development (RF 44115)	15,000.00	.....	7,815.21

Research on vitamins and related substances in relation to plant growth (RF 45086)	$14,000.00	$.....	$5,000.00
Connecticut Agricultural Experiment Station, New Haven			
Research in genetics (RF 48018)	.....	21,000.00	6,583.54
Cornell University, Ithaca, New York			
Research in enzyme chemistry (RF 42050)	7,410.00	.....	4,200.00
Research in protein chemistry (RF 45094)	34,400.00	.....	.....
Duke University, Durham, North Carolina			
Research on physical chemistry of proteins (RF 43051, 46096)	19,000.00	.....	1,500.00
Eidgenössische Technische Hochschule, Zürich, Switzerland			
Laboratory of Organic Chemistry			
Research on constitution and synthesis of physiologically active compounds (RF 46099)	119,916.28	.....	31,240.33
Harvard University, Cambridge, Massachusetts			
Basic studies in chemotherapy (RF 45014, 48020)	13,728.88	60,000.00	13,725.00
Research in the Medical School on the application of physical and chemical methods to problems of tissue structure (RF 46019)	26,000.00	.....	3,000.00
Indiana University, Bloomington			
Research in cytogenetics (RF 45036)	46,000.00	.....	19,000.00
Iowa State College, Ames			
Research in genetics (RF 46032)	6,194.30	.....	5,369.38
Johns Hopkins University, Baltimore, Maryland			
Research in infrared spectroscopy (RF 45071)	10,000.00	.....	10,000.00
Karolinska Institute, Stockholm, Sweden.			
Medical Nobel Institute. Equipment for Departments of Biochemistry and Cell Research (RF45068)	2,667.35	.....	2,012.81
Research in biochemistry (RF 47100)	61,525.00	.....	23,325.15
Marine Biological Laboratory, Woods Hole, Massachusetts			
Modernization of the laboratory building and for general support (RF 48131)	.....	250,000.00	.....

	Appropriations		1948
	Prior Years	1948	Payments
Natural Sciences — *Continued*			
Experimental Biology — *Continued*			
Massachusetts General Hospital, Boston			
Research in enzyme chemistry (RF 48135)	$.....	$12,000.00	$.....
Massachusetts Institute of Technology, Cambridge			
Expenses of a project in mathematical biology to be conducted jointly with the National Institute of Cardiology, Mexico, D. F. (RF 47009)	11,000.00	.....	2,750.00
Research in biology (RF 47039)	229,000.00	.....	54,000.00
Research in the physical chemistry of protein solutions (RF 45107)	60,000.00	.....	7,903.20
New York University, New York			
Expenses of altering and equipping several laboratory rooms to be used for research in enzyme chemistry (RF 48134)	.....	7,000.00	.....
Princeton University, New Jersey			
Research in genetics (RF 47076)	7,475.00	.....	3,475.00
Research in organic chemistry (RF 40058)	23,466.72	.....	2,600.00
Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine			
Construction and equipment of animal quarters (RF 46062, 47040)	42,500.00	.....	42,500.00
Establishing and maintaining a mammalian stock center (RF 43024)	3,911.00	.....	3,911.00
Research in genetics (RF 48108)	.....	15,000.00	.....
Stanford University, Palo Alto, California			
Research in biochemistry of nucleic acids (RF 48109)	.....	29,600.00	8,600.00
Research in microbiology (RF 48065)	.....	20,000.00	6,800.00
Research in protein chemistry (RF 45023, 48064)	6,335.32	17,000.00	6,016.36
University of California, Berkeley			
Construction and installation of cyclotron (RF 42004)	352,496.33	.....	315,259.29
Purchase of basic equipment for research in biochemistry with special emphasis in virus studies (RF 48132)	.....	100,000.00	.....
Research in biochemistry (RF 46034)	5,000.00	.....	2,500.00

Research in the comparative biochemistry of marine organisms (RF 47077)	$9,000.00	$.....	$6,000.00
University of Cambridge, England			
Molteno Institute of Biology and Parasitology			
Research in cell physiology (RF 47101)	30,375.00	.....	5.54
University of Chicago, Illinois			
Research in application of spectroscopic methods to biological problems (RF 40021)	20,470.25	.....	7,028.99
Research in molecular spectra (RF 41101)	5,970.45	.....	4,695.94
University of Copenhagen, Denmark			
Research on the biological uses of isotopes (RF 47083)	12,750.00	.....	8,500.00
University of Leeds, England			
Research on the analysis of biological tissues by physical techniques (RF 45070, 46108, 47081)	89,465.93	.....	76,953.73
University of London, England			
Birkbeck College			
Equipment for X-ray analysis of proteins (RF 48078)	.....	20,000.00	728.02
Imperial College of Science and Technology			
Research on vitamins, sterols and related compounds (RF 38070)	19,105.90	.....	4,636.68
King's College			
Research in molecular biology (RF 47082)	21,000.00	.....	618.75
University of Minnesota, Minneapolis			
Research in biophysics (RF 41062)	9,285.55	.....	9,285.55
University of Missouri, Columbia			
Research in genetics (RF 47054)	7,500.00	.....	3,750.00
University of Oxford, England			
Dyson Perrins Laboratory of Organic Chemistry			
Research in organic chemistry (RF 47084)	17,019.75	.....	4,839.75
Sir William Dunn School of Pathology			
Research on antibiotics (RF 46021, 47003)	6,909.57	.....	2,325.81

	Appropriations		1948
	Prior Years	1948	Payments
Natural Sciences — *Continued*			
Experimental Biology — *Continued*			
University of Pennsylvania, Philadelphia			
Research in experimental biology (RF 43038)	$2,495.18	$.....	$.....
Research on permeability of the red blood cell (RF 44056)	4,142.25	.....	2,444.74
University of Rochester, New York			
Research in genetics (RF 44031)	1,141.67	.....	.....
University of São Paulo, Brazil. Faculty of Philosophy			
Equipment for research in the Department of Physics (RF 45061)	63,617.87	.....	24,787.20
University of Stockholm, Sweden			
Research in cell physiology (RF 47014)	900.67	.....	.....
University of Texas, Austin			
Research in genetics and biochemistry (RF 47053)	9,000.00	.....	6,000.00
Research in genetics of drosophila (RF 46020)	15,289.90	.....	10,865.01
University of Toronto, Canada			
Research in nutrition (RF 44117)	1,014.05	.....	Cr. 109.74
University of Utrecht, Netherlands			
Research in biophysics and biochemistry (RF 47092)	9,000.00	.....	3,000.00
University of Wisconsin, Madison			
Research in biochemistry of symbiotic nitrogen fixation (RF 46118)	18,000.00	.....	3,651.43
Research in cytogenetics (RF 48019)	.....	20,000.00	5,000.00
Research in physical chemistry (RF 45015)	3,804.57	.....	.....
Scientific equipment for the Enzyme Institute (RF 48031)	.....	100,000.00	.....
Uruguay, Ministry of Public Health, Montevideo			
Equipment for the Research Institute of Biological Sciences (RF 47078)	7,451.38	.....	5,186.39
Washington University, St. Louis, Missouri			
Research in general physiology and experimental embryology (RF 46097)	16,250.00	.....	5,359.10

Yale University, New Haven, Connecticut			
Research on proteolytic enzymes (RF 45095, 48133)	$3,624.53	$23,400.00	$2,876.57
Research in the Department of Botany (RF 48032)	.....	50,000.00	5,000.00
Yerkes Laboratories of Primate Biology, Orange Park, Florida			
Building and general budget (RF 47019)	172,500.00	.....	35,000.00
Agriculture			
Mexican Agricultural Program			
Construction and equipment of experimental laboratory (RF 44070, 44114)	4.34	.....	4.34
Cost of providing greenhouse facilities (RF 46127)	25,000.00	.....	21,171.34
General expenses (RF 46126, 47115, 48028, 48123)	341,996.24	327,555.00	258,034.69
Nutrition research (RF 48104)	.....	5,770.00	486.17
Support of a special program of improvement of the Mexican substations for agricultural research and demonstration (RF 45106)	22,346.33	.....	21,775.37
National University of Colombia			
Faculty of Agronomy, Cali-Palmira. Equipment (RF 47118)	10,000.00	.....	.....
Faculty of Agronomy, Medellin			
Equipment (RF 47117)	60,000.00	.....	7,841.32
To send outstanding graduating class students for specialized training with The Rockefeller Foundation's agricultural staff in Mexico (RF 48072)	.....	12,000.00	.....
Fellowships and Grants in Aid			
Fellowships			
Administered by The Rockefeller Foundation (RF 44085, 45080, 46110, 46136, 47135, 48139)	252,819.92	175,000.00	97,427.76
Brown University, Providence, Rhode Island			
Support of scholarships, assistantships and fellowships in advanced applied mathematics (RF 46063)	35,000.00	.....	4,221.25

	Appropriations		1948
	Prior Years	1948	Payments
Natural Sciences — *Continued*			
Fellowships and Grants in Aid — *Continued*			
Fellowships — *Continued*			
National Research Council, Washington, D. C. (RF 41112, 46008, 47057, 48063, 48113)	$244,136.13	$53,273.00	$170,407.20
New York University, New York			
Development of graduate work in applied mathematics (RF 46009)	41,000.00	.....	11,955.12
Grants in Aid			
Administered by The Rockefeller Foundation (RF 42138, 45081, 46140, 47058, 47139, 48143)	326,492.64	250,000.00	167,723.40
Emergency scientific reconstruction, Italy			
Equipment, consumable supplies and other materials for Italian scientists (RF 48067)	.....	20,000.00	4,488.70
Special Emergency Grant-in-Aid Fund			
For scientific equipment for natural science laboratories of universities and technical schools in the Netherlands (RF 45089)	28,397.33	.....	14,368.23
General			
American Institute of Physics, New York			
Expenses of its War Policy Committee (RF 45072)	1,650.00	.....	678.70
American Mathematical Society, New York			
Expenses of International Congress of Mathematicians (RF 37108)	5,000.00	.....	.....
American-Soviet Science Society, New York			
Support of general activities (RF 46100)	25,000.00	.....	.....
California Institute of Technology, Pasadena			
Completion of the 200-inch telescope project (RF 48001)	.....	300,000.00	300,000.00

