

The  
Rockefeller Foundation  
Annual Report  
1937

THE ROCKEFELLER  
FOUNDATION  
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DAVID H. STEVENS

<sup>1</sup> Died February 28, 1938.



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, 1937, to December 31, 1937, together with detailed reports of the Secretary and the Treasurer of the Foundation, the Director of the International Health Division, the Directors of the Medical Sciences, the Natural Sciences, the Social Sciences, and the Humanities, and the Vice-President in charge of the program in China.

Respectfully yours,

RAYMOND B. FOSDICK

*President*



THE  
**ROCKEFELLER FOUNDATION**  
PRESIDENT'S REVIEW  
FOR 1937

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## PRESIDENT'S REVIEW

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## PRESIDENT'S REVIEW

### TRUSTING THE FUTURE

**O**n May 23, 1937, John Davison Rockefeller, the founder of The Rockefeller Foundation, died at Ormond Beach, Florida, in his ninety-eighth year. Mr. Rockefeller's gifts for philanthropic purposes were roughly \$530,000,000. He gave a total of \$446,000,000 to establish four funds: The Rockefeller Institute for Medical Research, the General Education Board, The Rockefeller Foundation, and The Laura Spelman Rockefeller Memorial. In addition, Mr. Rockefeller made individual contributions of approximately \$84,000,000 for educational, religious, and charitable purposes. Since their founding, the four funds established by Mr. Rockefeller have expended a total of \$645,000,000 in 88 different countries.

Mr. Rockefeller always made his gifts after thorough study and careful planning; and it is perhaps appropriate at this time to mention one or two principles which guided him. These principles were not necessarily formulated at the beginning of his career; rather they were the result of his long experience in philanthropic activity.

In the first place, he trusted the future. He did not think that benevolence and wisdom were

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confined to his generation. He was not under the illusion that what seems important today will necessarily be important tomorrow. He did not believe in tying up foundations to rigid and unchangeable purposes. He was familiar with English as well as with American experience in the creation of trust funds, and he would have agreed with Sir Arthur Hobhouse in the latter's comment on medieval foundations that "a nation cannot endure for long the spectacle of large masses of property settled to unalterable uses." When The Rockefeller Foundation was incorporated, the sole purpose stated in its charter was "to promote the well-being of mankind throughout the world." It was characteristic of Mr. Rockefeller's developing point of view that in 1920 he wrote to the trustees of the General Education Board as follows:

If in any gifts heretofore made to you by me there are any restrictions or limitations as to the specific purpose for which they are to be used, I hereby revoke such restrictions.

In the second place, Mr. Rockefeller did not believe that it was wise to attempt to maintain foundations in perpetuity. "Perpetuity is a pretty long time," he remarked. It is perhaps not generally known that under their charters both The Rockefeller Foundation and the General Education Board are authorized to expend

principal as well as income. In addition to income, the Foundation has thus far spent \$87,000,000 from its principal fund, while the General Education Board has spent \$140,000,000. Two Rockefeller boards have already terminated their activities: The Laura Spelman Rockefeller Memorial founded by Mr. Rockefeller, was merged with the Foundation in 1929 after having spent \$27,500,000 of its principal fund; the International Education Board, established by Mr. Rockefeller, Junior, was completely liquidated in 1937. The General Education Board is now approaching liquidation. How long The Rockefeller Foundation may continue depends upon the opportunities for expenditure which lie ahead.

These ideas of Mr. Rockefeller's have had great influence in shaping the policies of the boards which he established. The temptation to visualize the future in terms of the present—to think of the needs and methods of today as having a sure claim to immortality—is one which confronts trustees as well as founders of philanthropic foundations. For example, to establish under a permanent endowment in some university or research center a department or chair of psychiatry or organic chemistry may seem, with such light as we have at the moment, a rational and socially desirable step. But what wisdom

have we today to determine that a century or more hence psychiatry and organic chemistry will represent the pressing needs or the practicable techniques of that time? In endowing what they thought was of permanent importance, earlier generations made wrong guesses which embarrass us today. How can we assume that our guesses have any greater validity or are made with any clearer foresight?

This question led the trustees of The Rockefeller Foundation and of the General Education Board to adopt a principle by which recipients of gifts to endowment funds, for whatever purpose given, have wide discretion in the uses to which those funds may be put. Specifically, under a resolution passed by both boards in 1937, notification is sent to each recipient that it is the desire of the boards that the gift, "whether the income only is spent or the principal as well, shall always be regarded as available for use in the broadest way, so as best to promote the general purpose for which it was made." The notification contains the provisions outlined in general terms in the three succeeding paragraphs:

- (i) Ten years after the date of the gift, the income from it may be used in whole or in part for some purpose other than that for which the gift was made, such purpose to be as reasonably related to the original purpose as may be found practicable at the time, having regard to intervening changing conditions.

- (2) Beginning five years after the date of the gift, 5 per cent of the principal of the fund may be used each year for any purpose for which income may then be used.
- (3) After the expiration of twenty-five years, any part or the whole of the principal may be used for some other purpose, the new purpose—as in point one—to be as reasonably related to the original purpose as may be found practicable at the time, having regard to intervening changing conditions.

These liberalizing provisions represent an attempt to free the future from frozen funds and "tired" endowments, in the belief that the wisdom of this generation cannot be substituted for the wisdom of the next in the solution of problems hidden from our eyes. The endowments affected by these provisions amount to \$51,000,000 given to date by The Rockefeller Foundation, and \$148,000,000 given by the General Education Board.

#### THE YEAR IN BRIEF

During 1937 The Rockefeller Foundation appropriated a total sum in excess of \$9,500,000. Of this amount, \$2,400,000 was given to the medical sciences, \$2,200,000 to public health, \$2,000,000 to the social sciences, \$1,100,000 to the natural sciences, \$800,000 to the humanities, and \$400,000 to rural reconstruction in China.

In carrying out its 1937 program the Foundation operated in 52 different countries, from Nor-

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way to the Fiji Islands. Twenty-three of these countries were in Europe, 4 in Asia, 3 in Africa, 6 in South America, 11 in North and Central America and the West Indies, and 5 in other parts of the world. Forty-five per cent of the money given went to foreign countries, and the remainder, 55 per cent, was for work in the United States.

Among the largest appropriations and authorizations made during the year were the following:

China Medical Board, Inc.: toward the maintenance of the Peiping Union Medical College	\$420,000
Harvard University: for research in industrial hazards	360,000
Yale University School of Medicine: Department of Psychiatry	300,000
California Institute of Technology: for the development of organic chemistry (authorization)	300,000
National Research Council: for research in problems of sex and in biophysics	275,000
Yale University School of Medicine: for general research fund	250,000
Royal Institute of International Affairs, London: for its general program of research in international problems	240,000
Harvard Medical School and Massachusetts General Hospital: for teaching and research work in psychiatry	156,000

National Institute of Economic and Social Research, London: for basic economic research upon current problems \$150,000

American School of Classical Studies at Athens: for a museum to house objects recovered in the excavations of the Athenian Agora 150,000

International Institute of Intellectual Cooperation, Paris: for research in connection with the International Studies Conference 100,000

The Foundation's program, in terms of broad objective, is the advancement of knowledge. Within this general area there are certain specific fields upon which emphasis is at present being placed. The emphasis in the medical sciences is largely on psychiatry; in the natural sciences, on experimental biology; in public health, on the development of a trained personnel and on the study and control of certain diseases; in the social sciences, on such basic problems as international relations, social security, and public administration; and in the humanities, on efforts which tend to raise the general cultural level and to promote cultural interchange between countries. These defined objectives are not rigidly interpreted. They serve merely as guiding marks in an effort to give the program a reasonable degree of concentration.

Except to a limited extent in public health, the

Foundation is not an operating organization. It conducts no researches of its own. Its activities are confined to the support of other agencies—universities, laboratories, and research institutes—and to the training, through fellowships, of competent personnel in the various fields of knowledge.

### NEW INTERNATIONAL BARRIERS

From the beginning of its activities twenty-five years ago the Foundation has been guided by the objective written into its charter: "The well-being of mankind *throughout the world*." In accordance with this purpose the aim of the trustees has been to maintain the work of the Foundation on an international plane without consideration of flags or political doctrines or sects. Particularly in a program based on the advancement of knowledge it is imperative to disregard the geographical boundaries which arbitrarily and often unhappily divide the earth into a patchwork of senseless antagonisms. For in the last analysis knowledge cannot be nationalized. No successful embargoes can be maintained against the export or import of ideas. Whether new conceptions in atomic physics come from Copenhagen or from Cambridge, England; whether the cure for cancer is developed in New Haven or in Berlin; whether it is a Russian or an

Italian or an American who takes the next step forward in mankind's struggle with virus diseases—we are all of us, under whatever flag, the joint beneficiaries of the intellectual property of the race. In all the clash of competing nationalisms there is here an underlying principle of unity: **the single aim and language of science in the discovery of truth.** It is this principle which challenges the twentieth century with the conception of civilization as a cooperative achievement and with the ideal of intellectual capital as an international possession.

**A foundation, therefore, whose aim is to assist in pushing out the boundaries of knowledge must necessarily work wherever the best tools are to be found.** In its search for high talent and promising opportunities it must assume that frontiers are not the forbidding barriers they pretend to be.

This ideal which for more than two decades The Rockefeller Foundation has consistently attempted to follow has in recent years encountered serious difficulties. And these difficulties are increasing. Objective scholarship is possible only where thought is free—and freedom can exist only where there is tolerance, only where there are no "Keep Out" signs against the inquisitive and questioning mind. Disinterested research cannot survive in an atmosphere of compulsion

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and repression. It withers under the efforts of governments to impose uniform ideologies and to circumscribe in the interests of a dominant regime the area of intellectual liberty. Particularly in the broad range of subjects covered by the social sciences, and in the humanities as well, the world has recently witnessed in several countries the progressive disintegration of creative scholarship.

This phenomenon has naturally affected the program of the Foundation. In some fields it is now profitless to go where we formerly went. We find ourselves stopped at some frontiers—not because the frontiers have any greater geographical significance than they had a few years ago, but because behind them the search for truth by eager and skeptical minds has been made impossible.

Some twenty years ago in a Central American city a revolution developed while the Foundation was engaged in a study of yellow fever control measures. Dr. Emmett Vaughn, who was in charge of the work, determined to continue his research. Every morning with a flag of truce he crawled through the barricades to collect his mosquitoes on one side of the fighting line, and in the afternoon he crawled back again to gather up his specimens on the other side. He was molested by neither army. Both sides thought him

somewhat crazy—a man who, when great issues of human destiny were being fought out, spent his time catching mosquitoes. Today in that Central American country the revolution has been largely forgotten, but Dr. Vaughn is remembered as the man who helped to stamp out an age-long pestilence.

The Rockefeller Foundation likes to think of this incident as an example of what its approach to the welfare of mankind should be. But occasionally aggressive action by the fighting lines makes impossible even the gathering of mosquitoes!

#### PUBLIC HEALTH: A WORLD PROBLEM

Twenty-five years ago, when The Rockefeller Foundation was created, the first work it undertook was in public health. Dr. Wickliffe Rose, the director of this activity, laid out the line of attack which has since been consistently followed by the trustees. "Unless public health is conceived in international terms," he said, "the strategic opportunity of our generation will be lost."

For two decades and a half the Foundation has been guided by this principle. It has followed yellow fever to Central and South America and Africa, and it has studied such diseases as malaria and hookworm in areas as wide apart as the

West Indies and the South Sea Islands. Laboratory techniques have been brought to the assistance of field work all over the world in influenza, scarlet fever, tuberculosis, yaws, syphilis, rabies, and the common cold. Schools have been established for the training of public health personnel; and governmental agencies, national and local, have been assisted in building up more adequate health departments. Altogether, the Foundation has operated in 77 different countries and colonies and has expended approximately \$63,000,000 on public health work.

In 1937 \$2,200,000 was appropriated for this purpose. The work consisted generally of three lines of activity:

(1) Aid to central and local health departments in the establishment of adequate public health services. This involved, for example, support of bureaus of vital statistics and sanitary engineering in Nova Scotia; divisions of public health laboratories in Costa Rica, Panama, and Nicaragua; a division of mental hygiene in Poland; provincial divisions of industrial hygiene and nutrition in Quebec; and local health demonstrations in a number of countries, including Canada, Cuba, Nicaragua, Panama, Mexico, Greece, Hungary, Turkey, and India.

(2) Public health education. For example, aid was given to the Johns Hopkins School of Hy-

giene and Public Health for a field training area in the city of Baltimore; to Puerto Rico and Panama for stations for the training of public health nurses; to Western Reserve University and the Universities of California, Washington, and Toronto in connection with their courses in public health nurse training.

(3) The study and control of specific diseases. In 1937 the diseases investigated included yellow fever in South America and Africa, hookworm and schistosomiasis in Egypt, tuberculosis in Jamaica and Austria, rabies in Alabama, scarlet fever in Rumania, influenza in Hungary, yaws in Jamaica, and malaria in a number of countries, including the United States, Puerto Rico, Mexico, Central America, Cuba, Colombia, Albania, Bulgaria, Cyprus, Greece, Italy, Portugal, and India.

Work on this world-wide scale would seem to be justified by the growing propinquity of human life. With every new method of transportation the people of all countries—and their diseases—are brought closer together. There is no difference in influenza or in scarlet fever between Rumania and the United States; and yellow fever, given the chance, could ravage India as easily as it has ravaged South America and Africa. Disease knows no frontiers and has never been a respecter of flags. In this field of public health,

more clearly perhaps than in any other phase of human effort, one sees the complete inadequacy and meaninglessness of the conception of the absolute sovereignty of the state.