Centre National de la Recherche Scientifique, Paris, France			
Special equipment for natural science research laboratories of France (RF 46048)	$116,664.82	$.....	$60,440.52
Travel of non-French delegates to conferences of scientists (RF 46049)	82,951.60	.....	17,787.53
China Medical Board, Inc., New York			
Peiping Union Medical College, China			
Human paleontological research in Asia (RF 45024)	23,955.68	.....	6,087.60
Harvard University, Cambridge, Massachusetts			
Research and publication of research in the history of science (RF 47013)	8,500.00	.....	2,729.49
Institute for the Unity of Science, Cambridge, Massachusetts			
Support of activities (RF 47131)	9,000.00	.....	.....
International Meteorological Organization, Lausanne, Switzerland			
Analysis and publication of data collected during the International Polar Year of 1932–1933 (RF 47132)	12,000.00	.....	.....
National Academy of Sciences, Washington, D. C.			
Expenses of delegates to the international scientific meetings organized in 1946, under the joint auspices of the National Academy of Sciences and the American Philosophical Society (RF 46050)	31,500.00	.....	Cr. 351.55
Social Science Research Council, New York			
Joint Social Science Research Council — National Research Council Committee on the Measurement of Opinion, Attitudes, and Consumer Wants			
Study of the reliability of various methods of sampling (RF 45117)	7,150.00	.....	6,650.00
Union of American Biological Societies, Woods Hole, Massachusetts			
Toward the cost of publishing abstracts of foreign scientific papers, principally European, which have accumulated as a consequence of the war (RF 48077)	.....	35,000.00	35,000.00

	Appropriations Prior Years	Appropriations 1948	1948 Payments
NATURAL SCIENCES — *Continued*			
General — *Continued*			
University of Iceland, Reykjavik			
Cost of building and equipping an Institute of Experimental Pathology (RF 45048, 48110)	$56,550.62	$50,000.00	$44,101.95
University of Leiden, Netherlands			
Purchase and endowment of a photographic telescope for the Union Observatory, Johannesburg, Union of South Africa (RF 34100)	6,575.61	.....	.....
University of Oslo, Norway			
Toward the postwar reconstruction of research facilities in natural sciences (RF 46117)	14,459.56	.....	10,926.86
University of São Paulo, Brazil			
University Research Fund. Equipment and consumable supplies (RF 47059)	24,729.60	.....	9,825.31
Yale University, New Haven, Connecticut			
Laboratories of Primate Biology. Maintenance (RF 42037)	1,785.04	.....	.....
TOTAL — NATURAL SCIENCES	$3,618,132.15	$2,799,098.00	$2,265,538.27
SOCIAL SCIENCES			
American Institute of Accountants, New York			
Study of accounting definitions and postulates and their effect upon political-economic policies (RF 47073)	$25,000.00	$.....	$5,000.00
Brookings Institution, Inc., Washington, D. C.			
Research and education in fields of American foreign policy and international relations (RF 47027)	187,500.00	.....	75,000.00
Canadian Institute of International Affairs, Toronto			
General budget (RF 46036)	28,902.26	.....	9,065.28

Canadian Social Science Research Council, Montreal			
Toward expenses of its program (RF 46074, 48088)	$6,341.09	$10,000.00	$9,532.70
Carnegie Foundation, The Hague, Netherlands			
Purchase of books, periodicals and pamphlets, and for cataloguing (RF 47028)	30,000.00	.....	7,500.00
Centre d'Études de Politique Étrangère, Paris			
General budget (RF 46075)	23,184.38	.....	5,873.95
Christian Michelsen Institute, Bergen, Norway			
Development of research and popular education in international relations in Norway (RF 46076)	7,394.70	.....	4,545.15
College of William and Mary, Williamsburg, Virginia			
Study of the impact of war on the Hampton Roads area (RF 45013)	1,735.21	.....	.....
Columbia University, New York			
Bureau of Applied Social Research			
Cost of three special studies (RF 47022)	10,000.00	.....	10,000.00
Study of panel methods in research on public opinion, attitudes and consumer wants (RF 47090)	27,000.00	.....	13,000.00
Development of a program of Far Eastern studies through the various social science departments (RF 48041)	.....	120,000.00	.....
Expenses of a study of social balance in Western society (RF 48049)	.....	15,300.00	5,100.00
School of International Affairs			
Development of the Russian Institute (RF 45034)	175,000.00	.....	19,495.13
For use of the Russian Institute toward the cost of acquiring and processing collections of Russian and Polish materials (RF 48005)	.....	37,000.00	37,000.00
Study of Russian foreign policy, with special reference to the Far East (RF 45088)	14,500.00	.....	.....
Program of the Council for Research in the Social Sciences (RF 47075)	15,000.00	.....	15,000.00

	Appropriations Prior Years	Appropriations 1948	1948 Payments
Social Sciences — *Continued*			
Columbia University — *Continued*			
Program of the Institute for Urban Land Use and Housing Studies (RF 48021)	$.....	$100,000.00	$37,000.00
Study of trends in labor union leadership (RF 47006)	21,500.00	.....	.....
Commission of the Churches on International Affairs, New York			
For expenses of international conferences (RF 47104)	15,000.00	.....	15,000.00
Committee on Financing Higher Education and Research, New York			
Survey of possibilities of a study of financing higher education and research (RF 47124)	9,954.51	.....	3,509.33
Cornell University, Ithaca, New York			
For the study of data collected in the Manzanar and Poston war relocation communities (RF 48136)	.....	10,000.00	.....
Research in the field of group hostility and prejudice (RF 48004)	.....	94,270.00	25,000.00
Study of French and Italian contemporary political and economic issues (RF 48107)	.....	22,000.00	6,900.00
Study of the relation of civil rights to the control of subversive activities in the United States (RF 48050)	.....	110,000.00	27,500.00
Council on Foreign Relations, New York			
General research program (RF 47102)	60,000.00	.....	30,000.00
History of the foreign relations of the United States during World War II (RF 46002)	79,020.18	.....	37,574.08
Crete Survey			
Expenses of a survey in Crete as a means of exploring ways of raising the standard of living in undeveloped countries (RF 48102)	.....	25,000.00	.....
Dutch Economic Institute, Rotterdam, Netherlands			
General budget (RF 46057)	4,425.65	.....	3,291.15

Far East — Population Problems			
For exploratory reconnaissance in public health and demography in the Far East for the International Health Division and the Social Sciences (RF 48097)	$.....	$12,000.00	$7,190.97
Federal Council of the Churches of Christ in America, New York			
Program of its Department of the Church and Economic Life (RF 48130)	.....	100,000.00	.....
Fellowships			
Administered by The Rockefeller Foundation (RF 46103, 47108, 48090, 48140)	193,408.02	150,000.00	90,909.28
Canadian Social Science Research Council, Montreal, Canada. Fellowships (RF 47093, 48089)	10,000.00	15,000.00	4,496.44
Columbia University, New York, School of International Affairs			
Special fellowships in the Russian Institute (RF 47045)	62,675.00	.....	.....
Economic Commission for Europe of the United Nations			
In-service training scholarships (RF 48096)	.....	12,000.00	6,000.00
Social Science Research Council, New York (RF 45065, 46053, 47046, 48006)	160,500.00	330,000.00	120,000.00
Foreign Policy Association, New York			
Research program (RF 45116)	100,000.00	.....	50,000.00
Geneva Graduate Institute of International Studies, Switzerland			
Maintenance (RF 46078)	35,000.00	.....	35,000.00
Grants in Aid			
Administered by The Rockefeller Foundation (RF 45125, 46105, 46113, 46141, 47140, 48091, 48144)	273,397.35	325,000.00	164,148.29
Harvard University, Cambridge, Massachusetts			
Program of economic research (RF 47126)	100,000.00	.....	20,000.00
Research in social sciences (RF 35086)	11,372.65	.....	.....
Study of entrepreneurial history (RF 48070)	.....	10,000.00	9,980.00

	Appropriations		1948
	Prior Years	1948	Payments
Social Sciences — *Continued*			
Institute for Advanced Study, Princeton, New Jersey			
Study of the law of international civil aviation (RF 45046)	$16,000.00	$.....	$8,000.00
Study on the theory of value-formation in society (RF 46083)	3,500.00	.....	2,351.10
Institute of Economic and Social Research, Paris, France			
For general expenses, equipment and printing accumulated studies (RF 47005)	113,091.72	.....	36,889.92
Institute of Economics and History, Copenhagen, Denmark			
Toward general budget and printing of manuscripts now ready for publication (RF 46060)	16,552.20	.....	9,013.13
Institute of International Affairs, Stockholm, Sweden			
Research and popular education in international problems (RF 46059)	12,532.50	.....	12,532.50
Institute of Pacific Relations			
American Council, New York. General expenses (RF 46044)	30,000.00	.....	15,000.00
Pacific Council, Honolulu, Hawaii. General expenses and research (RF 46045)	91,000.00	.....	41,000.00
Johns Hopkins University, Baltimore, Maryland			
Experiment in research training in the social sciences (RF 46055)	21,000.00	.....	10,500.00
Study to measure and interpret trends and forces affecting the United States in its international relations (RF 47103)	29,933.31	.....	5,600.00
London School of Economics and Political Science, University of London, England			
Library development (RF 31030)	7,828.26	.....	.....
Purchase of land for expansion of school plant (RF 31028)	8,509.95	.....	.....
Massachusetts Institute of Technology, Cambridge			
Development of the teaching of international relations for engineers (RF 45082)	2,500.00	.....	2,500.00

Miami University, Oxford, Ohio			
Studies of population redistribution (RF 46080)	$63,839.50	$.....	$15,248.16
Study by the Scripps Foundation for Research in Population Problems on the influence of population factors upon labor market problems (RF 44110)	3,476.00	.....	.....
Moral Issues in the Economic Order			
For use by the officers of the Social Sciences in the development of opportunities in the general area of moral issues in the economic order (RF 48092)	.....	25,000.00	.....
National Bureau of Economic Research, New York			
Support of general programs and special programs of research in finance and fiscal policy (RF 44020, 47120)	1,520,000.00	.....	160,000.00
National Institute of Economic and Social Research of Great Britain, London			
General budget (RF 44108)	75,304.45	.....	24,198.75
National Institute of Public Affairs, Washington, D. C.			
Training of personnel for the federal services (RF 47029)	52,500.00	.....	35,000.00
National Opinion Research Center, Denver, Colorado			
Study of the isolation, measurement and control of interviewer effect in attitude and opinion studies (RF 47072)	30,715.00	.....	11,385.00
Office National des Universités, Paris, France			
Expenses of a section for the social sciences in the École Pratique des Hautes Études (RF 47125)	30,000.00	.....	7,500.00
Ohio State University, Columbus			
Study of executive positions in educational institutions, in its program of leadership studies (RF 48002)	.....	45,000.00	15,000.00
Pacific Coast Board of Intergovernmental Relations, San Francisco, California			
General expenses (RF 47030)	25,000.00	.....	10,000.00