### LABORATORY VERSUS JUNGLE

In the REVIEW of a year ago, mention was made of the fact that the epidemiological strategy of the battle with yellow fever had been badly upset by the discovery of the existence of the disease in jungle districts where there were no *Aedes aegypti* mosquitoes. It had previously been assumed that this mosquito was the only carrier and that man was the only natural host. The new picture of yellow fever, therefore, proved to be far darker than had been supposed. It is now known that vast areas of the hinterland of both South America and Africa are endemic centers of the disease. By what vector it travels, other than the *Aedes aegypti* mosquito, or what other hosts there are except man, is not known.

Field experience in South America during 1937 has emphasized the importance of jungle yellow fever, both as a killing disease in its own right and as a permanent reservoir of virus for the production of aegypti-transmitted urban outbreaks.

The known range of jungle yellow fever, as outlined by the occurrence of fatal cases con-

firmed by viscerotomy or autopsy, was extended during 1937 to include the Amazonian region of Peru, northern Paraguay, the Brazilian state of Santa Catharina, and additional territory in the Magdalena Valley in Colombia. Among the countries of South America, evidence of the occurrence of yellow fever in recent years is lacking only for Uruguay, Argentina, Chile, and the Brazilian state of Rio Grande do Sul.

The existence of a permanent reservoir of infection in the jungle, in the absence of *Aedes aegypti*, paradoxically increases the necessity of continued anti-aegypti control measures in the cities and towns of threatened regions. The major problem in yellow fever control is still the organization of anti-aegypti measures throughout endemic and epidemic regions, on such an economical basis as can be permanently maintained. Any answer to the threat of infection other than in these long-term plans must lead to occasional disaster. The infection of Asunción late in 1937 is the first record of yellow fever in this inland capital during the present century. Fortunately, the existence of the disease in Paraguay had been uncovered some months previously, and anti-aegypti measures were being applied when the city was found to be infected. With the full cooperation of Brazilian, Paraguayan, and Argentine authorities, steps were

taken which apparently limited the further spread of urban yellow fever and are believed to have prevented a major catastrophe involving the cities of the Paraguay and Paraná River Valleys.

Field studies during 1937 added much information regarding the conditions under which jungle yellow fever occurs. The absence of *Aedes aegypti* in infected areas has been amply confirmed, and additional evidence has accumulated suggesting that human cases are not essential but are in fact relatively unimportant in the maintenance of the jungle infection. The method of control so successful in the case of urban yellow fever, i.e., the biological control of the insect vector, is not applicable in the case of jungle yellow fever. Likewise the elimination of animal hosts is not economically feasible throughout the vast regions of South America where the jungle infection abounds. The only hope of prevention at the present time lies in individual immunization of exposed populations by vaccination. As with other virus diseases, vaccination for yellow fever can be accomplished only by the use of a living virus.

For the past few years the laboratory of the International Health Division of The Rockefeller Foundation in New York has been working

on this problem. Beginning in 1931 the staff of the laboratory was successfully vaccinated with a modified virus, the action of which was further dampened by the use of relatively large doses of human immune serum. Although effective, this method proved too cumbersome and expensive for widespread application, and for several years attempts were made to increase the titer of immune serum so that smaller amounts would be effective, and at the same time to develop more highly modified strains of virus which would require little or no immune serum. Progress was made along both lines, but the recent success of the laboratory in producing a mild virus has overshadowed the work with immune serum.

Early in 1937, a virus which had been developed by tissue culture methods in the laboratory of the Foundation between 1934 and 1936, was taken to South America, and used for vaccination without immune serum. Although preliminary work on monkeys and a small group of persons in New York had indicated that this virus was perfectly safe for vaccination, great caution was exercised to avoid untoward accidents. Only after approximately 100 persons had been vaccinated and carefully observed was the vaccine taken to the field. Vaccinations with

virus alone by months in 1937 in Brazil were as follows:

January	0
February	7
March	33
April	37
May	30
June	306
July	775
August	1,765
September	3,937
October	10,740
November	7,681
December	13,076
 Total	 38,387

Additional vaccinations carried out in Colombia bring this figure to well over 40,000 for South America. Vaccine was also furnished to the Pan American Sanitary Bureau and the United States Public Health Service for the vaccination of international flight personnel of the aviation companies.

The reaction to this virus is mild in comparison with the aftereffects of immunization against other disease organisms, such as typhoid, diphtheria, etc., and rarely amounts to more than a slight headache six or seven days after vaccination.

The results of vaccination with this virus have been measured by the mouse protection test,

also developed in the Foundation's New York laboratory, in some 700 persons who were previously inoculated with living virus. Of these persons, over 99 per cent showed full or partial immunity. Further studies are needed for a final evaluation of the present method. It is, however, safe to say that a definite step forward has been made, and that efficient protection of populations exposed to jungle yellow fever is in sight. The danger of the international spread of yellow fever through air traffic can be greatly reduced by immunization of air crews and passengers.

The completion during 1937 of the laboratory building in Rio de Janeiro especially designed for the study of problems connected with yellow fever, and the approval of plans for a similar building in Bogotá to be constructed during 1938 —both with the financial assistance of the Foundation—are a frank admission that, although a decade has passed since yellow fever was first successfully maintained in laboratory animals, a large number of time-consuming problems remain to be studied before the complete story of jungle yellow fever can be written.

#### MEDICINE INCLUDES PSYCHIATRY

Before advance in knowledge can be effectively applied to medicine, it is necessary to secure the acceptance not only of doctors but of society at

large. This fact has been vividly illustrated in the history of two common diseases, tuberculosis and syphilis, the causative organisms of both of which have been discovered within the last sixty years. They are diseases of tremendous social importance affecting large segments of the population, both causing untold suffering and both leading to death.

For tuberculosis no chemical specific has been found, but in spite of that fact the incidence of the disease has been cut over two-thirds since 1900; between 1900 and 1936 the death rate fell from 202 to 56. For syphilis on the other hand effective specifics have been discovered, but, because a social stigma is attached to the disease, no similar advance has been made, although technical means have been available for prevention and control. Indeed very little advance has been made at all. The incidence remains relatively constant, rising in time of war, declining in time of peace; and it has been estimated that 10 per cent of the population of the United States will at some time contract the disease. The retarding factor in the fight against syphilis is not lack of knowledge but a social attitude which not only blocks action but prevents, in many cases, any open reference to the problem.

In the same way progress in the study and care of mental disease awaits release from tradi-

tional social attitudes. Although occasional leaders in medicine suspected their true nature, mental and nervous diseases were not, until well into the nineteenth century, regarded by the general public as diseases at all. Historians estimate that the mass delusion of witchcraft in the Middle Ages resulted in the torture and execution of over a quarter million individuals whose only offense was that they were insane, mentally defective, or highly suggestible. In seventeenth century England, admission was charged at Bedlam, the London madhouse, to those who wished to amuse themselves with the spectacle of the violently insane. As late as the early nineteenth century in America, insanity was not regarded as amenable to therapy. The insane were confined but were not treated; mental hospitals were called asylums and were classified with prisons.

It is a far cry from Bedlam to the recent college graduate who, in applying for a college position accounted for two years of his life as "1923-25, in sanitarium with nervous breakdown." But there is still a lag between the knowledge of physicians and the attitude of society. The popular concepts of today are the discoveries and theories of day before yesterday. Gradually we are coming to realize that only the sane can sin, and that lapses from usual stand-

ards of behavior may be due to disease. Self-control is a natural accompaniment of sound health; and the absence of one may mean the lack of the other. Mental disease is slowly being divested of the opprobrium that we allot to misconduct. It is interesting to speculate what our attitude to the common cold would be if one of the early signs, along with sneezing and chills, were a transitory attack of kleptomania. The ancients saw mental abnormality as a possession by demons; the quasi-modern layman sees it as a disgrace; but the modern man is coming to recognize it as disease.

Medicine, in advance of society in general, has of course already recognized mental and nervous abnormalities as defects or diseases. It cannot yet be said, however, that the development of psychiatry has paralleled the development of other branches of medicine, or that psychiatry has been accepted by the medical profession on the same terms as, for example, surgery. Much of this condition is due to the status of psychiatry itself. As a new science, it has not yet developed a body of knowledge or trained personnel comparable to that achieved by the other disciplines. Frequently isolated from the rest of medicine, psychiatry has sometimes run to strange cults and theories. Part of the cleavage between psychiatry and medicine, oddly enough, has been

due to the scientific development of medicine. Medical science has enriched our knowledge of the entity of disease; the entity of the human being has been neglected. Scientific techniques, so fruitful in the study of diseases of the heart, or bacterial invasions, brought negative results when applied to the study of many mental diseases. Those few mental diseases, like general paresis, in which changes in brain structure were demonstrable, were amenable to the methods of general medicine. Those mental diseases which yielded nothing to the new pathological or bacteriological approach were left on the doorstep of the psychiatrist. As a result psychiatry has to a certain extent been shoved off into a corner of speculation and terminologies—a stepchild, acknowledged but not understood and not really wanted. Thus in many instances, the physician is not prepared to treat the whole man.

Just so far as medicine fails to encompass the whole man, it will fail to understand him. Medicine runs the risk of letting synthesis wait too long upon analysis, of ignoring the whole in the knowledge of some parts. With all its wisdom, if medicine neglects what integrates and harmonizes the functions and organs, its picture will be out of focus and its comprehension incomplete. Psychiatry is a headland of medicine and not an island of speculation.

In 1937, as in other years, the Foundation's aim was to aid in infusing medicine with psychiatry and neurology. In emphasizing this field, the Foundation is not shutting its eyes to the importance of other branches of medicine. Medicine needs psychiatry and neurology; psychiatry and neurology, relatively backward as compared with their sister subjects, require development. The need is so great that there is little danger at the moment of overstressing it.

#### APPROPRIATIONS IN PSYCHIATRY

Since 1932 when the program in psychiatry was initiated the Foundation has given roughly \$6,100,000 for this purpose. The amount appropriated in 1937 was \$1,602,100. The following examples of appropriations made during the past year illustrate the attempt to harness psychiatry and neurology more closely to medicine.

- (1) An appropriation of \$156,000 was made jointly to the Harvard Medical School and the Massachusetts General Hospital in continuing support, over two years, of teaching and research in psychiatry. The contribution provides beds for psychiatric patients, and the services of a psychiatrist not only for the psychiatric ward but for the other wards in the Hospital.
- (2) In continuation of support previously given,

the Foundation appropriated \$300,000, payable over four years, to Yale University for its Department of Psychiatry. This Department, an integral part of the School of Medicine and operating in close cooperation with other branches of that school, is doing work at a consistently high level, not only in training but in therapy.

- (3) To Harvard University, in support of research in industrial hazards over a period of five years, the Foundation appropriated \$360,000. For a number of years the Foundation has been contributing toward this important physiological and psychological study in the field of industry.
- (4) To the University of Cambridge, England, the Foundation appropriated \$40,800 in support of its Department of Experimental Medicine. This Department is affiliated with an adjacent county hospital. The Foundation's grant provides a full-time pathologist, a part-time research radiologist, and a full-time psychiatrist. The project represents an opportunity to aid in the development of psychosomatic studies in Great Britain.
- (5) To the University of Cincinnati, the Foundation appropriated \$37,500 for support, over five years, of research in neurology in relation to nutrition. In cooperation with a

state mental hospital, long-term and intensive studies will be made of patients who show neurological and psychiatric symptoms associated with nutritional defects or disorders.

- (6) To the University of Colorado, the Foundation continued an appropriation of \$10,000 annually for two more years for assistance in the teaching of psychiatry in its Medical School, with particular reference to the strengthening of a liaison service between the Department of Psychiatry and other clinical departments. This liaison will make the experience and judgment of a psychiatrist available to the medical, surgical, and obstetrical wards of a general hospital.

#### THE SIGNIFICANCE OF EXPERIMENTAL BIOLOGY

The average layman, observing the more scientific aspects of the practice of medicine and reading almost daily accounts of new scientific discoveries, is perhaps tempted to conclude that man knows nearly everything there is to know about the constitution and behavior of the human organism. As a matter of fact, of all the things that man really knows, he knows least about himself. His knowledge of the stars is probably more complete and more reliable than

his knowledge of his own body. Inanimate things like stars and rocks lend themselves more easily to analysis and measurement. When it comes to living matter we are dealing not only with infinitely more complex material but with more elusive material. For example, a physiological process seems to lose something of its full natural character when it is isolated from the complete animal for purposes of experimental study. We are by no means sure, therefore, that a living organism is the sum of its parts. Our notion of "wholeness" or individuality, while vague and perhaps indefinable, appears to have some basis in biological fact. Even if every bodily activity could be explained in terms of physical and chemical formulas, apparently we would still be confronted with unanswered questions. And these questions, together with other problems perhaps of more immediate accessibility, relate ultimately not only to what life is, but to very practical issues of human betterment and social control. As a distinguished biologist at Johns Hopkins University recently wrote: "Every thoughtful person will admit that there is a kind of moral necessity to go forward in the attempt to get a better and more comprehensive understanding of the whole nature of man. The material, mechanical civilization he has evolved may easily become a monster to destroy him

unless he learns better to comprehend, develop and control his biological nature."

For this reason The Rockefeller Foundation has, for the present at least, in the natural sciences, given its major support to experimental biology. There is, of course, no exact yardstick to measure the importance of any science. All knowledge seems ultimately to be significant and useful. Astronomy, for example, represents one of the noblest reaches of the human mind, with wide implications in terms of physics and chemistry. It may fairly be asked, however, whether man needs to know about the stars in the same desperate sense in which he needs to know about himself. We cannot be dogmatically sure of the answer to this question. Knowledge is so interrelated and interpenetrating, even as between sharply differing disciplines, that it is almost impossible to foretell in what field the next significant advance in human welfare will find its impetus. But in so far as a guess in the dark is permissible, it would seem that the extension of the biological sciences, which are, broadly speaking, a hundred years behind the development of chemistry and physics, represents not only a wise effort but an effort from which far-reaching consequences may conceivably come. As Julian Huxley says: "Man must at last consent to think scientifically about himself and the intimate

facts of his life, instead of surrounding every vital problem with taboo or prejudice; and in this task, biology must be his chief servant."

In 1937 The Rockefeller Foundation appropriated roughly \$1,100,000 in this field. The following research grants may be cited for purposes of illustration:

Stanford University: distribution of proteins in the body.

Harvard University: physiology and chemistry of sex hormones.

Ohio State University: the hormone of the adrenal cortex.

Columbia University and the University of Pennsylvania: nutrition research.

Carlsberg Foundation, Copenhagen: enzyme chemistry.

University of Stockholm, Sweden: cellular physiology.

University of Utrecht, Netherlands: spectroscopic biology.

National Research Council: biology of sex.

California Institute of Technology and Princeton University: organic chemistry.

#### CHEMISTRY AND MEDICINE .

Louis Pasteur, who brought chemical methods to the study of disease and thus discovered the biological basis of infection, was a missionary as well as a pioneer of science. "Take interest, I implore you," he wrote, "in those sacred dwellings which one designates by the expressive

term: *laboratories*. Demand that they be multiplied and advanced. These are the temples of the future—temples of well-being and happiness. There it is that humanity grows greater, stronger, better." Pasteur's plea has, in part at least, been answered. Since his day chemical laboratories have multiplied in most of the countries of the world. They have become the basis of modern medicine. Bacteriology was born in a chemical laboratory; and all the chief problems of immunity and serology, as well as all the advances in our knowledge of nutrition, hormones, vitamins, and a dozen other fields, are rooted in chemistry.

Organic chemistry is a little more than a century old. It developed out of the idea that there is no special "vital force" and that substances produced by plants and animals can also be produced in the laboratory. It had its birth in Germany, and the first great leaders were German: von Liebig, who founded the first public laboratory for students at the University of Giessen; Wöhler, who synthesized urea in 1828; Buchner, the discoverer of zymase; Fischer, pioneer of carbohydrate and protein chemistry; von Baeyer, who was Fischer's teacher; Ehrlich, discoverer of salvarsan. These and many others gave German organic chemistry an unrivaled impetus. Great teachers attract students. Men came from

all over the world to study with Wöhler and Liebig and their successors. It was a stimulating period of intellectual adventure and advance. The application of the new chemistry to medicine in Germany attracted the cooperation of leaders in the fields of the medical and biological sciences. Institutes based on a coordinated approach to the problems of health and disease were founded under the guidance of such men as Koch and Ehrlich; and out of this cross-fertilization of disciplines modern scientific medicine emerged.

With her new chemical technique, Germany made equal progress on the industrial side. Among the first compounds selected for synthesis were those needed by agriculture and by the textile industries. By 1914 a single German dye manufacturer was employing 307 expert chemists and 74 technologists; indeed in 1914 Germany was manufacturing three-quarters of all the coal tar products used in the world and was supplying the essential materials for most of the remaining quarter. Moreover she had a practical monopoly in the dye industry, and a substantial stake in other industries as well.

The leadership of Germany in this field of organic chemistry has in recent years been challenged in a number of countries. Significant progress has been made in England and else-

where in Europe, but in the United States the development has been disappointingly slow. In America today chemical research is being carried on in universities, at special research institutes, in departments of the government (notably the Department of Agriculture and the laboratories of the Public Health Service), and to a considerable extent in the laboratories of pharmaceutical and chemical manufacturers. In very few of these places, however, is there evidence of that cooperative effort in the fields of organic chemistry, the biological sciences, and medicine which distinguished the German effort at the time of its maximum development.

When one considers the resources of America, it is difficult to understand why this situation should exist. It has been suggested that the rewards of physical chemistry have drawn promising students away from organic chemistry; and certainly the advance in physical chemistry in the United States has been significant. Moreover in comparing European and American conditions there are certain differences in practice which have to be taken into consideration. There is not, for instance, in Europe the same distinction between the industrial chemist and the academic chemist which obtains in the United States. Here industry does its own research, and the academic research worker has not, in general,

received its support. In Europe an important part of the financial support of many eminent academic chemists has come from industry. Whether such a policy would work in America is open to grave doubt. It has in Europe, however, accounted in part at least for the advance of fundamental research in chemistry.

Whatever the reason for its tardy development in the United States, organic chemistry is so essential to the progress of modern medicine and modern biology that these disciplines cannot go forward adventurously if chemistry lags behind. This is one of the fields of knowledge where importations from other countries are not enough. The particular problems which confront medical and biological research require a collaboration with chemistry so close and intimate that foreign laboratories and foreign leadership cannot suffice.

The trustees of the Foundation have felt it important that some strategic assistance should be given to organic chemistry in the United States. In 1937, a beginning was made toward this end and an appropriation of \$300,000 over a six-year period to the California Institute of Technology was authorized to provide additional personnel and equipment for the development of chemistry in its relation to biological problems. For the same purpose \$33,000 was given

to Princeton University. Here the Foundation's appropriation will equip new space and provide research assistants, over a three-year period, for increased work in the biological aspects of organic chemistry. Four grants in aid and two fellowships were also awarded in the United States to stimulate the development of personnel. In England, the Foundation appropriated \$25,000 to the University of Manchester for research in the chemical phases of vitamins, hormones, sterols and related compounds. In Sweden \$11,700 was given to the University of Stockholm for scientific equipment and materials in connection with the new laboratory of organic chemistry under Professor von Euler.

#### NAME UNKNOWN, AGE 500,000 YEARS

In 1927 the late Dr. Davidson Black, professor of anatomy in the Peiping Union Medical College, on the evidence of a single tooth differentiated a new genus of man, *Sinanthropus pekinensis*. Dr. Black's bold hypothesis was fully justified two years later when in the same limestone cave where the tooth was found—at Choukoutien, twenty miles south of Peiping—the first skull of Peking Man was discovered. In the following year several fragments of another skull were found; but the recent discovery on the same site of three new, more or less well-pre-

served skulls—two of which, oddly enough, were found on the same day—makes it possible to appreciate with truer perspective the momentous character of Dr. Black's first diagnosis.

Peking Man, according to present calculations, lived perhaps half a million years ago. The animal world that surrounded him, judged by the remains in the same cave, was entirely different from the present one. Contemporaneously with him lived huge stags and giant boars and the saber-toothed tiger. Charcoal and crude artifacts discovered in the cave give evidence that Peking Man knew the use of fire and the art of making stone implements from flint and quartz. He was a hunter and must have lived largely on meat, because the bones of many animals have been found, broken in a way that betrays the hand of man.

Whether Peking Man is the oldest known ancestor of modern man is a question still under debate. Dr. Franz Weidenreich of the Peiping Union Medical College, who succeeded Dr. Black as honorary director of the Cenozoic Research Laboratory in China, believes that Peking Man is more primitive than Java Man, and that Java Man, hitherto generally considered the oldest type of hominid, comes later in the stage of evolution.

In recent years The Rockefeller Foundation

has had no regular program in anthropology and paleontology. Through its interest in the Peiping Union Medical College, however, it has from the beginning supported the work carried on by the Cenozoic Research Laboratory at the Chou-koutien cave. For this purpose \$272,000 has been appropriated during the past ten years, and arrangements were recently made to extend the work into 1940. Incidentally this project covers a decade of fine-spirited cooperation between Chinese and Western scholars.

### THE EMERGING SOCIAL SCIENCES

In these ominous days when security, as the nineteenth century understood the term, seems to be fast disappearing, many people turn to the social sciences almost in desperation for such guidance as can be found. In the natural sciences the progress of man is astounding. He splits the atom, explores the light-years of space, moves toward the conquest of disease, and develops a technology by which he can provide the necessities of life for all his fellows—both now and in the future. But with these amazing achievements to his credit, he gives the impression of heading blindly toward the destruction of what he has created. The supreme question is whether he can summon knowledge and inventiveness—and the *will*—to bring himself and his social systems

under control. What have economics and political science and psychology and sociology to teach him that will help to solve his dilemma?

This heavy burden thrown upon the social sciences comes unfortunately at a moment when they are scarcely prepared. Relatively speaking they are in their infancy. Adam Smith, publishing his *Wealth of Nations* in 1776, corresponds in economics to Copernicus, circulating his theory of astronomy in 1530. Until almost 150 years ago we had no census, no knowledge even of the numbers and growth of the people. Even today there are no complete and comprehensive records about unemployment or inventories or wages or occupational distribution or any of the other factors upon the interpretation of which intelligent social action depends. Social statistics of all kinds—the tools of the social scientist—are everywhere in their fragmentary beginnings.

Moreover the social sciences are not *sciences* in the sense in which the word is used in relation to physics or chemistry. Rarely does the social scientist have access to controlled experimentation. Even when the idea of setting things up "experimentally" is adopted in the social field, the projects are so uncontrolled from a scientific point of view, and so full of variable elements affecting the outcome, that clear and dependable interpretation of the results, if not utterly im-

possible, is exceedingly difficult. The protected conditions and carefully designed instruments of precision which have made laboratory procedures so fruitful lie beyond the reach of social science. Other techniques of observation and analysis—much more cumbersome, much less efficient—have to be resorted to by the social scientist, with the result that success in extending the boundaries of knowledge in his field is infinitely difficult to achieve.

Finally, in connection with the problem of social control, it is one thing to *possess* the means of better control; it is quite another thing to *employ* them. New ideas coming from the fundamental sciences are taken over for use by society with relatively little hesitancy. New ideas from the social sciences, on the other hand, have to run a gauntlet of superstition and prejudice. To take advantage of the contributions of social science requires not merely available knowledge but social acceptance. The result is that social progress commonly lags behind what even an immature social science has to offer.

However, with all the handicaps which the social sciences sustain in comparison to the natural sciences, the two groups of disciplines are coming more closely together in the approach which they make to their respective problems. The right of the social scientist to be

called scientist rests more clearly upon the attitude he brings to his work than upon the techniques he employs or the results he has thus far been able to obtain. Like the scientist in other fields, he is fundamentally a truth-seeker. His purpose at all times is to extend the boundaries of knowledge and understanding. He assembles his data with every effort to avoid inadequacy or distortion. He follows the data without prejudice wherever they may lead.

This attitude, long the possession solely of the natural sciences, has, in this generation, begun to bring to the social sciences a mood of detachment and objectivity. Gradually, although as yet only in part successfully, social studies are freeing themselves from medieval logic and preoccupation with metaphysical speculation; they are slowly cutting loose from the idea that the philosophizing of armchair thinkers can take the place of observation and verification. William Harvey founded modern physiology by his determination "to learn and to teach anatomy, not from books but from dissections; not from the positions of philosophers but from the fabric of nature." This is the path which social science is now with faltering steps beginning to tread. Modesty as to its present achievements should involve no discouragement. The scientific observation of facts as the basis of theories in relation

to political, economic, and social organization has been proved possible. In spite of the lack of methods of controlled experimentation, some of the observed phenomena of society "stay put" long enough to permit significant generalizations. Some of these generalizations have a high degree of probable validity. Through them the nature of social organization and social progress is at least partially exposed.

The importance of maintaining scientific work in the social field can scarcely be questioned. While no immediate results can be anticipated—no dazzling discovery of a road to Utopia—the possibilities of ultimate social intelligence lie in this kind of work. To abandon the attempt would betray the liberal tradition upon which democratic society depends, and consign social development to ignorance and partisanship. Continuing social progress requires more and more minds trained to function scientifically on social problems. It requires improved facilities for observing, recording, and interpreting social phenomena. It requires public recognition of the supreme importance of accessions of knowledge in the social field.

### THE SOCIAL SCIENCES IN 1937

Since 1929, when the social sciences were included within its program, roughly \$30,000,000

has been given by the Foundation to these studies. In 1937, nearly \$2,000,000 was appropriated—in part for the promotion of research in three fields, i.e., social security, international relations, and public administration, and in part for less specialized work in the general field of the social sciences.

The three fields of specific interest—social security, international relations, and public administration—have been emphasized not only because they present acute problems, but because they seem to offer a chance to secure public support for the application and testing of the generalizations of social scientists. In no case are the grants of the Foundation in these fields intended to achieve merely a single objective. In making a grant, usually there is expectation—or, at least, hope—of increasing scientific knowledge, improving the tools of research, strengthening the scientific personnel in the field, interpreting the results of research to those who have the responsibility of dealing directly with social phenomena, and developing facilities and opportunities for testing the hypothesis of the scientist.

In the program in social security, there have been two types of appropriations: those intended to provide support for fundamental research into the causes and characteristics of the fluctuations of modern business enterprise, and those seeking

to prevent or mitigate individual suffering in the face of the insecurity resulting from economic and social changes. A few illustrative examples can be given of appropriations during 1937. A grant of \$150,000 for use over five years was made to the newly organized National Institute of Economic and Social Research in Great Britain for basic economic research upon current problems. A supplementary grant to the National Bureau of Economic Research (New York) provided \$70,000 toward a comprehensive study of American banking and finance which is being undertaken in collaboration with the Association of Reserve City Bankers. To the Financial Section and Economic Intelligence Service of the League of Nations, \$98,000 for use over four years was appropriated for the analytic work which is being done upon phases of the business cycle and upon the various factors determining economic conditions and policies of international significance.