	Appropriations Prior Years	Appropriations 1948	1948 Payments
Social Sciences — *Continued*			
Population Association of America, Washington, D. C.			
For the expenses of an executive office in the United States of the International Union for the Scientific Study of Population (RF 48106)	$.....	$15,000.00	$3,750.00
Princeton University, New Jersey			
Office of Population Research of the School of Public and International Affairs (RF 44109, 48105)	150,000.00	100,000.00	20,000.00
Royal Institute of International Affairs, London, England (Chatham House)			
History of the war and of the peace settlement (RF 45045, 47071)	121,953.39	.....	40,331.26
Preparation of a history of the League of Nations (RF 46122)	4,405.85	.....	4,105.24
Research program (RF 45044)	63,322.25	.....	29,240.16
School of Social Sciences, Helsinki, Finland			
Expenses of a study of the assimilation of displaced people of Finland (RF 48069)	.....	11,080.00	3,365.37
Social Science Research Council, New York			
Administrative budget (RF 43058, 48022)	15,000.00	120,000.00	35,000.00
Conferences and planning (RF 44077)	87,500.00	.....	75,000.00
For expenses of its Committee on the Social Implications of Atomic Energy (RF 48128)	.....	20,000.00	10,000.00
General research projects (RF 31126)	45,906.76	.....	23,952.33
Grants in aid of research (RF 46054)	58,500.00	.....	30,000.00
Joint Social Science Research Council — National Research Council Committee on the Measurement of Opinion, Attitudes and Consumer Wants			
Study of the reliability of various methods of sampling (RF 45117)	7,150.00	.....	6,650.00
Purchase and distribution of social science publications to European institutions (RF 46046, 48046)	7,000.00	43,000.00	33,000.00

Research in economic history of the United States, the islands and nearby territory (RF 40116)	$158,125.00	$.....	$32,500.00
Research planning in housing (RF 47020)	40,000.00	.....	18,000.00
Study of the specific ways in which social science analysis can contribute to an understanding of ethical issues and value problems in our society (RF 48129)	.....	17,500.00	8,750.00
Stanford University, Palo Alto, California			
Food Research Institute			
International history of food and agriculture during World War II (RF 46041)	210,000.00	.....	59,821.65
Study of Soviet economic development (RF 48042)	.....	25,000.00	6,250.00
State Historical Society of Colorado, Denver			
Study of the western range cattle industry, 1865–1895 (RF 44003)	12,200.00	.....	12,200.00
State University of Iowa, Iowa City			
Study by Child Welfare Research Station of social and cultural factors in child development (RF 47032)	58,041.65	.....	11,429.20
Swarthmore College, Swarthmore, Pennsylvania			
To complete the catalogue of its Peace Collection (RF 48137)	.....	10,000.00	.....
Tufts College, Medford, Massachusetts			
Experimental program in the psychiatric approach to training and research in sociology (RF 45019, 48087)	6,007.65	15,000.00	8,750.00
University of Alabama, Tuscaloosa			
Bureau of Public Administration. Study of the electoral process in the South (RF 46003)	10,000.00	.....	10,000.00
University of California, Berkeley			
Bureau of Business and Economic Research. Toward its research program (RF 46111)	35,000.00	.....	22,500.00
University of Cambridge, England			
Department of Applied Economics. General budget (RF 46001)	70,268.19	.....	19,473.88

	Appropriations Prior Years	Appropriations 1948	1948 Payments
Social Sciences — *Continued*			
University of Chicago, Illinois			
History of Sears, Roebuck and Company, with emphasis on its implications to American society and economy (RF 46004)	$6,000.00	$.....	$3,000.00
Program in education, training and research in race relations (RF 47031)	75,000.00	.....	15,000.00
Program of research in agricultural economics (RF 48085)	.....	45,000.00	7,500.00
Program of the Cowles Commission for Research in Economics (RF 48047)	.....	100,000.00	.....
Research in the Division of the Social Sciences (RF 45064)	25,000.00	.....	25,000.00
Research project on the determinants of constructive union-management relations (RF 48086)	.....	15,000.00	3,750.00
University of Glasgow, Scotland			
Development of research and training in the social sciences (RF 45026)	30,239.09	.....	15,884.26
University of Manchester, England			
Economics Research section. Research program (RF 46112)	54,738.75	.....	14,115.94
University of Minnesota, Minneapolis			
Industrial Relations Center. General expenses (RF 47021)	37,500.00	.....	15,000.00
Research in the field of intergovernmental relations (RF 46052)	50,209.50	.....	20,303.91
University of North Carolina, Chapel Hill			
Institute for Research in Social Science. Study of the Coker family (RF 47023)	15,000.00	.....	10,000.00
University of Oslo, Norway			
Institute of Economics. Research program (RF 46058)	10,000.00	.....	.....
University of Oxford, England			
Agricultural Economics Research Institute			
Studies of the relations between agriculture and industry (RF 47074)	21,293.12	.....	14,115.93
Nuffield College			
Additional research faculty in the social sciences (RF 46132)	162,000.00	.....	.....

University of Pennsylvania, Philadelphia			
Wharton School of Finance and Commerce			
Industrial Research Department. General budget (RF 44111)	$70,000.00	$.....	$35,000.00
University of Puerto Rico, Río Piedras			
Studies in the social anthropology of Puerto Rico (RF 48048)	.....	18,650.00	18,650.00
University of Virginia, Charlottesville			
Bureau of Public Administration. General budget (RF 46082)	12,500.00	.....	.....
University of Wisconsin, Madison			
Research in housing (RF 46081)	39,446.97	.....	17,419.99
Study of the law and the lumber industry in Wisconsin (RF 48051)	.....	32,700.00	.....
Yale University, New Haven, Connecticut			
Institute of International Studies. Research program (RF 44022)	37,500.00	.....	25,000.00
Labor and Management Center. Study of labor market structure and wage determination (RF 46056, 48103)	19,095.14	5,400.00	16,747.57
Studies of communication and attitude change (RF 48003)	.....	68,400.00	22,800.00
TOTAL — SOCIAL SCIENCES	$5,666,997.20	$2,229,300.00	$2,134,687.00
HUMANITIES			
Studies in Language and Foreign Cultures			
American Council of Learned Societies, Washington, D. C.			
Cataloguing American collections of Chinese and Japanese books (RF 37120)	$9,464.61	.....	Cr. $280.74
Committee on Far Eastern Studies (RF 41029)	1,303.28	.....	286.99
Committee on Near Eastern Studies (RF 47094)	10,000.00	.....	4,000.00
Preparing materials for Slavic studies in the United States (RF 43099, 47049)	15,000.00	.....	.....

	Appropriations		1948
	Prior Years	1948	Payments
Humanities — *Continued*			
Studies in Language and Foreign Cultures — *Continued*			
American Council of Learned Societies — *Continued*			
Procurement and reproduction of materials on Slavic subjects (RF 47127)	$100,000.00	$.....	$2,000.00
Program of English translations of modern materials in Near Eastern languages (RF 48125)	.....	75,000.00	.....
Colegio de México, Mexico, D.F.			
Expenses of Center for Historical Research (RF 44134)	14,130.00	.....	14,130.00
Programs for advanced study and for training of personnel (RF 48033)	.....	53,000.00	2,360.00
Preparation of a history of modern Mexico (RF 48023)	.....	10,000.00	2,500.00
Program in linguistic studies (RF 47026)	6,540.00	.....	4,360.00
Columbia University, New York. Department of Slavic Languages			
Development of teaching materials and methods of research (RF 47047)	20,500.00	.....	4,500.00
Cornell University, Ithaca, New York			
Support of Division of Modern Languages (RF 45091, 48098)	65,000.00	25,000.00	.....
Slavic studies (RF 43097)	14,637.71	.....	14,637.71
Duke University, Durham, North Carolina			
Purchase of books and other documentation in field of Latin American studies (RF 40049)	5,500.00	.....	.....
Grants in Aid			
Special fund for temporary addition of representative Chinese scholars to teaching staffs and projects in the United States (RF 44044)	14,819.12	.....	7,000.00
Harvard University, Cambridge, Massachusetts			
School of Education. Training of teachers and development of techniques for the teaching of English (RF 44075, 48074)	2,500.00	7,500.00	10,000.00

Indiana University, Bloomington			
Development of East European studies (RF 47002)	$22,000.00	$.....	$5,500.00
Korean Language Society, Seoul, Korea			
To provide essential materials to publish 20,000 copies each of the five unpublished volumes of a new dictionary of the Korean language (RF 48082)	.....	45,000.00	41,820.96
Library of Congress, Washington, D. C.			
Preparation of a monthly list of Russian accessions (RF 48073)	.....	7,500.00	7,500.00
National Institute of Anthropology and History, Mexico, D.F.			
Development of teaching and research program and reorganization of library resources (RF 43083, 48034)	7,394.89	26,000.00	6,913.77
National Tsing Hua University, Kunming, China			
Support of work in humanities (RF 47099)	20,000.00	.....	5,000.00
Development of teaching program in humanities (RF 44076)	1,480.67	.....	33.89
Polish Library of Paris, France			
Expense of producing a catalogue of its printed holdings (RF 47133)	14,000.00	.....	14,000.00
Pomona College, Claremont, California			
Development of Far Eastern and Slavic studies (RF 44131)	20,300.00	.....	5,800.00
Princeton University, New Jersey			
Development of Near Eastern studies (RF 46066)	38,250.00	.....	8,500.00
Stanford University, Palo Alto, California			
Development of Far Eastern and Slavic studies (RF 44130)	53,250.00	.....	21,625.00
Development of teaching and research in the areas and languages of the Pacific, Eastern Asia and Russia (RF 45009)	30,398.61	.....	14,338.28
Hoover Institute and Library on War, Revolution and Peace Slavic studies (RF 46092)	146,111.42	.....	94,925.52

	Appropriations		1948
	Prior Years	1948	Payments
Humanities — Continued			
Studies in Language and Foreign Cultures — *Continued*			
University of California, Berkeley			
Development of Slavic and Far Eastern studies (RF 44129)	$50,000.00	$.....	$32,800.00
Development of Far Eastern language and area courses (RF 47063)	25,000.00	.....	10,000.00
Development of personnel in Slavic studies (RF 47128)	100,000.00	.....	27,840.00
Purchase of Japanese books and reference materials (RF 48093)	.....	7,500.00	7,500.00
University of Chicago, Illinois			
Analysis and evaluation of methods of teaching modern languages (RF 44100)	11,781.08	.....	.....
University of Colorado, Boulder			
Development of Far Eastern studies (RF 44042)	7,111.69	.....	5,221.35
University of Hawaii, Honolulu			
Expenses of a summer session in philosophy and an international congress of philosophers (RF 48060)	.....	35,000.00	35,000.00
University of Leiden, Netherlands			
Chinese Institute. Training of personnel and purchase of books (RF 46023)	3,628.48	.....	304.35
University of Pennsylvania, Philadelphia			
Work in modern Indian languages and literatures (RF 47129)	60,000.00	.....	.....
University of the Philippines, Manila			
For library development and research in Philippine history (RF 48111)	.....	18,000.00	.....
University of Stockholm, Sweden			
Training in Far Eastern studies of students from Sweden, Norway and Denmark (RF 46068, 48035)	3,600.00	50,000.00	17,985.00