The Committee on Social Security of the Social Science Research Council received from the Foundation a total of \$102,000 in 1937 not only to support its general work but for two specific studies, one of state unemployment compensation administration and the other of the mobility of labor and unemployment as affected by the existing social security laws. To the State Chari-

ties Aid Association (New York), \$80,000 was given toward the establishment of county citizens' committees on public welfare which, it is expected, will demonstrate the effectiveness of public understanding and participation in the development of a sound program of social security.

The Foundation made several grants in 1937 to improve the personnel and to clarify the problems of public administration. Harvard University was given \$65,000 to aid over two years in the development of its new Graduate School of Public Administration. The National Institute of Public Affairs, which has been aided in a general program for recruiting superior college graduates into governmental service, received a grant of \$54,000 for cooperation with certain federal agencies in an experiment in recruiting and training government personnel. The Public Administration Committee of the Social Science Research Council was given \$98,500 for certain studies which include the council-manager form of local government, the administrative organization and procedures in the United States Department of Agriculture, the accomplishments of unofficial agencies of municipal or governmental research, and the present status of training for public administration.

In the area of international relations, appro-

priations were made in 1937 to aid in the dispassionate study of causes of discord and misunderstanding in the world, to increase the sphere of influence of the expert, and to give the student of international affairs and the layman easier access to objective knowledge. The Royal Institute of International Affairs (London), which acts as a clearing house for research and information upon international problems for the British Empire, was given \$200,000 in support of its general program over a five-year period and, in addition, \$40,200 for studies of (1) the refugee problem in the world today, and (2) the experience of the mixed arbitral tribunal in Upper Silesia following the Versailles Peace Treaty. To the International Studies Conference of the International Institute of Intellectual Cooperation, which represents a membership of more than twenty nations, the Foundation made an appropriation of \$125,000 for the preparation of coordinated research studies upon the subject of "Economic Policies in Relation to Peace." As an example of an effort to utilize and disseminate more broadly the results of research, the grant of the Foundation to the Foreign Policy Association may be cited. Seventy-five thousand dollars was given in 1937 toward the support of its Department of Popular Education, which has been experimenting with so-called "Headline

Books" and other simplified presentations of factual material dealing with international relations.

Altogether, the program in the social sciences included grants to 22 institutions and agencies located in 9 different countries.

### NEW HORIZONS FOR CULTURE

The Balinese, according to Covarrubias, have no word for artist in their language. They have no need to describe the distinction which the word implies. As naturally as an American boy takes to baseball or marbles, the Balinese boy learns to carve wood or stone, to weave, to play a musical instrument or to dance. Participation in the arts is not the privilege of the gifted few but the natural and pleasurable occupation of the many.

Of only a few civilizations, living or dead, can such a picture be drawn. Culture is measured more often in terms of height than of spread. Excavations in various parts of the world have revealed impressive remains of great art; but it was art which apparently had intimate meaning for only a small proportion of the population it represented. As to the cultural life of the great masses of the people, beyond a few implements and vessels the ancient earth is silent. Doubtless the well-informed citizen of today, through the

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museum, the magazine, and the rotogravure, knows more about the trappings of Tutankhamen's court than many Egyptians knew in 1375 B.C. Except in a few places, the common man of earlier times had little share in the arts. They flourished in his time, but not for him.

Today in many parts of the world, we are witnessing a marked shift in this phenomenon. From being aristocratic and exclusive, culture is becoming democratic and inclusive. The conquest of illiteracy, the development of school facilities, the rise of public libraries and museums, the flood of books, the invention of the radio and the moving picture, the surge of new ideas—and above all, perhaps, the extension of leisure, once the privilege of the few—are giving culture in our age a broader base than earlier generations have known.

The utilitarian emphasis which supposedly dominates the twentieth century is by no means the sole emphasis of our time. New interests are in the making—an adventurous reaching out for a fuller life by thousands to whom nonutilitarian values have hitherto been inaccessible. The discovery of a new planet, of an Egyptian tomb, or of a dinosaur egg is front-page news, though no "practical" utility can be ascribed to them. To represent our age as fundamentally utilitarian in the sense that we prize only material needs and

comforts, is grossly to distort the facts. The broadening horizon of culture, the wide claim of its interests, the steady development of public desires and values—these are phenomena which belong to our time. Perhaps it is not without reason that Professor Whitehead of Harvard remarked that the great ages were frequently the unstable ages.

Any program in the humanities must inevitably take account of this new renaissance of the human spirit. In its own work in this field, the Foundation has avoided classical definitions and is not concerned primarily with the promotion of academic research. Its aim is to help make cultural interests a more common possession, to give them a wider currency. The Foundation has no illusions about the size of this undertaking. Fortunately the tides in this direction are running so strongly that nothing can stop them. All that any foundation or group can do is to assist in what might be called time-strategy: to enable leaders to receive training when the training is most needed, to support experimentation or demonstration at the moment when it will be most useful. Working not only through universities, but through agencies of an entirely non-academic character, the Foundation has endeavored to encourage promising developments in the drama, motion picture, and radio, as well

as in museums and libraries. In addition it has tried to increase cooperation between different agencies, not only in this country but internationally. These broad objectives, as in every aspect of Foundation program, are out of all proportion to the means of the Foundation. Although the appropriations have been modest in amount, they have been given in the hope of contributing strategically rather than quantitatively to significant trends.

During 1937, in the field of the humanities, the Foundation appropriated a total of about \$800,000.

#### MORE THAN FORTY-FIVE MINUTES FROM BROADWAY

Recently 28,000 young people in the State of Washington, mostly in high school audiences, saw the Washington State Theatre company (aided by a grant from The Rockefeller Foundation) present Shakespeare's *Comedy of Errors*. Of these young people, from 80 to 90 per cent were not only seeing their first performance of Shakespeare, but were also having their first taste of the legitimate theatre; and the experience was to make a profound impression on the lives of many of them. "It was," said one student, "as if a door had opened for me."

For that small portion of the American population living within forty-five minutes of Broadway, it is difficult to realize that a generation is growing up that has never seen plays performed on a stage by professional actors. Except in the largest metropolitan centers, the motion picture has practically supplanted the legitimate theatre. The "road" show and the stock company have all but vanished.

The retreat of the legitimate stage to a few urban centers has been accompanied by an amazing growth in amateur drama throughout the country. In spite of the competition of the motion picture and the radio, organized groups in universities, colleges, schools, churches, clubs and social centers are producing plays. It is estimated that nearly 25,000 public schools have dramatic activities under direction and that nearly 150 universities and colleges offer courses in drama. Some universities have developed graduate training in drama and are extending their influence not only locally but regionally. Similarly the W.P.A. Theatre, with its low admission prices, has uncovered a vast new theatre audience. In New York City alone, 2,000,000 people attended plays produced by the W.P.A. Theatres during the summer of 1937. The acted play still seems to be the most natural and the most popular medium for amusement and self-

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expression, and for community activity in the arts.

In his book of a few years ago, *Footlights Across America*, Kenneth Macgowan wrote, "The local theatre is the product of local necessity and it has the inevitable virtues of individuality. . . . Through it the people of North Carolina can express themselves in native drama. Through it Pasadena can build the kind of theatre it likes. Through it every state can find its own level of expression and appreciation; this may be anything good or bad, but it will not be the dead level of what Erlanger or the Shuberts think the whole country will like. Instead of the lowest common multiple of Broadway we have the highest common denominator of local taste."

The Foundation's principal objective in the extension of drama has been the development of a limited number of university centers for training future leaders. Ten such centers have thus far received Foundation aid, including Yale, Columbia, Cornell, Northwestern, and the University of Iowa. In 1937 the Foundation appropriated \$22,500 to Stanford University to provide staff appointments in dramatic instruction. The Memorial Theatre at Stanford, toward the cost of which the Foundation had previously contributed, provides unsurpassed facilities for practical experience in the actual production of

plays. To the University of North Carolina, the Foundation appropriated \$22,000 in continuation of its aid to this highly important center for the production of regional drama and for the training of personnel. It is interesting to record that in 1937, the University of North Carolina put into experimental production its fiftieth group of original plays, and sent out its thirty-fourth touring company to demonstrate its work in other states.

Among other types of assistance in this field in 1937 was the appropriation of \$10,500 to Vassar College for the expenses of a six-weeks' summer session for leaders in the W.P.A. Theatres. These leaders came from academic centers as well as from the professional stage. They are the people who will make permanent whatever residue of the Federal Theatre Project is finally maintained by state and community funds. During 1937 also, 21 men and women held Foundation fellowships in the field of drama. Some of these fellows are already beginning to make promising contributions to the literature and technique of the theatre.

#### OTHER APPROPRIATIONS IN THE HUMANITIES

In addition to its interest in the development of the drama, the Foundation made grants in 1937

to experimental work in the field of radio. To the University Broadcasting Council of Chicago, \$60,000 was appropriated toward the support, over three years, of this interuniversity agency for the production of radio programs of educational and cultural value. To the School of Public and International Affairs in Princeton University, \$67,000 was given for a comprehensive study of the value of radio to listeners. Radio has developed because it has served genuine human needs; but how precisely it meets those needs is still an open question. To the National Music League, the Foundation appropriated \$14,000 toward a study of popular taste in music, for the benefit of the radio industry and of noncommercial agencies. To the Pan American Union, the Foundation gave \$12,820 to assist a broadcasting experiment between the United States and Latin America.

Work continued in 1937 in connection with other Foundation interests in the humanities. Among the appropriations to library and museum projects was one of \$50,000 to the Buffalo Museum of Science to assist in the establishment of internships for training in new museum techniques, and one of \$16,000 to the American Library Association to make possible the demonstration of microphotography in the Paris Exposition. For the development of American resources for studies of Far Eastern languages,

literature, and cultural history, the Foundation in 1937 made some half-dozen grants. These included an appropriation of \$60,000 to the American Council of Learned Societies for the production of a set of catalogues of books on Chinese and Japanese subjects available in this country; one of \$25,000 to the Royal Ontario Museum of Archaeology, Toronto, for the development of its resources for teaching and research in Far Eastern subjects; and grants to Yale University and to Columbia University for the development of oriental studies. The largest single contribution in the field of the humanities during the year was \$150,000, in continuation of a former interest in archaeology, toward the cost of a museum in Athens for housing the material obtained from the Agora excavations.

### THE DEBACLE IN CHINA

Last year, in the REVIEW, the following sentence appeared:

China today stands on the threshold of a renaissance. The Chinese National Government, together with many provincial and county authorities and private organizations, are attempting to make over a medieval society in terms of modern knowledge.

This proud ambition, in which the Foundation was participating, has been virtually destroyed by the events of the last six months. The program was primarily a program of rural recon-

struction and public health. It was rooted in promising Chinese institutions like Nankai University in Tientsin, and the National Central University and the National Agricultural Research Bureau, both in Nanking. It was promoting studies in subjects like animal husbandry and agriculture; it was carrying on broadly based field experimentations; and it was training men and women for administrative posts in rural and public health work.

Nankai University was completely destroyed last July. The universities and institutions in Nanking, where they are not too badly damaged, are serving today as army barracks. The field units in mass education and public health are so completely scattered that it is practically impossible to locate them. The work, the devotion, the resources, the strategic plans of Chinese leaders for a better China, have disappeared in an almost unprecedented cataclysm of violence.

At the moment there is nothing further to report. The Foundation still maintains its office in Shanghai. Whether there will be an opportunity to pick up the pieces of this broken program at some later date, no one can foretell.

### INVESTING IN BRAINS

While the Foundation has often appropriated sums for the erection and equipment of labora-

tories and the purchase of experimental materials, its primary interest is in men. The Foundation's fellowship program is an outright investment in brains. Through this program, an endeavor is made to select and train those promising young men and women upon whom will fall the scientific leadership of the future. Since 1915, both directly and through representative national agencies in various countries, the Foundation has given fellowships to over 6,000 individuals.

These 6,000 fellows have come from 72 different countries, and have represented many races, languages, backgrounds, and interests. Their fellowship experiences have been varied in character, but it is possible to make certain general observations which apply to the majority of them. Usually, a Foundation fellow is in his early thirties. He has learned to speak the language of the country in which he plans to study. In general, he has finished his graduate work and has had several years of actual experience in his chosen field. In most cases he holds an appointment on a university faculty (at least privatdozent in Europe or instructor in America), or on the staff of a research institute or government department. He has done such significant work in his position as to lead his chief not only to recommend him for a fellowship, but to grant

him leave of absence and to promise him the same post or a better one upon his return. (Practically no fellowships are awarded upon direct request of the applicant.) During his fellowship he will study and work in whatever country and in whatever institution is best fitted for his needs. The Foundation pays his living expenses, his tuition and laboratory fees, and, in cases where it is necessary, provides an allowance for his dependents.

During the year 1937, the Foundation supported 613 fellowships, at a total cost of \$740,000. Of the total number of these fellowships, 478 were awarded directly by the Foundation. The divisions represented by these fellowships were as follows: public health, 102; public health nursing, 53; medical sciences, 72; natural sciences, 95; humanities, 66; social sciences, 75, and the program in China, 15. The other fellowships supported during 1937 were awarded by other agencies. The National Research Council was responsible for 76, the American Council of Learned Societies for 2, the Social Science Research Council for 23, the Peiping Union Medical College for 20, the Medical Research Council of Great Britain for 7, and the American School for Classical Studies at Athens for 7.

## APPLICATIONS DECLINED DURING 1937

In 1937 the Foundation was obliged to decline 1,050 of the applications for aid which it received, inasmuch as the type of assistance requested did not fall within the scope of the activities of the organization as determined by its present policies. The Foundation does not make gifts or loans to individuals, or finance patents or altruistic movements involving private profit, or contribute to the building or maintenance of churches, hospitals or other local institutions, or support campaigns to influence public opinion on any social or political questions, no matter how important or disinterested these questions may be.

The applications declined during 1937 may be classified under the following headings: research projects, 277; local institutions (including hospitals, libraries, churches, museums), 234; development of educational institutions and projects, 180; publications, 99; public health projects, 41; cures, remedies, and investigations of theories, 116; and miscellaneous, 103. This list does not include many tentative requests made to the central office and to staff officers in the field, or a large number of requests for personal aid and fellowships.



# **REPORT OF THE SECRETARY**

2



## SECRETARY'S REPORT

The members and trustees of The Rockefeller Foundation during 1937 were:

John D. Rockefeller, Jr., <i>Chairman</i>	
Winthrop W. Aldrich	Ernest M. Hopkins
John W. Davis	Thomas I. Parkinson
Harold W. Dodds	Alfred N. Richards
Lewis W. Douglas	John D. Rockefeller, 3rd
John Foster Dulles	Walter W. Stewart
Raymond B. Fosdick	Harold H. Swift
Douglas S. Freeman	George H. Whipple
Herbert S. Gasser	Ray Lyman Wilbur
Walter S. Gifford	Owen D. Young
Jerome D. Greene	

The officers of the Foundation were:

John D. Rockefeller, Jr.	<i>Chairman of the Board of Trustees</i>
Raymond B. Fosdick	<i>President</i>
Thomas B. Appleget	<i>Vice-President</i>
Selskar M. Gunn	<i>Vice-President</i>
Alan Gregg, M.D.	<i>Director for the Medical Sciences</i>
Warren Weaver	<i>Director for the Natural Sciences</i>
Edmund E. Day <sup>1</sup>	<i>Director for the Social Sciences</i>
Sydnor H. Walker <sup>2</sup>	<i>Acting Director for the Social Sciences</i>
David H. Stevens	<i>Director for the Humanities</i>
Wilbur A. Sawyer, M.D.	<i>Director, International Health Division</i>
Norma S. Thompson	<i>Secretary</i>
Lefferts M. Dashiell	<i>Treasurer</i>
George J. Beal	<i>Comptroller</i>
Thomas M. Debevoise	<i>Counsel</i>
Chauncey Belknap	<i>Associate Counsel</i>

<sup>1</sup> Resigned June 30, 1937.

<sup>2</sup> As of July 1, 1937.

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

The President, *Chairman*

Lewis W. Douglas	Thomas I. Parkinson
John Foster Dulles	John D. Rockefeller, 3rd
Walter S. Gifford	Walter W. Stewart
Jerome D. Greene	George H. Whipple

The following served as scientific directors of the International Health Division of the Foundation during 1937:

Eugene L. Opie, *Chairman*

John G. FitzGerald, M.D.	Thomas Parran, Jr., M.D.
Waller S. Leathers, M.D.	Thomas M. Rivers, M.D.
Kenneth F. Maxcy, M.D.	

The Director of the Division

## MEETINGS

Regular meetings of The Rockefeller Foundation were held on April 7 and December 1, 1937. Eight 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 Account of the Foundation for the year 1937 and a statement of its Principal Fund follow.

## SUMMARY OF APPROPRIATIONS ACCOUNT

FUNDS AVAILABLE	FUNDS APPROPRIATED
Balance from 1936.. \$3,931,485	Appropriations:
Income for 1937.... 9,923,666	Public health.... \$2,206,500
Unexpended bal- ances of appropri- ations allowed to lapse, and refunds on prior year grants..... 1,115,004	Medical sciences.. 2,392,100 Natural sciences.. 1,144,055 Social sciences... 1,962,325 Humanities..... 816,920 Program in China 394,875 Miscellaneous.... 70,000 Administration... 862,922
	<hr/> \$9,849,697
	Less appropriations for which funds were previously authorized..... 960,000
	<hr/> \$8,889,697
	Authorizations for later appropria- tions by the Ex- ecutive Committee *686,514
	<hr/> \$9,576,211
	Balance available for appropriation in 1938..... 5,393,944
<hr/> \$14,970,155	<hr/> \$14,970,155

\* This includes an authorization of not more than \$300,000 to the California Institute of Technology.

## THE ROCKEFELLER FOUNDATION

## PRINCIPAL FUND

Book value as of December 31, 1936.....	\$151,459,942
Deduct:	
Amount withdrawn from principal for transfer to Contingent Projects Account in accordance with resolution of the trustees, December 1, 1937.....	1,200,000
Principal Fund as of December 31, 1937.....	<u><u>\$150,259,942</u></u>

## **INTERNATIONAL HEALTH DIVISION**

# INTERNATIONAL HEALTH DIVISION

## SCIENTIFIC DIRECTORS

John G. FitzGerald, M.D.      Eugene L. Opie, M.D.  
Waller S. Leathers, M.D.      Thomas Parran, Jr., M.D.  
Kenneth F. Maxcy, M.D.      Thomas M. Rivers, M.D.  
The Director of the Division

## STAFF DURING 1937

### DIRECTOR

Wilbur A. Sawyer, M.D.

### ASSOCIATE DIRECTORS

Mary Beard                        John A. Ferrell, M.D.

### ASSISTANT DIRECTORS

Lewis W. Hackett, M.D.      George K. Strode, M.D.  
   Andrew J. Warren, M.D.

### STAFF

Charles A. Bailey, M.D.	Monroe D. Eaton, M.D. <sup>3</sup>
Marshall C. Balfour, M.D.	John E. Elmendorf, M.D.
Claude H. Barlow, M.D.	Graham B. Fairchild <sup>4</sup>
Johannes H. Bauer, M.D.	Edward W. Flahiff, M.D.
Henry Beekwes, M.D.	Thomas Francis, Jr., M.D.
George Bevier, M.D.	Raymond M. Gilmore
Mark F. Boyd, M.D.	John E. Gordon, M.D.
John C. Bugher, M.D. <sup>1</sup>	John B. Grant, M.D. <sup>2</sup>
Alexander W. Burke, M.D.	Richard G. Hahn, M.D.
Henry P. Carr, M.D.	Rolla B. Hill, M.D.
Joseph C. Carter	Frank L. Horsfall, M.D. <sup>3</sup>
Lowell T. Coggesshall, M.D.	Thomas P. Hughes
Ralph K. Collins, M.D.	John L. Hydrick, M.D.
Platt W. Covington, M.D.	William P. Jacocks, M.D.
Porter J. Crawford, M.D.	John H. Janney, M.D.
F. Elisabeth Crowell	John F. Kendrick, M.D.
Brian R. Dyer <sup>2</sup>	J. Austin Kerr, M.D.
Walter C. Earle, M.D.	Stuart F. Kitchen, M.D.

<sup>1</sup> Appointed October 1, 1937.

<sup>2</sup> Assigned to China Program.

<sup>3</sup> Appointed July 1, 1937.

<sup>4</sup> Resigned October 8, 1937.

Frederick W. Knipe	J. Allen Scott <sup>4</sup>
Henry W. Kumm, M.D.	Raymond C. Shannon
Sylvester M. Lambert, M.D.	Hugh H. Smith, M.D.
Charles N. Leach, M.D.	Fred L. Soper, M.D.
William A. McIntosh, M.D.	Warren K. Stratman-Thomas, M.D. <sup>5</sup>
Thomas P. Magill, M.D.	Winfield C. Sweet, M.D.
Estus H. Magoon	Richard M. Taylor, M.D.
Alexander F. Mahaffy, M.D.	Mary E. Tennant
D. F. Milam, M.D.	Max Theiler, M.D.
Daniel M. Molloy, M.D.	Thomas B. Turner, M.D.
Hugo Muench, M.D.	Allen M. Walcott, M.D.
J. Harland Paul, M.D.	Benjamin E. Washburn, M.D.
George C. Payne, M.D.	Clifford W. Wells, M.D.
Edward G. Pickels <sup>1</sup>	Loring Whitman, M.D.
Justus B. Rice, M.D. <sup>2</sup>	D. Bruce Wilson, M.D.
Elsmere R. Rickard, M.D.	Daniel E. Wright
Paul F. Russell, M.D.	Clark H. Yeager, M.D.

<sup>1</sup> Appointed January 1, 1937.

<sup>2</sup> Resigned December 13, 1937.

<sup>3</sup> Resigned July 19, 1937.

<sup>4</sup> Resigned August 31, 1937.

<sup>5</sup> Resigned December 31, 1937.



# INTERNATIONAL HEALTH DIVISION

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# INTERNATIONAL HEALTH DIVISION

## DISEASE AND ENVIRONMENT

TOWARD the end of his life Pasteur in his letters expressed regret that he could not come to Brazil to study yellow fever as he was invited to do by Pedro II in 1880. Advanced age did not, however, dampen Pasteur's enthusiasm regarding this early attention to yellow fever in Brazil. From France he gave all the help he could, and over and over again he reiterated the importance of the general principle that a disease is best studied in its own natural environment.

This principle is of central importance in the program of the Foundation's International Health Division. As has been stressed in the President's Review of the work of The Rockefeller Foundation for 1937, disease knows no national boundaries. Malaria, for example, which is the most important of all tropical diseases, occurs also in the temperate zones. Malaria is not one disease but many. A real understanding of this disease requires observation and experience in several environments. Malaria varies from

place to place in its clinical picture, in the type of mosquito which carries it, in the species of organism which causes it, as well as in the local conditions favoring transmission. Men fitted by training to become leaders in the campaign against such a world-wide disease must have open minds with regard to the different forms which it may assume.

Yellow fever likewise has more than one aspect, depending on environment. In temperate zones it appears as a sharp summer epidemic interrupted by the arrival of winter. In coastal regions and islands of the tropics it is a disease which is continuous but which can be made to disappear when the urban centers are freed of the mosquito vector. In the central part of South America and perhaps also in Central Africa it persists in spite of the absence of its recognized mosquito vector. In these regions it can survive among a sparse population as a continuous danger to the rest of the world.

It is no longer possible to distinguish sharply between tropical and temperate zone diseases. A tropical disease is in reality any disease as it behaves in a tropical environment. The study of tropical disease has traveled far beyond the day when simple parasitology, the study of some pickled worms, and the search of stored blood films for parasites were considered its chief sub-

stance. The frontiers of medicine have been extended. All over the world, including the tropics, many cities have safe piped water and systems of mosquito control. Local medical centers, even in far outlying countries, are often well able to take scientific care of patients. A number of temperate zone medical schools now have outposts or branches in the tropics. Disease is more and more accepted and attacked as a world-wide problem.

The study of public health involves the study of a thousand different and complex environments compounded of special local conditions of climate, racial make-up of the people, social and economic conditions, food materials, and especially arthropod vectors of disease and animal hosts. With this broad picture of the complicated nature of the struggle firmly in mind, The Rockefeller Foundation, through its International Health Division, in 1937 continued its work in public health in 52 countries, paying especial attention, first, to the control of certain selected diseases on which it has in many cases, through a series of years, accumulated varied experience; secondly, to the support of state and local health activities of both a general and a specific nature, aiming at the encouragement of governments everywhere to undertake the task of safeguarding public health; and thirdly, to the

provision of adequate training for public health personnel, since, as has been pointed out in preceding pages, the final investment of the Foundation, in public health and in its other fields of interest, is an investment in the increase of human competence.

The report which follows contains a summary account, broadly sketched with emphasis on geographical factors, of public health work conducted in 1937. A more detailed report stressing research aspects of the work is also published and will be sent on request.

#### CONTROL AND INVESTIGATION OF SPECIFIC DISEASES

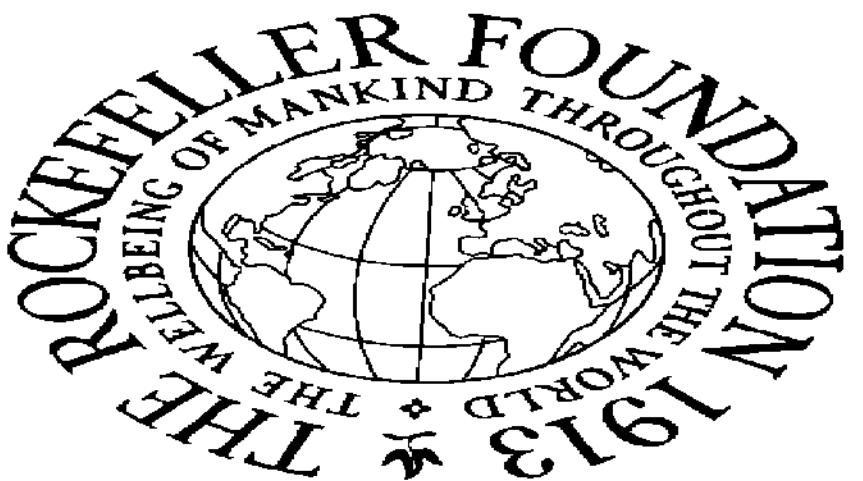
##### YELLOW FEVER

Yellow fever work by Foundation staff or with Foundation aid went forward on four continents in 1937. In Europe aid was continued to the yellow fever studies conducted at the Pasteur Institute in Paris. In Africa assistance was given to yellow fever laboratories in Uganda and Nigeria. At the laboratories of the International Health Division in New York City progress was made in connection with an extensive program of research on yellow fever virus. Further activity in control of yellow fever as well as in field and



Photograph Excised Here

Sleeping sickness suspects segregated for gland puncture, Uganda, East Africa. The yellow fever survey was combined with the routine sleeping sickness inspections in the Kitgum and West Nile districts.



Photograph Excised Here

Oiling a lighter in Rio Bay, one of the anti-aegypti measures instituted by the Yellow Fever Service, Brazil.

laboratory research centered in various sections of South America but chiefly in Brazil.