University of Washington, Seattle			
Development of Far Eastern and Slavic studies (RF 44128)	$52,933.06	$.....	$15,000.00
Far Eastern Institute. Research on the Far East (RF 47035)	90,000.00	.....	20,000.00
Production of English translations of source materials on Chinese history (RF 47036)	37,500.00	.....	25,000.00
Purchase of materials for Far Eastern and Slavic studies (RF 45111)	24,985.60	.....	15,546.94
Wayne University, Detroit, Michigan			
Preparation of a frequency list of Russian words (RF 48126)	.....	40,000.00	.....
Yale University, New Haven, Connecticut			
Support of Far Eastern studies (RF 45110)	54,750.00	.....	18,250.00
Development of personnel in the field of Chinese studies (RF 47064)	18,150.00	.....	9,450.00
American Studies			
Abraham Lincoln Association, Springfield, Illinois			
Preparing annotated edition of the complete writings of Abraham Lincoln (RF 47038)	25,000.00	.....	15,000.00
Henry E. Huntington Library and Art Gallery, San Marino, California			
Regional studies of the Southwest (RF 43096)	15,351.06	.....	10,872.41
Library of Congress, Washington, D. C.			
American studies (RF 43095)	54,000.00	.....	10,000.00
National Archives, Washington, D. C.			
Special fund for producing basic microfilm stocks of research materials and for copying files of the National Archives (RF 48061)	.....	20,000.00	18,118.84
Newberry Library, Chicago, Illinois			
Studies in midwestern culture (RF 47034)	44,838.64	.....	12,300.00
Northwestern University, Evanston, Illinois			
Teaching and field studies in American culture (RF 46067)	15,000.00	.....	5,000.00

	Appropriations Prior Years	Appropriations 1948	1948 Payments
Humanities — *Continued*			
American Studies — *Continued*			
Princeton University, New Jersey			
Study of program in American civilization (RF 45092)	$32.95	$.....	$.....
Texas State Historical Association, Austin			
Southwestern history study (RF 46119)	9,000.00	.....	5,725.00
University of Chicago, Illinois			
Development of a central archive of source materials relating to the early history of the upper Mississippi Valley and Canada (RF 43069)	65.18	.....	Cr. 68.20
University of Minnesota, Minneapolis			
Studies in Northwestern history (RF 48080)	.....	25,000.00	.....
University of New Brunswick, Fredericton, Canada			
Studies of the history of New Brunswick (RF 44040)	1,564.66	.....	.....
University of Oklahoma, Norman			
Development of archival resources on the history and contemporary life of Oklahoma (RF 48062)	.....	35,000.00	4,250.00
Preparation of materials on the history and life of the Southwest (RF 44093)	5,000.00	.....	5,000.00
University of Wisconsin, Madison			
Program in research and teaching in the materials of American civilization (RF 46011)	37,500.00	.....	22,154.98
Libraries			
American Library Association, Chicago, Illinois			
Development of a library school in São Paulo, Brazil (RF 43006)	1,600.28	.....	1,600.28
For work of its Board on International Relations (RF 44133, 47048)	26,478.51	.....	24,999.20

Selection and purchase for libraries in war areas of reference books published during the years 1939–1946 (RF 45038)	$15,000.00	$.....	$14,950.94
Association of Special Libraries and Information Bureaux, London, England			
Preparation of a catalogue of periodicals in British libraries (RF 44004)	35,064.47	.....	8,066.26
British Museum, London, England			
Establishment of a microfilm laboratory (RF 47087)	56,000.00	.....	45,100.50
To enable the museum to offer to American libraries, at a discount, subscriptions to the new edition of its *Catalogue of Printed Books* (RF 30076)	77,471.30	.....	462.05
University of Buenos Aires, Argentina			
Expenses of establishing a bibliographical center and an institute of library practice (RF 42128)	173.53	.....	.....
University of Oxford, England			
Development of the Bodleian and other university libraries (RF 31121)	360,750.15	.....	360,750.15
University Research Fund, University of São Paulo, Brazil			
Bibliographical information service (RF 45035)	17,018.09	.....	2,377.40
Woodrow Wilson Foundation, New York			
Cataloguing of a collection of documents of the League of Nations (RF 47086)	23,625.00	.....	15,750.00
Drama, Film and Radio			
Columbia University, New York			
Expenses of a training program for German radio personnel (RF 47130)	25,000.00	.....	12,500.00
National Theatre Conference, Cleveland, Ohio			
Support of activities and projects (RF 45028)	78,543.81	.....	36,639.52
Play House Foundation, Cleveland, Ohio			
Construction and rehabilitation of the play house (RF 45083)	25,000.00	.....	25,000.00

	Appropriations		1948
	Prior Years	1948	Payments
Humanities — *Continued*			
Drama, Film and Radio — *Continued*			
Stevens Institute of Technology, Hoboken, New Jersey			
Study of electronic control of sound in the theater (RF 47110)	$4,800.00	$.....	$4,800.00
University of Wisconsin, Madison			
Development of the state program in drama and allied arts (RF 48100)	.....	15,000.00	3,750.00
Other Subjects			
American Council of Learned Societies, Washington, D. C.			
General support, planning and development (RF 41029, 46089, 47025)	230,772.38	.....	65,000.00
Pacific Coast Committee. Activities in the humanities (RF 46091)	24,500.00	.....	3,500.00
Study of scholarly publishing in the United States by the Association of American University Presses (RF 47033)	20,000.00	.....	.....
American Philosophical Association, Philadelphia, Pennsylvania			
To enable colleges and universities to invite Latin American philosophers to the United States as visiting professors (RF 47024)	20,000.00	.....	10,000.00
American School of Classical Studies, Athens, Greece			
Museum to house objects excavated in the Agora (RF 37089)	138,354.94	.....	.....
Columbia University, New York			
For use by the American Press Institute in a training program for German press personnel (RF 48079)	.....	36,246.00	36,246.00
Committee of Vice-Chancellors and Principals of the Universities, Great Britain			
For purchase of foreign books and journals for special programs in humanities and social sciences (RF 48036)	.....	50,000.00	.....
Cornell University, Ithaca, New York			
For development of methods, materials and personnel for the teaching of the history of modern science (RF 48124)	.....	37,500.00	.....

Humanities Research Council of Canada, Toronto			
Support of activities in planning and development (RF 48017)	$.....	$15,000.00	$3,807.47
Institute of International Education, New York			
Maintenance and extension of its program for facilitating international exchange of persons (RF 47085)	75,000.00	.....	50,000.00
Kenyon College, Gambier, Ohio			
Expenses of a School of English Studies (RF 47098)	34,000.00	.....	6,000.00
Toward fees for articles published in the *Kenyon Review* (RF 47037)	18,000.00	.....	3,880.05
Special microfilming projects in England in connection with the program of the American Council of Learned Societies (RF 43064)	2,143.13	.....	.....
University of Birmingham, England			
Awards in literature and for administration expenses (RF 45112, 48099)	19,000.00	15,000.00	19,000.00
University of Bordeaux, France			
Development of work in humanities (RF 47061)	25,000.00	.....	2,772.35
University of Lyon, France			
Development of work in humanities (RF 47060)	25,000.00	.....	6,766.85
University of Oslo, Norway			
Development of work in the humanities (RF 46047)	10,920.79	.....	3,646.91
University of the South, Sewanee, Tennessee			
Toward fees for articles published in the *Sewanee Review* (RF 48011)	.....	27,600.00	4,131.50
University of Toulouse, France			
Development of work in the humanities (RF 47062)	18,000.00	.....	668.96
Yale University, New Haven, Connecticut			
Research for a study of the characteristics of the history of the twentieth century (RF 48081)	.....	20,000.00	.....
Fellowships and Grants in Aid			
Fellowships			
Administered by The Rockefeller Foundation (RF 44142, 46104, 46138, 47137, 48141)	198,867.12	125,000.00	74,039.51

	Appropriations Prior Years	Appropriations 1948	1948 Payments
HUMANITIES — *Continued*			
Fellowships and Grants in Aid — *Continued*			
Fellowships — *Continued*			
American Council of Learned Societies, Washington, D. C.			
Fellowships in the humanities (RF 46090, 48059)	$75,000.00	$325,000.00	$150,000.00
Special fellowship fund for postwar development of personnel in the United States (RF 44132, 45052, 46038)	106,646.24	.....	42,689.89
Grants in Aid			
Administered by The Rockefeller Foundation (RF 44146, 46121, 46142, 47109, 47141, 48084, 48145)	301,323.88	325,000.00	229,052.53
Surveys, Studies and Conferences (RF 48083)	.....	25,000.00	2,820.35
TOTAL — HUMANITIES	$3,468,425.73	$1,495,846.00	$1,910,470.72
MISCELLANEOUS			
American Council of Learned Societies, Washington, D. C.			
Administration of foreign scholarships under the Fulbright program by the Conference Board of Associated Research Councils (RF 48010)	$.....	$40,000.00	$20,000.00
European Rehabilitation (RF 47116, 48052, 48120)	200,000.00	300,000.00*	262,554.92
Exchange Fund (RF 46123)	15,113.95	.....	.....
Fellowships. China			
Foreign and local (RF 40044, 43021, 44038)	6,530.81	.....	.....
Fund for miscellaneous expenses in connection with the United Nations organization (RF 46039)	4,666.08	.....	.....
General Education Board, New York			
Support of program (RF 46125, 47119, 48122)	7,500,000.00	1,500,000.00	1,500,000.00
Grants in Aid. China (RF 41037, 42041, 43021, 44038)	12,736.79	.....	915.93

* Includes an appropriation of $100,000, funds for which were previously authorized.

History of the Rockefeller Boards. For expenses (RF 48029)		$.....	$100,000.00	$24,004.03
National Research Council, Washington, D. C.				
Expenses of a joint committee on personnel problems (RF 47044)		10,000.00	.....	10,000.00
Expenses of its Office of Scientific Personnel (RF 48114)		.....	13,500.00	.....
United States Book Exchange, Inc., Washington, D. C.				
Program of international exchange by institutions of books, periodicals and similar materials (RF 48127)		.....	90,000.00	.....
University of Chicago, Illinois				
Expenses of sending faculty members to a German university (RF 48007)		.....	120,000.00	60,000.00
TOTAL — MISCELLANEOUS		$7,749,047.63	$2,163,500.00	$1,877,474.88
ADMINISTRATION AND SCIENTIFIC SERVICES				
Scientific Services				
Prior Years		$49,071.63	$.....	$34,790.88
1948		890,568.00	74,263.00	928,321.72
1949		.....	1,006,793.00	.....
General Administration				
Prior Years		27,596.10	.....	21,952.63
1948		285,196.00	20,663.00	282,880.46
1949		.....	341,942.00	.....
TOTAL — ADMINISTRATION		$1,252,431.73	$1,443,661.00	$1,267,945.69
		$30,747,162.29		
LESS				
Unused balances of appropriations allowed to lapse				
The Rockefeller Foundation	$244,180.83			
International Health Division	142,483.97	386,664.80		
GRAND TOTALS		$30,360,497.49	$14,903,250.00	$13,822,324.58

REFUNDS ON PRIOR YEAR CLOSED APPROPRIATIONS

All-India Institute of Hygiene and Public Health, Calcutta	(IH 44036)	$8.68
American Library Association, Chicago, Illinois	(RF 47015)	3,075.81
American Library Association, Chicago, Illinois	(RF 44032)	60.00
Balfour, M.C. Director's Account	.....	3,588.32
California Institute of Technology, Pasadena	(RF 46064)	1,173.69
California Virus Laboratory, Berkeley	(IH 45040)	9.46
Colorado School of Mines, Golden	(RF 45021)	53.77
Columbia University, New York	(RF 45087)	2,480.92
Connecticut Agricultural Experiment Station, New Haven	(RF 40106)	2,983.54
Encyclopaedia of the Social Sciences, New York	(RF 32114)	2,586.43
Fellowships. Public Health	(IH 43045)	3.28
Florida Station for Malaria Research, Jacksonville	(IH 46037)	383.71
Geneva Research Center, Switzerland	(RF 37068)	402.39
Grants in Aid		
Medical Sciences	(RF 40094)	75.35
Medical Sciences	(RF 41117)	155.00
Natural Sciences	(RF 43123)	64.56
Social Sciences	(RF 35192)	42.11
Humanities	(RF 42141)	880.00
Humanities	(RF 43032)	1,000.00
Humanities	(RF 41095)	35.11
Harvard University, Cambridge, Massachusetts	(RF 43098)	476.02
Johns Hopkins University, Baltimore, Maryland	(RF 39004)	1,471.34

Johns Hopkins School of Hygiene and Public Health, Baltimore, Maryland	(IH 47001)	502.00
Massachusetts Institute of Technology, Cambridge	(RF 46037)	944.59
National Research Council, Washington, D. C.	(RF 32010)	68.24
National Research Council, Washington, D. C.	(RF 42040)	2,419.23
North Carolina State Board of Health, Raleigh. Nutrition	(IH 45025)	4,645.52
North Carolina State Board of Health, Raleigh. Syphilis, 1947–48	(IH 46043)	210.79
North Carolina State Board of Health, Raleigh. Syphilis, 1946–47	(IH 45028)	17.40
Presidents and Fellows of Harvard University and Radcliffe College	(LS 993)	25.07
University of California, Berkeley	(RF 46033)	8.01
University of California, Berkeley	(IH 47010)	13,740.09
University of Edinburgh, Scotland	(RF 45113)	6,406.61
Washington University, St. Louis, Missouri	(RF 42079)	1,612.47
		$51,609.51

INTERNATIONAL HEALTH DIVISION

Designations during 1948, Unpaid Balances as at December 31, 1947 of Prior Year Designations, and Payments Thereon during 1948

	Prior Designations	1948 Designations	1948 Payments
Control and Investigation of Specific Diseases and Deficiencies			
Diphtheria			
United States			
Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health. 1946–47 * to 1947–48 (IH 46002)	$4.55	$.....	Cr. $1,670.21
Malaria			
Caribbean Area			
Tobago. 1948–1949 (IH 47031)	.....	17,200.00	6,564.69
Trinidad and Tobago. 1945–1946 (IH 44019)	1,995.22	.....	6.98
Europe, Africa and Near East			
Corsica. 1948 (IH 48001)	.....	15,000.00	11,601.75
Netherlands. Control Demonstration. 1947–1948 (IH 44006, 46032)	3,500.00	.....	2,477.88
Far East			
China. 1945–1948 (IH 44020, 46028, 47037)	12,301.02	34,000.00	30,078.14
Mexico			
1947–1948 (IH 46039, 47034)	3,484.96	4,400.00	5,012.59
Instituto de Salubridad y Enfermedades Tropicales. Insectary. 1948–49 (IH 48006)	.....	1,000.00	118.94
South America			
Colombia. 1947–1948 (IH 46040, 47035)	17,905.60	28,635.00	23,331.89
Peru. 1946–1950 (IH 45055, 47036)	9,605.82	18,000.00	13,038.27
Venezuela. 1946–1948 (IH 46021, 47060)	12,579.62	15,000.00	13,328.19

* Fiscal year.

Mental Hygiene			
United States			
Johns Hopkins University, Baltimore, Maryland			
School of Hygiene and Public Health. 1946–47 to 1949–50 (IH 46029)	$35,967.46	$.....	$2,735.27
Nutrition			
Canada			
University of Toronto, Ontario. 1947–48 to 1949–50 (IH 46042)	9,420.68	.....	3,896.96
United States			
Vanderbilt University, Nashville, Tennessee. School of Medicine. 1947–48 to 1949–50 (IH 46041)	28,000.00	.....	7,500.00
Respiratory Diseases			
Respiratory Virus Research			
South America			
Argentina. 1945–1946 (IH 45007)	492 70	.....	272.38
Syphilis			
United States			
Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health. 1945–46 to 1948–49 (IH 45048–49)	42,542.76	.....	13,132.13
North Carolina. 1948–49 to 1949–50 (IH 47038, 48010)	.....	17,940.00	5,400.00
Tuberculosis			
United States			
Tennessee. 1945–46 through 1949 (IH 44028, 47012)	36,838.12	.....	18,532.00
Typhus Fever			
Far East			
China. 1946–1947 (IH 45029)	4,930.68	.....	134.98

	Prior Designations	1948 Designations	1948 Payments
Control and Investigation of Specific Diseases and Deficiencies — *Continued*			
Typhus Fever — *Continued*			
United States			
Florida. 1947–1948 (IH 47002, 47059)	$1,862.99	$22,000.00	$22,258.47
Yellow Fever			
Africa			
Central and East Africa. 1945–1949 (IH 44034, 45034, 46047, 47041, 48016)	12,734.84	36,240.00	9,271.51
West Africa. 1946–1949 (IH 45035, 46048, 47042, 48017)	33,136.49	37,080.00	26,562.94
Caribbean Area			
Panama. 1946–1947 (IH 45031)	1,228.66	.....	166.74
South America			
Brazil. 1947–1948 (IH 46045, 47040)	15,235.60	75,000.00	74,213.30
Colombia			
Control and investigation. 1947–1948 (IH 46044, 47039, 48002)	8,476.30	8,377.43	10,674.39
Laboratory construction and equipment. 1945–1948 (IH 44058)	3,634.57	.....	1,167.44
Ecuador. 1947 (IH 46046)	8,544.89	.....	3,314.42
Peru. 1943–1948 (IH 45056–57)	20,828.78	.....	4,977.12
Other Studies			
Control of Insect Vectors with DDT			
Mexico. 1946–1948 (IH 45051, 46049, 47045)	10,161.81	8,800.00	11,459.89
Gastro-Intestinal Diseases Inquiry			
All-India Institute of Hygiene, Calcutta. 1946–47 (IH 45037)	2,401.88	.....	2,112.65
Rodent Ecology and Control			
Johns Hopkins University, Baltimore, Maryland			
School of Hygiene and Public Health. 1945–46 to 1949–50 (IH 45005, 47043, 48009)	462.90	39,800.00	10,180.34

Taxonomic Center and Insectary			
Johns Hopkins University, Baltimore, Maryland			
Department of Parasitology. 1946–47 to 1949–50 (IH 46018, 47001, 47044)	$513.52	$11,800.00	$3,580.24
Venereal Disease Control			
Finland. 1948–49 (IH 48003)	.....	5,500.00	5,500.00
LABORATORIES OF THE INTERNATIONAL HEALTH DIVISION			
Maintenance. 1946–1948 (IH 46050, 47046)	27,784.42	135,000.00	133,992.65
Moving and Installation Expenses (IH 45018)	22,611.82	.....	22,611.82
STATE AND LOCAL HEALTH SERVICES			
State Health Services			
Canada			
Manitoba			
Division of Maternal and Child Hygiene and Nutrition. 1946–47 to 1948–49 (IH 46019)	8,532.01	.....	4,000.84
New Brunswick			
Division of Nutrition. 1945–46 to 1947–48 (IH 43003)	3,111.74	.....	2,039.66
Division of Sanitary Engineering. 1947–48 to 1950–51 (IH 46033)	10,446.21	.....	2,742.28
Prince Edward Island			
Provincial Laboratory. 1946–47 to 1950–51 (IH 38035)	10,777.61	.....	3,626.06
Caribbean Area			
Dominican Republic			
General health survey. 1947–1948–49 (IH 46020)	9,526.38	.....	3,457.75
Public Health Laboratory. 1946–1948 (IH 45053)	20,894.99	.....	11,769.24
Leeward and Windward Islands			
Public Health Engineering Unit. 1946–1947 (IH 45042)	4,885.51	.....	2.96

	Prior Designations	1948 Designations	1948 Payments
STATE AND LOCAL HEALTH SERVICES — *Continued*			
State Health Services — *Continued*			
Europe			
Netherlands			
Netherlands Applied Research Council, Sanitary Engineering Section. 1948 (IH 47063)	$3,000.00	$.....	$3,000.00
Norway			
Statistical Division. 1947–1949 (IH 46027)	2,142.43	.....	.....
Mexico			
Office of Special Sanitary Service (Cooperative Central Office). 1947–1948 (IH 46052, 47047)	2,485.68	4,800.00	4,386.02
Training Center and Demonstration Health Unit. 1948–1949 (IH 47048, 48011)	.....	5,940.00	2,245.40
South America			
Bolivia			
Division of Endemic Diseases. 1943–1950 (IH 42043, 47049)	41,473.16	45,000.00	10,033.28
Chile			
Tuberculosis survey. 1945–1949 (IH 45009)	38,631.63	.....	4,377.14
Peru			
National Institute of Hygiene. 1945–1949 (IH 44015, 47025)	109,762.10	.....	29,591.06
Division of Study and Development of Local Health Services. 1946–1950 (IH 45054, 47027)	18,638.87	.....	3,021.95
Department of Selection and Training of Personnel for Ministry of Health. 1947–1951 (IH 46034, 47026)	27,122.18	.....	4,471.33
United States			
California			
Virus Laboratory — Research and diagnosis. 1947–48 to 1948–49 (IH 46051)	29,000.00	.....	14,500.00