The Pasteur Institute in Paris, which is engaged in yellow fever work in behalf of French colonial territories, has undertaken to train four or five medical officers to be assigned to service in French Equatorial and Occidental Africa. These men are sent out with the primary purpose of providing facilities for immunization and participating in investigative work.

The yellow fever work in Uganda is concentrated in the laboratory at Entebbe. The International Health Division and the Government of Uganda contribute experts who constitute the scientific staff. The aim of the work at this laboratory is to elucidate the nature of yellow fever in Central and Eastern Africa and its method of spread. One investigation is endeavoring to find why the disease has not passed beyond the eastern border of the endemic region in Africa to the highly mosquito-infested east coast of Africa. A small grant was also made to the yellow fever laboratory at Lagos, Nigeria, where the Foundation formerly maintained extensive researches.

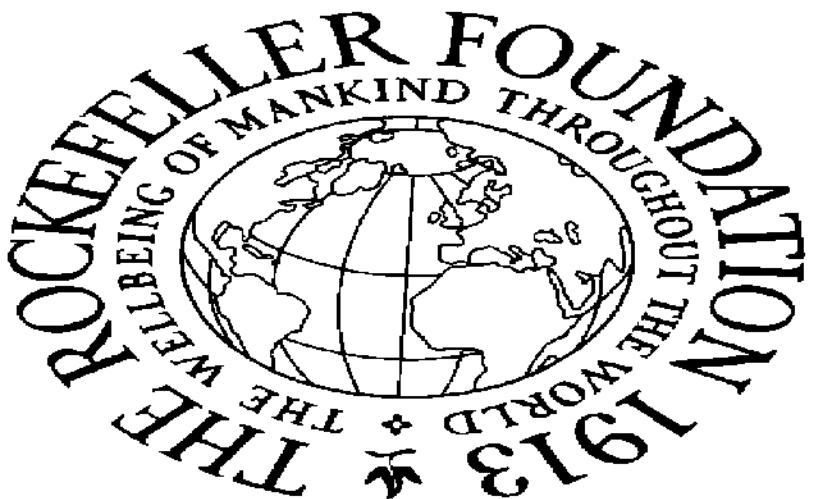
The 1937 activities at the laboratories of the International Health Division in New York concerned the improvement of tissue culture vaccine against yellow fever. These studies have



Photograph Excised Here

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Viscerotomy section of the new Yellow Fever Laboratory, Rio de Janeiro, where liver tissues from all parts of South America are received and prepared for examination.



Photograph Excised Here

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Showing approximation of coffee plantation and jungle, Minas Geraes, Brazil. The distribution of jungle yellow fever seems to follow river valleys, rather than railroads, automobile highways, and other means of human conveyance.

been successful, so that vaccination is now available on a much larger scale than ever before. This is of primary importance in the South American situation, where vaccination should be an effective weapon, and must perhaps be the only one, in curbing the jungle type of yellow fever and preventing its spread to other countries.

Further work concerned a study of the nature of yellow fever virus and antibody. Two high-speed centrifuges have been devised and perfected. One of these is used in the concentration and purification of yellow fever virus in quantity for studies of its properties. The other is capable of throwing down even the larger protein molecules and giving data which permit calculation of their size. The centrifuge technique is applied to yellow fever virus in order to find out its physical characteristics more accurately than ever before.

Using a particularly virulent strain, isolated in 1927 in Africa, further studies were made on the behavior of yellow fever virus under the conditions of laboratory cultivation. So far the most satisfactory method for the preparation of the virus for use as a vaccine is that reported at the end of 1936. This method consists of passing tissue culture virus through a developing chick embryo in the egg, suspending the ground

infected embryos in normal human serum and filtering. A number of other strains of yellow fever have been continuously kept under cultivation in various types of tissues, and the change in their pathogenicity has been noted by testing them in animals from time to time.

Studies of the chemical and physical characteristics of yellow fever virus were continued during the year. The work with yellow fever virus is exceedingly difficult because the virus particles are small and cannot be obtained in the large volume required for analysis by ordinary chemical methods. For this reason, methods of physical chemistry, such as ultracentrifugation, microanalysis, etc., requiring only minute quantities of material are being used.

In connection with the yellow fever vaccination program, quantities of vaccine were prepared in the New York laboratory and at the laboratory of the Yellow Fever Service in Rio de Janeiro, and shipped to various points in the field for immunization purposes. As told on earlier pages of this report,<sup>1</sup> by far the most extensive test of the new vaccination was made in South America where, during 1937, 40,000 persons were with every apparent success immunized against yellow fever.

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<sup>1</sup> See pp. 21-22 President's Review.

Yellow fever investigations undertaken during the past few years in South America, especially in Brazil and Colombia, have revealed a new epidemiological form of the disease, known as jungle yellow fever, which continues to be a subject of concentrated study. It is characterized by the absence of the *Aedes aegypti* mosquito from the region at the time of epidemics and by the fact that almost all human infections occur in persons whose occupations or residences bring them into close contact with the forest. Jungle yellow fever is not only a severe scourge of exposed rural populations but also constitutes a permanent reservoir of infection from which cities and towns may be infected. An enormous amount of work must be done before the complete story of jungle fever can be written. A search is under way for all possible vectors. At present the only control in sight is that of individual prophylaxis through vaccination.

Meanwhile the yellow fever laboratory in Brazil is completing the examination of 125,000 specimens of liver tissue from all over the continent. The most sensitive method of discovering the existence of yellow fever in a community or in a region is microscopical examination of liver tissue from fatal cases of febrile diseases.

While it is clear that jungle yellow fever remains in certain areas permanently, there is

beginning to accumulate a considerable amount of evidence indicating wavelike epidemics in some regions. The observation of yellow fever in Matto Grosso, Brazil, in 1934 was followed by cases further south in 1935 and 1936 and the confirmation of cases in Northern Paraguay in 1937. Previous to the discovery of any Paraguayan cases, a member of the International Health Division Staff visited Asunción and Buenos Aires, advising the authorities in both capitals, on the basis of previous observations, to expect the appearance of yellow fever in Asunción during the 1937-1938 season. With this possibility in mind, antimosquito services were reorganized in Asunción in May 1937, and a great reduction in the number of aegypti mosquitoes had been made by the middle of November when a diagnosed case occurred. The mosquito population of Asunción is believed to have been large enough in November 1937 to have permitted the transfer of virus from one case to another, but low enough to prevent any important local outbreak.

The strenuous measure taken by Argentina in interrupting communication with Paraguay on the basis of a single diagnosed case of yellow fever, recalls the fact that the population of Buenos Aires was, in 1871, reduced by almost 25 per cent by yellow fever in one year, and that as

late as 1928 a monument was erected in Corrientes to the victims of yellow fever in that city.

#### MALARIA

A variety of problems connected with control and research work in malaria continued to occupy the close attention of Foundation staff members at work on this subject in 1937. Projects dealing with one or another aspect of malaria receiving Foundation support were active in 13 countries. In North and South America malaria work was conducted in the United States, Puerto Rico, Mexico, Central America, Cuba, and Colombia; in Europe projects were active in Albania, Bulgaria, Cyprus, Greece, Italy, and Portugal; and in Asia extensive investigational work was taking root in India.

A promising piece of research work in 1937 concerned observations on *Plasmodium knowlesi* infection in man. *Plasmodium knowlesi* is the name of an organism causing malaria in monkeys. Man and the rhesus monkey are both susceptible to this plasmodium. Since the disease as produced by *P. knowlesi* in the monkey closely simulates human malaria, important comparisons are possible.

The use of induced malaria fever to cure general paresis is leading to new knowledge not

only of this disease, but also of malaria. A larger number of carefully controlled cases will be required in order to determine exactly the therapeutic value of *P. knowlesi* infection in paretics. If subsequent experience proves that this type of malaria can be successfully used in paresis, there will be many advantages, such as a constant source of infectious material from a non-luetic source, and above all a plasmodium or malaria organism to which the anopheline mosquitoes in the United States are not susceptible, so that discharged cases subject to malaria relapse will not be a public health menace.

Following the isolation by Brumpt, the well-known French parasitologist, of a plasmodium from the domestic fowl in Ceylon, it seemed likely that captive birds in this country originating in Southeastern Asia might be infected with the same parasite. A Borneo pheasant from the Bronx Zoological Park was found to contain a plasmodium which was pathogenic for young chickens. It is being designated as a new species. Since the chick is easily adapted to experimentation, it offers opportunities to conduct investigations heretofore not possible in the United States.

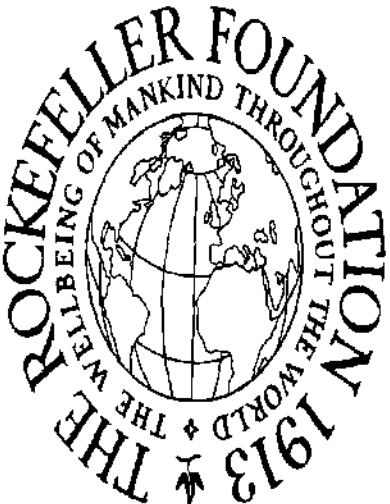
Control problems in malaria have to do with definite types of difficulties which vary from country to country and which are due to the

geographical nature of the terrain and to the particular breeding habits of the type of mosquito responsible for malaria in that region. Much study has been given to the malaria problems of the rice fields. The year 1937 brought to an end the tenth year of cooperation between The Rockefeller Foundation and the Bulgaria State Department of Health in malaria studies at Petritch, a rice-growing area. Many observations have been made and much has been learned in the course of experimental control of malaria in this area. The work has now been incorporated into the Bulgarian Government public health program. In Portugal also, government malaria activities concern chiefly problems offered by rice fields. The Foundation is assisting the government in experiments in intermittent irrigation of rice fields.

The island of Cyprus exhibits a classical picture of "hill malaria." The chief vector is *Anopheles superpictus*. The primary problem is one of sanitary engineering, involving a scheme which will eliminate superpictus breeding in the innumerable small mountain streams. Flushing and temporary tiling of mountain streams has been suggested as a practical means of controlling mosquito breeding in all the smaller streams of the island. Much the same task remains in Albania, where one of the unsolved problems



Photograph Excised Here



Photograph Excised Here

Culverts for carrying water under  
the streets. Rio Tuza malaria con-  
trol project, David, Panama.

Intercepting ditch in lagoon at  
Durres, Albania, where engineer-  
ing forms a large part of the ma-  
laria control work.



Photograph Excised Here

Malaria control work in the Marianao municipality, Cuba, has broad-  
ened into a full-time local health unit program. School examinations by a  
physician and nurse are among the routine procedures.

concerns the mountain streams in which this same mosquito, *Anopheles superpictus*, breeds. The urban control of malaria in Albania has had a large measure of success through sanitary engineering. When the work began, Tirana and Durres, respectively the capital and port city of Albania, were among the most malarious cities of Europe. Both are now malaria free.

Drainage has been the chief element in control of malaria in Central America. The Foundation is interested in control projects in Costa Rica and in Salvador. Its contributions make possible the purchase of equipment and cement for concrete tiles and inverts, which are used by the local health authorities in the drainage work required to combat malaria. Similar work is also going on in Cuba, where the cooperative anti-malaria program consists of three activities: (1) malaria control work in the Marianao municipality, which has broadened out into a full local health program; (2) a survey and study on an island-wide basis of malaria incidence and epidemiology; (3) provision of fellowships to present and future Cuban health officials.

The Republic of Panama has progressed in its malaria control work to the point where a general law was passed late in 1936 which provides for: (1) appropriation of \$250,000 biennially for malaria control; (2) contribution of



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Cheap but effective trap "kutcha," for the capture of adult anopheles  
at Ennore, Madras, India.



Photograph Excised Here

Uprooting swamp reeds in river bed by elephant used in malaria control,  
Hiriyur Malaria Station, Mysore State, India.

10 per cent of all municipal revenues for malaria control; (3) a simple course in malariology for the public school system; (4) first choice of prison labor for malaria control work and a simple course of instruction in malaria control for policemen.

The Malaria Laboratory of the Institute of Public Health in Rome, which is receiving Foundation support, carries on a wide program of antimalaria activities. A step forward was taken in the study of anopheline mosquitoes and malaria when it was found out how to establish self-perpetuating colonies of all the malaria vectors of Europe. At a constant temperature in the Rome Institute, thriving colonies of various subspecies of *maculipennis* have been set up. Italy is the only region of Europe in which all seven subspecies of *maculipennis* occur.

The Athens School of Hygiene which has a malaria division, is assuming full responsibility for the training of students. In Greece five anti-malaria stations are in operation. These stations serve for field studies and practical training of students from the School of Hygiene. Spleen and blood surveys have been made in 69 localities, covering the major regions of the country.

At the King Institute, Guindy, Madras, important malaria investigations are under way under the direction of a member of the Inter-

national Health Division staff. One purpose is to study the possibility of controlling rural malaria at a cost within the means of the people. Two field stations are maintained in rural sections of the Presidency. In another section of India, the Bombay Presidency, a malaria survey has been made in Poona. The chief mosquito vector was found to be *Anopheles culicifacies*. Preparations for a control program are under way. The control of rural malaria is one of the greatest health needs in India today. Malaria ranks high among serious preventable diseases, causing probably in India alone one million deaths per year.

#### TUBERCULOSIS

Since 1933 the International Health Division has contributed to an epidemiological study of tuberculosis in Cornell University Medical College under the direction of Dr. E. L. Opie. The purposes are: (1) to obtain a better understanding of the character, frequency, and mode of dissemination of tuberculosis in the vicinity of the New York Hospital Clinic; (2) to evaluate control procedures now in practice and to find out to what extent these control measures may prevent the spread of the disease. Nursing care, segregation, and pneumothorax are some of the procedures under investigation.