Mississippi			
Coordinated School-Health-Nutrition Service. 1946–47 to 1948–49 (IH 46003)	$9,188.19	$.....	$9,145.18
New York City			
Department of Health — Statistical Service. 1945-1949 (IH 44014)	19,430.12	.....	7,329.66
North Carolina			
Public Health Education and School Health Service. 1944–45 to 1948–49 (IH 43014)	8,188.95	.....	Cr.102.14
Pan American Sanitary Bureau			
Salary and travel of staff nurse. 1947-1948 (IH 47014)	4,250.00	.....	4,250.00
Local Health Departments			
Canada			
British Columbia. 1936-1952 (IH 36021, 38024)	14,943.80	.....	.....
Europe, Africa and Near East			
Egypt. 1948 (IH 47032)	.....	15,000.00	12,458.11
Far East			
India, Bengal. 1945–46 to 1947–48 (IH 44046)	3,022.28	.....	876.09
Mexico. 1944-1949 (IH 43052, 44042)	28,504.68	.....	6,982.41
South America			
Bolivia. 1945-1949 (IH 44044)	22,646.92	.....	4,736.28
Brazil. 1946 (IH 46006)	616.10	.....	209.21
Chile. 1943-1950 (IH 42014, 46035, 47050, 48015)	30,863.51	47,000.00	14,350.28
Peru. 1945-1949 (IH 44045, 46030, 47024)	115,188.44	.....	30,573.90
Survey of an area for possible regional planning as basis for public health services 1948 (IH 47065)	60,000.00	.....	54,851.04
MEDICAL CARE			
American Public Health Association, Washington, D. C. 1948 (IH 47058)	.....	25,000.00	25,000.00

	Prior Designations	1948 Designations	1948 Payments
PUBLIC HEALTH EDUCATION			
Schools and Institutes of Hygiene and Public Health			
Canada			
University of Toronto, Ontario. 1944–45 to 1950–51 (IH 42053, 43018, 46005, 47052)	$25,018.42	$15,000.00	$16,402.80
Europe			
Netherlands			
Institute of Preventive Medicine, Leiden. 1948 (IH 47064)	7,500.00	.....	5,472.30
Sweden			
State Institute of Public Health, Stockholm. 1947–1949 (IH 46036)	10,000.00	.....	.....
Turkey			
School of Hygiene, Ankara. 1940 (IH 39059)	1,680.61	.....	.....
Far East			
China			
National Institute of Health. 1944–1948 (IH 43043, 46054, 47053)	7,220.63	30,000.00	19,081.84
South America			
Chile			
School of Public Health, Santiago. 1944–1950 (IH 43055, 48014)	26,797.16	6,000.00	4,280.69
Colombia			
National School of Hygiene, Bogotá. 1948–1949 (IH 48007)	.....	30,000.00	.....
United States			
Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health			
Developmental aid. 1944–45 to 1948–49 (IH 43049)	52,016.88	.....	22,500.00
Field Training and Study Area. 1944–45 to 1948–49 (IH 43050, 47009)	13,795.40	.....	6,093.50

University of California, Berkeley			
Department of Public Health and Medical Administration. 1948–49 (IH 47051)	$.....	$28,000.00	$14,000.00
Schools of Nursing			
Europe			
Finland			
Helsinki College of Nursing. 1948–1950 (IH 47062)	28,000.00	.....	.....
Portugal			
School of Nursing, Lisbon. 1945–1947 (IH 44016)	3,250.02	.....	.....
Switzerland			
Le Bon Secours School of Nursing, Geneva. 1948–1952 (IH 47033)	.....	60,000.00	27,298.22
Far East			
Ceylon			
National School of Nursing. 1948–49 to 1952–53 (IH 48005)	.....	25,000.00	2,735.83
Ceylon and India			
Developmental aid to nursing education. 1946 (IH 45058)	1,719.19	.....	707.68
South America			
Brazil			
University of São Paulo. 1942–1945 (IH 41084)	3,797.03	.....	181.45
Colombia			
National Superior School of Nursing, Bogotá. 1943–1949 (IH 42061, 48013)	20,328.32	9,000.00	10,963.81
Ecuador			
School of Nursing, Quito. 1943–1950 (IH 42065, 47023)	12,390.85	.....	947.40
Uruguay			
University Nursing School, Montevideo. 1945–1950 (IH 44061, 47054)	5,700.00	23,400.00	5,332.12
Venezuela			
National School of Nursing, Caracas. 1942–1950 (IH 41023, 46022)	23,523.96	.....	3,276.56

	Prior Designations	1948 Designations	1948 Payments
Public Health Education — *Continued*			
Fellowships, Travel of Government Health Officials and Teachers of Public Health, and Training of Health Workers. 1945–1948 (IH 44048, 45044, 46055, 47055)	$141,208.70	$300,000.00	$194,071.52
Other Training			
Caribbean Area			
British West Indies Training Station, Jamaica. 1945–46 to 1949–50 (IH 44050, 47022, 48012)	24,019.70	2,400.00	3,848.12
Europe			
Italy			
University of Rome Engineering School. 1948–1951 (IH 48008)	.....	8,000.00	.....
Mexico			
Training Station, Tacuba. 1945–1947 (IH 44049)	873.38	.....	513.51
Training of health personnel in the states. 1946–1948 (IH 45052)	12,095.97	.....	1,513.66
South America			
Brazil			
Araraquara Health Training Center. 1948–1950 (IH 47061)	30,000.00	.....	8,201.47
Field Service			
Field Staff. 1946–1948 (IH 46056, 47029, 47056)			
Salaries	242.43	519,800.00	519,798.60
Commutation	9,854.83	62,000.00	64,761.09
Travel	27,543.95	235,000.00	246,238.20
Medical Examinations	120.40	1,500.00	998.25
Field Equipment and Supplies	577.73	4,000.00	3,673.63
Reprints and Publications	1,022.10	10,000.00	10,392.94

Express, Freight and Exchange	$139.76	$1,000.00	$447.39
Insurance and Retirement	20,140.28	54,700.00	50,659.44
Bonding	118.70	2,000.00	1,591.31
Field Offices. 1945–1948 (IH 45019, 46057, 47057)			
Africa and Asia Minor (Cairo)	18,162.43	10,350.00	27,197.66
Canada (Toronto)	1,727.20	3,500.00	3,015.91
Caribbean Region			
Central Office (Miami)	1,800.29	7,750.00	7,345.48
Dominican Republic (Ciudad Trujillo)	2,455.11	4,150.00	5,530.61
Far East (Shanghai)	5,999.84	13,500.00	12,092.53
South America			
Argentina (Buenos Aires)	3,674.99	14,500.00	13,188.34
Bolivia (Cochabamba)	2,899.80	5,000.00	3,817.28
Brazil (Rio de Janeiro)	5,857.39	7,000.00	5,816.99
Chile (Santiago)	3,213.98	4,000.00	3,329.75
Colombia (Bogotá)	.....	3,300.00	.....
Peru (Lima)	4,595.65	13,200.00	9,099.42
Europe (London)	1,500.00	2,200.00	2,887.07
Miscellaneous	500.00	1,600.00	1,545.94
Population Studies. 1949 (IH 48039)	.....	5,600.00	.....
Director's Fund for Budget Revisions (IH 44006)	4,627.03	.....	.....
Director's Fund for Miscellaneous Expenses (IH 46007, 46031, 48004)	2,737.75	4,000.00	1,270.19
Exchange Fund (IH 33077)	21,365.22	.....	.....
TOTAL — INTERNATIONAL HEALTH DIVISION	$1,638,275.23	$2,199,962.43*	$2,113,582.24

* The Foundation appropriated $2,200,000.00 for the work of the International Health Division during 1948, the undesignated balance of $37.57 being allowed to lapse as of December 31, 1948.

THE ROCKEFELLER FOUNDATION HEALTH COMMISSION

Unpaid Balances as at December 31, 1947 of Prior Year Designations, and Payments Thereon during 1948

	Unpaid Balances of Designations December 31, 1947	1948 Payments
Study and Control Work		
Malaria		
Europe, Africa and the Near East		
Corsica. 1947–1948 (HC 47019)	$1,080.50	$732.94
Italian-Sardinian anopheles eradication program. 1947–1948 (HC 47004, 47021, 47028)	162,913.67	86,532.88
State and Local Health Services		
State Health Services		
Europe		
Norwegian Ministry of Social Welfare		
Salary increases in Health Department. 1946–51 (HC 46014)	15,000.00	5,000.00
Local Health Departments		
Far East		
China		
Kiang Ning Hsien Health Unit. 1947–1949 (HC 47011)	14,565.20	3,864.30
Public Health Education		
Schools and Institutes of Hygiene and Public Health		
Europe		
Institute of Hygiene, Zagreb, Yugoslavia		
Equipment and maintenance. 1946–50 (HC 46016)	26,199.26	17,008.18

Institute and School of Hygiene, Warsaw, Poland		
Equipment and supplies. 1946–1948 (HC 46025)	$23,605.37	$20,099.31
London School of Hygiene and Tropical Medicine		
Purchase of laboratory centrifuges. 1947–48 (HC 47017)	2,000.00	.....
Rehabilitation of teaching and public health personnel. 1945–1950 (HC 45002)	77,740.26	28,812.99
State Institute of Public Health, Oslo, Norway		
Equipment and supplies. 1945–1948 (HC 45022, C-11)	4,491.21	887.80
State Institute of Public Health, Utrecht, Netherlands		
Equipment and supplies. 1946–47 (HC 46013)	2,746.24	698.05
Microfilm readers for institutes of hygiene in Europe. 1946–1948 (HC 46024)	331.72	8.26
Far East		
China		
National Institute of Health. Equipment and supplies. 1947–1948 (HC 47005)	28,737.74	22,133.58
Japan		
Institute of Public Health, Tokyo. Books, periodicals and teaching aids. 1948–1949 (C-11)	2,000.00	976.15
Philippines		
University of the Philippines, Manila. Equipment and supplies. 1947–1948 (HC 47006)	30,000.00	16,327.32
Schools of Nursing		
Europe		
Ministry of Social Welfare, Norway		
Postgraduate course of study in public health and development of practice fields. 1946–51 (HC 46015)	9,000.00	.....
School of Nursing, Zagreb, Yugoslavia		
Emergency aid. 1946–48 (HC 46026)	2,604.74	1,062.20