One investigation has been an experimental study of protective inoculation against tuberculosis. This study is conducted in part in the Mental Hospital at Kingston, Jamaica. The material used for inoculation of persons in Jamaica is prepared in the laboratory of Cornell University. In addition to the special vaccination studies, two lines of tuberculosis study have been followed in Jamaica: (1) house-to-house visits in search of individuals presenting symptoms of tuberculosis; and (2) investigation of contacts of school children who have given a strong positive tuberculin reaction.

A tuberculosis study in Tennessee by the State Department of Health, which has received aid from The Rockefeller Foundation, aims to make a detailed and systematic epidemiological investigation of all persons with tuberculosis in Williamson County and to develop an effective program of tuberculosis control for a rural area. Field studies, begun in October 1931, have been carried on continuously since that time. Seven hundred fourteen household groups with a history of tuberculosis were under observation by the field service at the end of 1937.

#### INFLUENZA

Two centers for influenza studies during 1937 were the laboratories of the International Health

Division of The Rockefeller Foundation in New York and the State Hygienic Institute in Budapest, Hungary.

At the New York laboratory an extensive study was made of an epidemic of influenza which spread through the United States from December 1936 to March 1937. The outbreak involved the entire northern hemisphere, but the disease was of moderate severity, similar to other influenza epidemics which occur at relatively frequent intervals. The attention at the laboratory was focused upon what has been termed clinical epidemiology, which involved four lines of study: (1) evaluation and improvement of procedures designed for the diagnosis of epidemic influenza; (2) differentiating epidemic influenza from other similar diseases; (3) delimiting the clinical boundaries of the disease; and (4) studying the properties of the virus of epidemic influenza.

Prior to this year influenza infection had been successfully transmitted to mice only after intermediate passage of the virus in ferrets. In the course of the present studies virus was for the first time transferred to mice by direct inoculation of human throat washings. The ferret, however, still remains the most satisfactory small animal available for influenza studies, since it reveals in 48 to 72 hours by a rapidly developing febrile reaction the occurrence of virus in the

material tested, when other procedures would require a much longer period of time.

The duration of the immunity which occurs as a result of clinical infection with the virus of epidemic influenza was the subject of study. The idea that the immunity which follows an attack of epidemic influenza is extremely transitory has been repeatedly expressed, but the recent evidence suggests a somewhat longer duration. In this connection attention was focused on the role of the nasal mucous membrane in infection and resistance to the virus of epidemic influenza. Studies are not yet completed but it is thought that valuable information can be obtained from this method of attack. With the use of the high-speed centrifuge new studies were also conducted on the interaction of virus and immune serum.

In view of the interest and of the far-reaching possibilities attached to the discovery by English investigators of a virus associated with human influenza, and the subsequent identification of this virus in the United States and Australia, it was considered desirable to establish a unit in the central part of Europe where epidemics which might occur in this region could be investigated. In 1936, \$10,000 was allocated by the International Health Division for such a study, to be conducted at the State Institute of Hygiene in Budapest, Hungary. Although vari-

ous activities of this Institute have been assisted by the Foundation since 1925, this is the first aid which has been given to it for an influenza study. The main objectives of the study are: to investigate epidemics resembling influenza and attempt to obtain virus strains; to transmit newly isolated strains to mice; to determine the immunological relation of newly isolated strains to English and American strains; and to protect humans by vaccination under controlled conditions. The last mentioned aim has been followed with the collaboration of investigators from the National Institute for Medical Research at Hampstead, England.

#### YAWS AND SYPHILIS

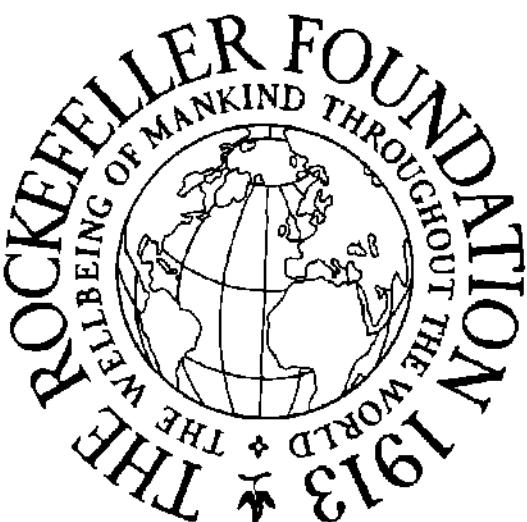
Yaws has been very common in Jamaica for at least three hundred years, and cases have been treated in ever-increasing numbers since the beginning of the present century. In January 1932 the Jamaica Yaws Commission was formed to cooperate with the government in a study of this disease, and on March 31, 1937, it closed its work after five years and three months of continuous activity in the investigation of yaws. The work has now been transferred to the Government of Jamaica.

The Commission found that the most efficacious means of combating yaws during these

years in Jamaica was to check sources of infection by treatment. With this end in view a field treatment unit has been operating for three years in a part of Jamaica where yaws was very prevalent. Practical effective control of yaws has been achieved by means of an intensive treatment method by using either neoarsphenamine or bismuth salicylate. This unit considered also the evaluation of the effect of these drugs in treating yaws in the individual. A second unit operated for over a year with the sole purpose of control through treatment, using bismuth as the chief drug.

As a result of the work of these two units, practical effective control of yaws has been achieved by means of the intensive treatment method. The attack rate and the number of persons with yaws lesions have been substantially reduced. Greater success was gained in areas where patients were treated with neoarsphenamine, though very satisfactory results followed the use of bismuth salicylate. However, it has appeared that the method and not the choice of drug is the important factor and that follow-up treatments are an essential part of control measures.

Though a close relationship exists between yaws and syphilis, a study of the two diseases among human beings living in the same country



Photograph Excised Here

Broth inoculation for serum absorption. Scarlet fever studies, Jassy, Rumania.



Photograph Excised Here

Consultation at the tuberculosis clinic established by the Tirana Health Center, Albania, as a permanent branch of its activities.

and among animals maintained under identical environmental conditions indicates that variations of environment, such as exist between the tropics and the temperate zone, do not determine the essential differences between yaws and syphilis but that these differences are due to inherent biologic differences between the causative agents of the two diseases.

The recent movement for the control of syphilis has directed attention to the need of qualified personnel with which to make the movement effective.

A practice field for students in public health is being conducted in a health district in the city of Baltimore which is sponsored by the Johns Hopkins University School of Hygiene and Public Health, and in this area epidemiological studies of syphilis are being undertaken.

The Foundation, in 1937, made a contribution for the purchase and care of animals to be used in special experimental laboratory studies by a representative of the International Health Division who is cooperating with the Johns Hopkins School of Hygiene and Public Health in investigations of this disease. Studies are conducted on immunity in syphilis and on the relationship between various members of the *Treponema* group of organisms which cause both yaws and syphilis.



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Partabgarh Health Unit, United Provinces, India,



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Banks of canal flowing beside village near desert in Egypt constitute unusually favorable conditions for the development of hookworm larvae.

Syphilis is a complex disease and the reaction between host and parasite exhibits variations which have direct bearing on the epidemiology of the disease and upon treatment of the individual. Results of current studies, such as those conducted at the Baltimore center, present factors of interest to all engaged in the campaign against this disease.

#### SMALLPOX

In the Department of Pathology of Vanderbilt University Dr. E. W. Goodpasture and his associates have been working in cooperation with the Tennessee State Department of Health on the preparation of smallpox vaccine virus in embryo chicks and a study of the efficacy of this vaccine in immunizing against smallpox. Financial support was given to this work up to June 30, 1937.

A bacteria free vaccine prepared from infected chick embryo membranes suspended in beef serum prepared according to specified proportions, when inoculated in the human skin yielded satisfactory results—94 per cent positive in primary vaccinations—after subjection to a temperature of 37°C. for four days.

#### SCARLET FEVER

The studies on scarlet fever begun in Rumania in April of 1936 were continued during 1937

under the original plans for these studies. The entire program is based on intimate correlation of work in the field and laboratory with a clinical and statistical study of the disease. The Rumanian National Institute of Demography is co-operating in the statistical studies.

The Jassy Isolation Hospital has provided the center for studying the clinical nature of the disease as it exists in Rumania. The fatality rate was four times greater for control patients than for those treated with streptococcus antitoxin, and though the numbers were small it offers indication of a favorable effect of serum therapy.

Though the year 1937 did not present the epidemic conditions favorable to the study of the hypertoxic type of scarlet fever, the material obtained has served in the exploration of the other end of the scale, namely, a study of those infections ranging from mild but recognizable disease to clinically atypical, indefinite, and even latent infections.

Serological classification of streptococci has continued to be one of the principal activities among laboratory studies, as it is necessary to know whether a particular type is consistently the most common over a period of years or whether the predominating type varies with a changing epidemic condition. For further confirmation of types being studied, mouse protec-

tion tests and mouse virulence tests have been conducted.

### RABIES

A study of rabies is being conducted by the International Health Division in cooperation with the Alabama State Board of Health. A laboratory was constructed about five miles from Montgomery. The buildings were completed in April 1937. When the volume of work outgrew the facilities then provided, further construction was undertaken and completed by November 1937. Recent advances in the studies of rabies virus have afforded new opportunities for further investigation of various phases of this disease. An improved method of diagnosis is being used in the studies. The causative organism can be grown in the laboratory and serum antibodies can be measured. With these new implements at hand it is hoped that much can be learned concerning the epidemiology of the disease and that an improved method of canine vaccination can be developed.

### WORM DISEASES AND SANITATION

Since 1929 funds have been provided for field studies and research in parasitology in Egypt, particularly in hookworm and schistosomiasis. The latter disease is caused by a species of flat

worm, the blood fluke, carried by the snail as the intermediate host. Studies of schistosomiasis in the laboratory have been continued. An attempt has been made to determine whether infected snails develop a resistance to new infections. In an artificial pond which closely simulates nature, four generations of snails have been studied with accurate records of deaths and of reproduction. It has been demonstrated that a certain number of snails may be revived after as long a period as 10 months of drying.

Hookworm disease was known in ancient times even though the worms were not known to be the cause. In modern times many of the outstanding contributions to our knowledge of hookworm disease were made in Egypt. Recent studies in that country show that approximately 5,000,000 rural people harbor this infection. It is observed, however, that the heaviest infestation appears near the water level of canals, ponds, and rivers and that in comparison with most countries where the prevalence is equally high, in Egypt the intensity of the infection is very low. In Egypt where there is practically no useful rainfall, all life depends on crops grown on fields watered annually by the Nile flood. In areas where the soil is excessively dry or contains excess chlorides hookworm larvae have not been isolated, but moist field soils have proved fairly

good culture media. The Foundation work toward eradicating this disease has concentrated on education against soil pollution, stressing the use of bored-hole latrines. This type of latrine has been built in the houses of many villages. In most countries the ultimate means of permanent control of disease caused by worm parasites indubitably involves some form of sanitation.

The incidence, distribution, and intensity of hookworm infection studies recently made in South Carolina, Mississippi, Kentucky, and Tennessee have shown that hookworm still constitutes a public health problem of varying extent and intensity in these states. Data collected in North Carolina during investigations made between 1935 and 1937 have been compared with data obtained during the period of 1910-1914, when the Rockefeller Sanitary Commission made an investigation of hookworm disease in North Carolina.

Results of these investigations show that although hookworm disease is still present in the 70 counties studied, there is a reduction of 66.4 per cent in the incidence of this intestinal parasite for the State as a whole. At least four factors have contributed to these encouraging results: the education of the public relative to the importance of soil pollution, the interest and

cooperation of the physicians of the State in the continued treatment of the disease, the more widespread use of satisfactory methods of excrement disposal, and the improvement in general sanitation as a result of establishing full-time county health departments in the State.

A study of hookworm disease was carried out jointly by the State Health Department of Florida and Vanderbilt University with the financial assistance of the International Health Division. The work was started in April 1937, and up to the end of the year 15,334 specimens were examined, of which 39.1 per cent were found to be positive. This percentage represents the average incidence for 20 counties.

Hookworm studies at the Johns Hopkins School of Hygiene and Public Health under the direction of Dr. W. W. Cort were continued. They included blood studies directed at learning more of the nature of anemia produced in hookworm disease and also a study of the host resistance in dogs to hookworm infection.

Rural schools of certain communities in Puerto Rico unaffected by any organized hookworm campaigns or by the activities of public health units were chosen for the anemia studies begun in 1936 and continued during 1937. The principal objectives of these studies were twofold, namely, to determine the amount of anemia

existing in the schools of Puerto Rico, presumably due to hookworm, and to measure the effect of mass administration of anthelmintics and of iron for the relief of that anemia.

In any consideration of sanitary problems, knowledge of the extent of underground water pollution is an important factor, especially to sanitarians in rural and village communities. The Field Research Laboratory of Alabama, under the auspices of the International Health Division, for several years made studies of ground water pollution and used various types of latrines as the infecting sources, with observation wells to ascertain the movements of ground water and the distribution of bacterial contamination under varying geological conditions.

A series of papers published during 1937 present the findings of these studies bearing on the character and extent of pollution from latrines penetrating into ground water. Studies were made on possible methods of safeguarding the ground water from dangerous contamination.

#### MENTAL HYGIENE

With the idea of approaching the problem of mental disease from the standpoint of the community, the International Health Division of The Rockefeller Foundation is aiding two field studies in mental hygiene. One of these is being

conducted in the Eastern Health District of the city of Baltimore under the auspices of the Johns Hopkins School of Hygiene and Public Health and the Henry Phipps Psychiatric Clinic, and the other in Williamson County, in a rural section of Tennessee near Nashville, under the direction of Vanderbilt University.