	Unpaid Balances of Designations December 31, 1947	1948 Payments
Public Health Education — *Continued*		
Schools of Nursing — *Continued*		
Europe — *Continued*		
University of Cracow School of Nursing, Poland		
Emergency aid. 1947–1948 (HC 47020)	$7,483.49	$6,153.82
Fellowships, Travel and Training Grants. 1945–1948 (HC 46058, 47008, 47016, 47030)	166,530.35	125,530.79
Miscellaneous		
Journals, periodicals and books for public health institutions and schools in need of assistance as a result of the war. 1945–1949 (HC 45012, C-11)	8,705.44	2,552.51
Pasteur Institute at Dakar, French West Africa		
Materials for repair of refrigeration plant. 1945 (HC 45015)	119.24	63.87
Pasteur Institute at Paris, France		
Equipment. 1947–1948 (HC 47018)	2,500.00	1,991.60
Fund for Commitment by Director and Comptroller (C-11)	3,887.20	805.70
Total — The Rockefeller Foundation Health Commission	$592,241.63	$341,242.25

TRANSACTIONS RELATING TO INVESTED FUNDS

FOR THE YEAR ENDED DECEMBER 31, 1948

PURCHASED		
1,000	Shares Monsanto Chemical Co. $4.00 Cum. Preference Stock, Ser. B, (No par) at $101.00 per share...	$101,000.00
RECEIVED IN EXCHANGE. THE FOLLOWING USA TREASURY CERTIFICATES OF INDEBTEDNESS		
$1,000,000	Ser. C, 1⅛s/3/1/49 for $1,000,000 Ser. C, ⅞s/3/1/48	$1,000 000.00
1,527,000	Ser. D, 1⅛s/4/1/49 for 1,527,000 Ser. D, ⅞s/4/1/48	1,527,000.00
6,000,000	Ser. G, 1¼s/10/1/49 for 6,000,000 USA Treasury Notes 1s/10/1/48	6,000,000.00
		$8,527,000.00
STOCK DIVIDENDS RECEIVED		
50,002-55/100ths	Shares Standard Oil Co. (New Jersey) Cap. Stock (Par $25), taken into the books at no value thereby reducing the ledger price per share of the shares owned	$ -0-
6,912	Shares Standard Oil Co. (New Jersey) Cap. Stock (Par $25), received on account of the ownership of 691,200 shares Standard Oil Co. (Indiana) Cap. Stock (Par $25). These shares were taken into the books at the market value on date of receipt, Sept. 10, 1948, and the value credited to income	521,424.00
6,920	Shares Standard Oil Co. (Ohio) Com. Stock (Par $10), received on account of the ownership of 346,000 shares of said stock of record November 18, 1948. These shares were taken into the books at no value thereby reducing the ledger price per share of the shares owned	-0-
		$521,424.00

TRANSACTIONS RELATING TO INVESTED FUNDS—*Continued*

Received in Partial Liquidation			
34,175	Shares Central Illinois Public Service Co. Com. Stock (Par $10) at $12.00 per share (also $6.00 in cash in lieu of ½ share)		$410,100.00
9,113-7/15ths	Shares Public Service Co. of Indiana, Inc. Com. Stock (No par) at $20.625 per share		187,965.25
17,087-75/100ths	Shares Wisconsin Power & Light Co. Com. Stock (Par $10) at $12.75 per share		217,868.81
	All of the above received on account of the ownership of 68,351.92 shares The Middle West Corp. Cap. Stock (Par $5) and the value used as follows:		
	To write down the ledger value of The Middle West Corp. shares	$358,849.42	
	Amount credited to Surplus or Deficiency Account	457,084.64	
			$815,934.06
Received Through Conversion			
1,100	Shares American Telephone & Telegraph Co. Cap. Stock received through conversion of $110,000 American Telephone & Telegraph Co. Ten-year Conv. Deb. 2¾s/57, plus a cash payment of $40.00 per share, as follows:		
	Ledger value of bonds	$121,137.50	
	1,100 shares at $40.00 per share	44,000.00	$165,137.50
Rights Received			
68,351	Central & South West Corp. rights, received on account of the ownership of 68,351 shares Central & South West Corp. Com. Stock (Par $5) and taken into the books at the sale price at $1.0368 per 100 rights		$708.66
3	Royal Dutch Co. rights, received on account of the ownership of 3 shares Royal Dutch Co. Stock		6.64
			$715.30

PORTION OF LEGACY FROM ESTATE OF WILLIAM O. WAKENIGHT

10	Shares Consolidated Natural Gas Co. Cap. Stock (Par $15) at $30.75 per share	$307.50
12	Shares Westinghouse Air Brake Co. Cap. Stock (No par) at $31.0625 per share	372.75
99	Shares Humble Oil & Refining Co. Cap. Stock (No par) at $40.625 per share	4,021.87
5	Shares Mission Corp. Cap. Stock (Par $10) at $22.124 per share	110.62
25	Shares Pan American Petroleum & Transport Co. Cap. Stock at $13.875 per share	346.88
4	Shares The Pure Oil Co. 5% Cum. Pfd. Stock at $107.00 per share	428.00
40	Shares The Pure Oil Co. Com. Stock (No par) at $16.00 per share	640.00
10	Shares Ryan Consolidated Petroleum Corp. Cap. Stock (No par) at $8.00 per share	80.00
51	Shares Standard Oil Co. of California Cap. Stock (No par) at $37.50 per share	1,912.50
103	Shares Standard Oil Co. (Indiana) Cap. Stock (Par $25) at $33.50 per share	3,450.50
102	Shares Standard Oil Co. (New Jersey) Cap. Stock (Par $25) at $55.625 per share	5,673.75
25	Shares Tide Water Associated Oil Co. Com. Stock (Par $10) at $16.00 per share	400.00
		$17,744.37

ADDITIONS TO LEDGER VALUE

Interest increment on USA Savings Bonds, Ser. F (12 year appreciation bonds)	
$67,500 (Maturity value) due May 1, 1953	$1,755.00
67,500 (Maturity value) due Jan. 1, 1954	1,755.00
67,500 (Maturity value) due July 1, 1954	1,687.50
135,000 (Maturity value) due Jan. 1, 1955	3,105.00
	$8,302.50
	$10,157,257.73

Sold			Total Proceeds	Ledger Value
$1,000,000		USA Treasury Notes, 1s/10/1/48 at 100.008	$1,000,080.00	$1,000,000.00
68,351		Central & South West Corp. rights at $1.0368 per 100	708.66	708.66
	77/100ths	of one share Chicago, Milwaukee, St. Paul & Pacific R.R. Voting Trust Certificates for Common Stock at $5.8311683 per share	4.49	24.74
99		Shares Humble Oil & Refining Co. Cap. Stock (No par) at $82.566 per share	8,174.01	4,021.87
	92/100ths	of one share Middle West Corp. Cap. Stock (Par $5) at $24.435 per share	22.48	2.30
5		Shares Mission Corp. Cap. Stock (Par $10) at $66.496 per share	332.48	110.62
25		Shares Pan American Petroleum & Transport Co. Cap Stock at $18.8624 per share	471.56	346.88
	7/15ths	of one share Public Service Co. of Indiana, Inc. Com. Stock (No par) at $19.693 per share	9.19	9.63
4		Shares The Pure Oil Co. 5% Cum. Pfd. Stock at $104.77 per share	419.09	428.00
40		Shares The Pure Oil Co. Com. Stock (No par) at $37.005 per share	1,480.22	640.00
3		Rights Royal Dutch Co. at $2.2133	6.64	6.64
10		Shares Ryan Consolidated Petroleum Corp. Cap. Stock (No par) at $9.669 per share	96.69	80.00
32,016	55/100ths	Shares Standard Oil Co. (New Jersey) Cap. Stock (Par $25) at $80.38 per share	2,573,521.15	952,009.18
25		Shares Tide Water Associated Oil Co. Com. Stock (Par $10) at $28.015 per share	700.38	400.00
12		Shares Westinghouse Air Brake Co. Cap. Stock (No par) at $37.024 per share	444.29	372.75
	75/100ths	of one share Wisconsin Power & Light Co. Com. Stock (Par $10) at $12.64 per share	9.48	9.56
			$3,586,480.81	$1,959,170.83

REDEEMED			
£2,000	Compania Salitrera Anglo-Chilean, Inc. 1st Mtg. Deb. 4½s/61 at 103, or £2,060 converted at $4.03	$8,301.80	$8,080.00
500	Shares Consolidated Edison Co. of New York, Inc. $5.00 Cum. Pfd. Stock at $105.00 per share	52,500.00	45,875.00
		$60,801.80	$53,955.00
SURRENDERED IN EXCHANGE THE FOLLOWING USA TREASURY CERTIFICATES OF INDEBTEDNESS			
$1,000,000	Ser. C, 7/8s/3/1/48 for $1,000,000 Ser. C, 7/8s/3/1/49	$1,000,000.00	$1,000,000.00
1,527,000	Ser. D, 7/8s/4/1/48 for 1,527,000 Ser. D, 1⅛s/4/1/49	1,527,000.00	1,527,000.00
6,000,000	USA Treasury Notes, 1s/10/1/48 for $6,000,000 USA Certificates, Ser. G, 1⅛s/10/1/49	6,000,000.00	6,000,000.00
		$8,527,000.00	$8,527,000.00
SURRENDERED FOR CONVERSION			
$110,000	American Telephone & Telegraph Co. Ten-year Conv. Deb. 2¾s/57 (plus a cash payment of $40.00 per share) surrendered for conversion into 1,100 shares American Telephone & Telegraph Co. Cap Stock	$121,137.50	$121,137.50

TRANSACTIONS RELATING TO INVESTED FUNDS — *Concluded*

	Total Proceeds	Ledger Value
Ledger Value Reduced		
Ledger value of 68,351 shares Central & South West Corp. Com. Stock (Par $5), reduced by $13,670.20 in accordance with Finance Committee minute dated August 31, 1948 and by $10,252.65 in accordance with Finance Committee minute dated December 6, 1948 and by $708.66 being the proceeds of sale of 68,351 rights	$24,631.51	$24,631.51
Ledger value of 68,351.92 shares The Middle West Corp. Cap. Stock (Par $5), reduced in accordance with Finance Committee minutes dated February 25 and November 29, 1948 in amounts of $187,969.62 and $170,879.80 respectively. These amounts represent part of the value of stock and cash received in partial liquidation of The Middle West Corp.	815,940.06	358,849.42
Ledger value of 591 shares Wilson Realty Co. Cap. Stock written off the books in accordance with Finance Committee minute dated March 29, 1948 (and stock certificates destroyed)	.....	1.00
	$840,571.57	$383,481.93
	$13,135,991.68	$11,044,745.26
Amortization of Premium Paid on Purchase of Securities		
$6,200,000 USA Treasury Bonds, 2½s/12/15/59–62		$2,688.68

RECONCILIATION

Ledger value of securities, December 31, 1947		$152,280,588.73
Purchased	$101,000.00	
Received in exchange	8,527,000.00	
Stock dividends received	521,424.00	
Received in partial liquidation	815,934.06	
Received through conversion	165,137.50	
Rights received	715.30	
Legacy from Estate of William O. Wakenight	17,744.37	
Additions to ledger value	8,302.50	10,157,257.73
		$162,437,846.46
Sold	$1,959,170.83	
Redeemed	53,955.00	
Surrendered in exchange	8,527,000.00	
Surrendered for conversion	121,137.50	
Ledger value reduced	383,481.93	
Amortization	2,688.68	11,047,433.94
Ledger value of securities, December 31, 1948		$151,390,412.52

SCHEDULE OF SECURITIES ON DECEMBER 31, 1948

Bonds

Name	Par	Ledger Value		Market Value	
		Price	Total	Price	Total
American Telephone & Telegraph Co. 15 year Conv. Deb. 2¾s, Dec. 15, 1961	$110,000	111.28	$122,408.00	103.75	$114,125.00
Imperial Chinese Government Hu Kuang Rys. S. F. Loan of 1911 5s, June 15, 1975	£189,000		321,300.00		40,162.50
Morris & Essex R. R. 1st Ref. 3½s, Dec. 1, 2000	39,000	82.75	32,272.50	58.	22,620.00
Standard Oil Co. (New Jersey) 25 year Deb. 2⅝s, May 15, 1971	8,499,000	98.	8,329,020.00	95.5	8,116,545.00
United States of America Treasury Certificates of Indebtedness:					
1⅜%, Series C, due Mar. 1, 1949	1,000,000	100.	1,000,000.00	100.0007	1,000,007.00
1⅜%, Series D, due April 1, 1949	1,527,000	100.	1,527,000.00	100.0062	1,527,094.67
1¼%, Series G, due Oct. 1, 1949	6,000,000	100.	6,000,000.00	100.0192	6,001,152.00
United States of America Treasury Bonds:					
Int. *Dated* *Due*					
2% — May 15, 1942 — Sept. 15, 1949-51	380,000	100.	380,000.00	100.53125	382,018.75
2% — Apr. 15, 1943 — Sept. 15, 1950-52	6,000,000	100.	6,000,000.00	101.	6,060,000.00
2% — Sept. 15, 1943 — Sept. 15, 1951-53	5,000,000	100.	5,000,000.00	101.25	5,062,500.00
2% — June 26, 1944 — June 15, 1952-54	4,500,000	100.	4,500,000.00	101.3125	4,559,062.50
2% — Dec. 1, 1944 — Dec. 15, 1952-54	6,600,000	100.	6,600,000.00	101.375	6,690,750.00

2¼% — June 1, 1945 — June 15, 1959-62	9,000,000	100.	9,000,000.00	100.125	9,011,250.00
2¼% — Nov. 15, 1945 — Dec. 15, 1959-62	6,200,000	100.477	6,229,575.42	100.125	6,207,750.00
2½% — May 5, 1942 — June 15, 1962-67	6,000,000	100.	6,000,000.00	101.84375	6,110,625.00
2½% — June 1, 1945 — June 15, 1967-72	3,000,000	100.	3,000,000.00	100.46875	3,014,062.50
2½% — Oct. 20, 1941 — Sept. 15, 1967-72	500,000	100.	500,000.00	101.90625	509,531.25
2½% — Nov. 15, 1945 — Dec. 15, 1967-72	2,000,000	100.	2,000,000.00	100.46875	2,009,375.00
United States of America Savings Bonds, Defense Series F (12 year appreciation bonds):					
Due May 1, 1953 — Maturity value	67,500	86.1	58,117.50	86.1	58,117.50
Jan. 1, 1954 — Maturity value	67,500	83.5	56,362.50	83.5	56,362.50
July 1, 1954 — Maturity value	67,500	82.2	55,485.00	82.2	55,485.00
Jan. 1, 1955 — Maturity value	135,000	80.9	109,215.00	80.9	109,215.00
TOTAL BONDS			$66,820,755.92		$66,717,811.17

PREFERRED STOCKS

NAME	SHARES	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
Atlantic Refining Co. Cum. 3.75% Series B (Par $100)	10,000	$100.00	$1,000,000.00	$95.125	$951,250.00
Chicago City & Connecting Rys. Participation Certificates (No par) (C/D)	17,530		1.00		0.00
Connecticut Light & Power Co. $2.00 Cum. (No par)	5,000	54.26	271,300.00	48.625	243,125.00
Consolidated Edison Co. of New York, Inc. $5. Cum. (No par)	9,500	91.75	871,625.00	108.25	1,028,375.00
International Harvester Co. 7% Cum.	15,000	115.00	1,725,000.00	165.00	2,475,000.00
Monsanto Chemical Co. $4. Cum. Series B (No par)	1,000	101.00	101,000.00	108.25	108,250.00
Philadelphia Electric Co. 3.80%	2,000	102.70	205,400.00	96.25	192,500.00
Philip Morris & Co., Ltd., Inc. 4% Cum.	4,000	105.35	421,400.00	93.50	374,000.00
Tennessee Gas Transmission Co. 4.25% Cum. (Par $100)	5,000	96.67	483,372.50	93.375	466,875.00
United States Rubber Co. 8% Non-Cum. 1st (Par $100)	1,500	150.89	226,337.50	124.50	186,750.00
United States Steel Corporation 7% Cum.	6,600	133.86	883,462.50	134.25	886,050.00
TOTAL PREFERRED STOCKS	.....	.....	$6,188,898.50	.....	$6,912,175.00

COMMON STOCKS

NAME	SHARES	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
American Telephone & Telegraph Co. Cap.	7,775	$169.90	$1,321,001.94	$150.25	$1,168,193.75
The Buckeye Pipe Line Co. Cap. (No par)	107,763	11.79	1,270,627.60	11.00	1,185,393.00
Central Illinois Public Service Co. Com. (Par $10)	34,175	12.00	410,100.00	14.50	495,537.50
Central & South West Corporation (Par $5)	68,351	9.39	641,790.74	11.125	760,404.88
Chicago City & Connecting Rys. Participation Certificates (No par)	10,518		1.00		0.00
Chicago, Milwaukee, St. Paul & Pacific R. R. Voting Trust Certificates for common shares	20,709	32.125	665,276.62	7.625	157,906.13
Consolidated Natural Gas Co. Cap. (Par $15)	127,174	28.392	3,610,705.40	42.00	5,341,308.00
Continental Oil Co. (Delaware) Cap. (Par $5)	60,664	11.16	677,258.83	56.625	3,435,099.00
El Paso Natural Gas Co. (Par $3)	1,000	35.75	35,750.00	67.75	67,750.00
International Nickel Co. of Canada, Ltd. (No par)	50,000	51.67	2,583,532.07	30.00	1,500,000.00
Interstate Natural Gas Co., Inc. Cap. (No par)	33,765	14.96	505,106.25	20.50	692,182.50
Kennecott Copper Corporation Cap. (No par)	35,100	58.54	2,054,731.03	55.50	1,948,050.00
Middle West Corporation Cap. (Par $5)	68,351	2.50	170,877.50	6.75	461,369.25
National Fuel Gas Co. Cap. (No par)	381,018	7.75	2,952,889.50	8.75	3,333,907.50
Ohio Oil Co. (No par)	94,684	35.37	3,349,446.50	32.50	3,077,230.00
Phelps Dodge Corporation Cap. (Par $25)	37,600	52.72	1,982,151.40	51.875	1,950,500.00
Potash Co. of America (Par $5)	4,000	23.50	94,000.00	26.875	107,500.00

COMMON STOCKS — *Concluded*

NAME	SHARES	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
Public Service Co. of Indiana (No par)	9,113	$20.625	$187,955.62	$20.25	$184,538.25
Standard Oil Co. of California Cap. (No par)	61,018	17.27	1,053,593.25	67.25	4,103,460.50
Standard Oil Co. (Indiana) Cap. (Par $25)	691,243	28.90	19,977,396.50	39.375	27,217,693.13
Standard Oil Co. (New Jersey) Cap. (Par $25)	1,025,000	29.17	29,901,106.59	72.125	73,928,125.00
Standard Oil Co. (Ohio) (Par $10)	352,920	8.816	3,111,512.54	25.125	8,867,115.00
Union Tank Car Co. Cap. (No par)	240,000	6.69	1,606,087.97	37.00	8,880,000.00
Wisconsin Power & Light Co. (Par $10)	17,087	12.75	217,859.25	13.50	230,674.50
TOTAL COMMON STOCKS			$78,380,758.10		$149,093,937.89

SUMMARY	LEDGER VALUE	MARKET VALUE
Bonds	$66,820,755.92	$66,717,811.17
Preferred Stocks	6,188,898.50	6,912,175.00
Common Stocks	78,380,758.10	149,093,937.89
	$151,390,412.52	$222,723,924.06

PRICE, WATERHOUSE & CO.

CERTIFIED PUBLIC ACCOUNTANTS
56 PINE STREET, NEW YORK

ACCOUNTANTS' CERTIFICATE

TO THE BOARD OF TRUSTEES OF
THE ROCKEFELLER FOUNDATION:

We have examined the balance sheet of The Rockefeller Foundation as of December 31, 1948 and the related statements and summaries of funds and appropriations for the year 1948 and the list of investment securities as of December 31, 1948. 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 accordance with the policy of the Foundation, no effect has been given in the accompanying statements to accrued income not received or to expenditures made from advance accounts not reported in time to be recorded when the books were closed as of December 31, 1948.

In our opinion, with the foregoing explanation, the accompanying balance sheet and related statements and summaries of funds and appropriations and the list of investment securities present fairly the position of The Rockefeller Foundation as of December 31, 1948, and the results of its operations for the year 1948, in conformity with generally accepted accounting principles.

PRICE, WATERHOUSE & CO.

New York, March 28, 1949.

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