The Baltimore study began November 1, 1934, with a statistical survey to find out how many persons from the district had been under psychiatric treatment during the preceding year (1933). A case record card was made out for every resident of the district who had presented mental or behavior difficulties in 1933. Each of these individuals was identified with the household to which he belonged, and data on the household as a unit were obtained and recorded.

While the study of the 1933 statistics has been in progress a continuous file has been kept of all current admissions to mental hospitals from the district and of all examinations at the psychiatric clinics. One of the uses of this file has been to show how many of the persons requiring mental examination or treatment after 1933 were among those presenting mental or social problems in that year.

The prevalence of behavior problems among the children showed the need of a parent education program aiming at the future prevention of

some of these difficulties. Accordingly an experimental consultation service in mental hygiene was started in November 1935 for mothers who regularly bring their children to the child health clinics. The psychiatrist of the mental hygiene unit interviews and advises the mothers, and the social worker of the unit, who is a psychologist, makes visits to the homes to aid in the educational program. It is hoped that the children can be kept track of for a period of years so that the results of the parental training can be evaluated.

Since it is believed that the recognition and treatment of early symptoms of mental and emotional disturbances are often the means of avoiding later serious breakdowns, methods of discovering persons with such symptoms and bringing them under the care of the proper agencies are being investigated. The practicability of a consultation service in psychiatry with the practising physicians of the district is under consideration.

The staff of the Williamson County (Tennessee) survey began work in September 1935 with the following program: to collect and analyze data on all residents of the county who were at the time, or ever had been, inmates of institutions for mental disease, mental deficiency, or delinquency; to obtain reports from the county

public health workers, practising physicians, teachers, court officials, and ministers concerning the cases of mental disease or maladjustment that come to their attention; to make an intensive study of all the families in certain districts of the county to find out to what extent unrecognized mental or behavior problems exist in these localities and what relation these problems bear to environmental conditions.

When all the family records of the districts of intensive study are completed and analyzed an excellent picture, both medical and sociological, of a cross section of a rural southern community will be available. Psychological tests were given to all children between the ages of 6 and 14 years. On the completion of the tests, staff members visited the homes of the children to learn as much as possible about their background and environment. Individual record cards were made out for all children tested, giving their grading and summarizing the home survey findings. These data make possible the correlation of test performance with race, home environment, type of school attended, economic condition, and problems of physical and mental health.

Both the Williamson County study and that in the Eastern Health District of Baltimore reveal the interrelationship of mental, physical,

economic, social, and cultural factors in the lives of typical urban and rural American families. The purpose of the studies is to contribute a factual basis for the planning of programs of preventive work in the field of mental hygiene.

### AID TO STATE AND LOCAL HEALTH SERVICES

A large amount of knowledge concerning the causes of certain diseases and the methods of their prevention and control has been gained during recent years through laboratory and field research. It has now devolved on the governments of the world to put this knowledge to use for the direct benefit of all their citizens. This requires the expansion of central health departments to include such specialized services as divisions of epidemiology, communicable disease control, sanitary engineering, vital statistics, mental hygiene, industrial hygiene, and maternal and child welfare; the employment of experts to staff these services; and the operation of sufficient numbers of local health units to insure to entire populations such measures of protection as sanitary water supplies, proper drainage and soil sanitation, control of preventable diseases, good maternal care, infant and child health conservation, and general healthful living and working conditions. Governments

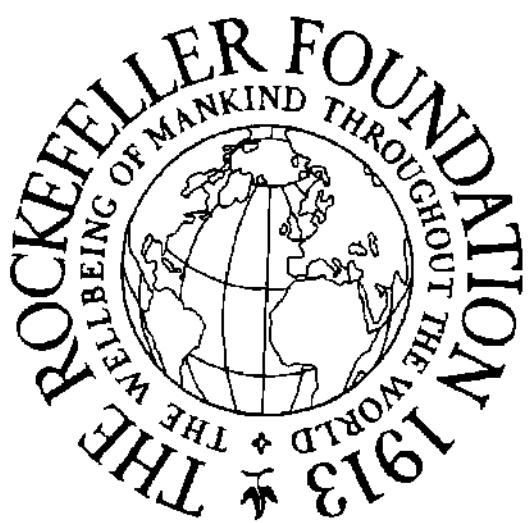
throughout the world are making good progress in thus extending the scope of their health services to keep pace with scientific advance, but the task is a large one. The Rockefeller Foundation, through the agency of its International Health Division, is giving aid in many countries toward the development of essential services in central health departments and toward the organization of model local health units which, by demonstrating efficient methods of operating rural and urban health services and showing the value of such services, should stimulate the establishment of similar units in other communities.

#### COOPERATION IN CANADA, THE UNITED STATES, AND MEXICO

In Canada, in 1937, the International Health Division assisted several provinces in strengthening their central or local health services. It made a grant to the Department of Health of Nova Scotia to aid it over a five-year period in establishing a Bureau of Vital Statistics and Epidemiology, and a grant to the Department of Health and Public Welfare of Manitoba for studies of general morbidity and maternal mortality in the Province. It continued aid to the Department of Health of Nova Scotia for the development of a Division of Sanitary Engineering, to the Bureau of Health of the Province of

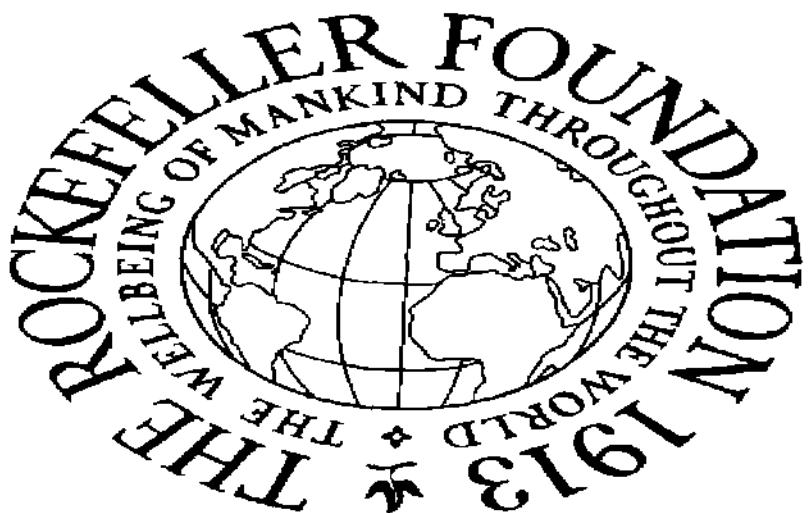
Quebec for the development of divisions of Industrial Hygiene and the Hygiene of Nutrition, and to the health departments of the provinces of Alberta, British Columbia, Ontario, and Nova Scotia toward the extension of local health services.

In the United States the Division lent the services of staff members to assist the states of North Carolina, North Dakota, South Dakota, and Virginia in surveys of their central and local health administrations and in the preparation of analytical reports of the survey findings for the use of state planning boards in revising and extending the state public health programs. It continued cooperation with the New York State Department of Health in the development of the Fulton-Montgomery Health District. To aid in strengthening the public health nursing service of the New York City Department of Health the Division provided funds toward the support of educational work for the nursing personnel which the Department is undertaking as a part of a general program of education for its entire staff. The State Board of Health of Alabama received a grant to aid it in developing a district health department which will complement and reinforce the work of the health units of seven counties in the eastern part of the State. Certain services for these counties, such as public health



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Public health nurse makes a new contact, Ambelokipi  
Health Center, Athens.

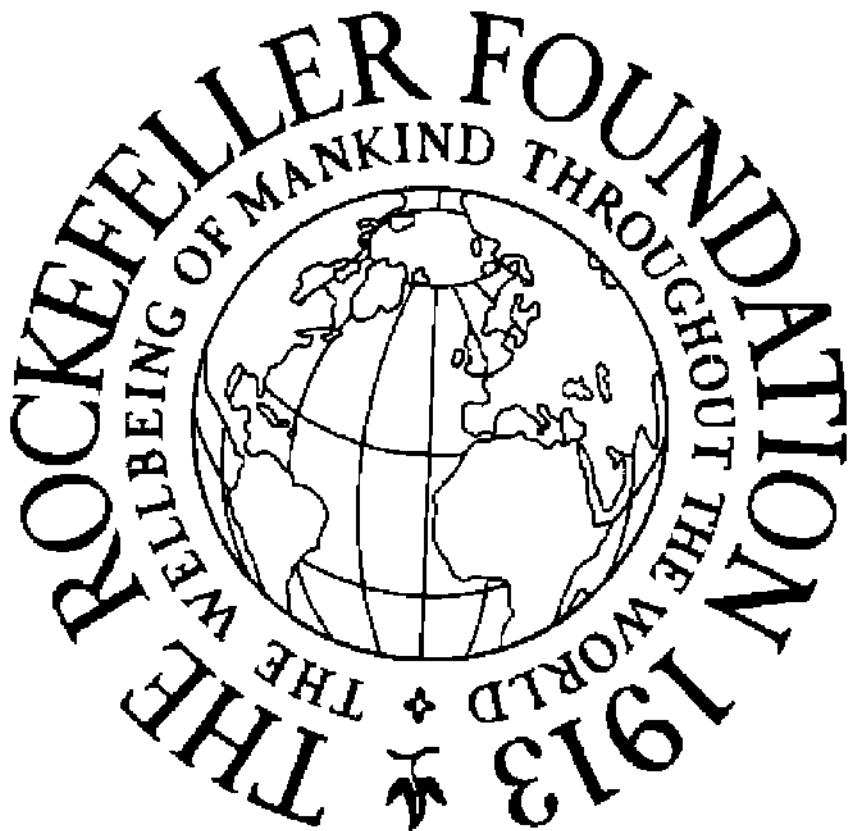


Photograph Excised Here

Ancient fountain modernized by piped water supply and installation of  
watering trough. Demonstration in rural sanitation, School of Hygiene,  
Ankara, Turkey.

administration, epidemiology, and the control of venereal diseases, tuberculosis, and malaria, will be coordinated on a district basis, and the area will be used as a center for the demonstration and teaching of procedures applicable throughout the State.

In Mexico the Division continued assistance in a public health project which involves (1) the development of a regional department of health with a full-time personnel having jurisdiction over the health work of five adjoining states—Morelos, Michoacan, Mexico, Hidalgo, and Tlaxcala; (2) the conversion of the Health Department of the State of Morelos from a part-time to a full-time basis and the organization of three local health units within this State under the leadership of full-time medical health officers; (3) supervision of sanitary and health conditions in the other four states of the region and the training of personnel for future health services. This program brings the benefits of organized health service to a large section of the country, and it will serve as a demonstration of what regional, state, and local health departments can accomplish. The Federal Health Department of Mexico received aid for the administration of local health work and for the maintenance of a field training station for health personnel.



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Village official imprints baby's thumb on birth certificate (*above*).  
Health assistant checks the baby's birth certificate (*below*). Measures  
carried out by the Public Health Service of Netherlands Indies in the  
establishment of accurate statistics.

### THE CARIBBEAN AREA

A sanitary engineer of the International Health Division staff was stationed in the Caribbean area throughout 1937 to assist health authorities in Central America, the West Indies, and certain South American countries in sanitation projects of various kinds. This officer gave advisory service during the year to the national health departments of Costa Rica, Nicaragua, Cuba, Colombia, and Venezuela. The Division aided public health laboratories in Panama, Nicaragua, and Costa Rica. It contributed toward the support of local health units in Rivas and Managua, Nicaragua; Tres Ríos, Costa Rica; San Miguel, Salvador; Chitré, La Chorrera, Darién, and David, Panama; and Mariánao, Cuba. A Division representative in Central America made a seven-week visit to Venezuela during the year to assist the national Health Department in organizing rural sanitation programs and local health services.

### EUROPE, AFRICA, AND THE EAST

In Europe the Division aided state or local health services in Albania, Austria, Greece, Hungary, Italy, Rumania, and Turkey. In Albania it contributed toward the maintenance of a health unit which it assisted in establishing in the city of Tirana in 1936 to furnish health

protection for the residents of the capital of the country and to provide a framework around which to build a national health service. In Austria it continued aid to the Health Department of the Province of Burgenland for the establishment of district health units. It gave support to the Ambelokipi Health Center in Athens, which was organized in 1935 through the cooperation of the city of Athens, the National Institute of Hygiene, and the International Health Division, and it made a grant of \$10,000 for a rural public health demonstration in the Eghion region near Athens, which includes 10 villages and a city of about 12,000 inhabitants. It also assisted in sanitary engineering projects in several villages of Greece.

Funds were provided by the Division for the maintenance of five model district health services in Hungary to which it has given support since their organization several years ago. A number of other local health services patterned on these have been established throughout rural Hungary. A contribution was made to the Hungarian Bureau of Public Health Administration and Reform, which is at present preparing programs in child hygiene and in tuberculosis and venereal disease control. The health center established in Bucharest, Rumania, in 1936 received continued support. A grant was made to the

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Italian Government to aid it in organizing a local health center in Rome which will bring about the collaboration of all the health agencies of the city and will provide training facilities for the students of the new Institute of Public Health. The Edirnekapou Health Center in the municipality of Istanbul, Turkey, which the Division has assisted since 1934, received further aid in 1937, and a grant was made toward the development of an urban health center in Ankara.

In Egypt the Division continued to aid the Ministry of Health in a subsoil irrigation project and a soil sanitation program. In India support was given to five demonstration local health centers situated in the states of Mysore and Travancore, the Madras Presidency, the Province of Delhi, and the United Provinces. In Java, Netherlands Indies, aid was given toward the maintenance of a demonstration unit in Poerwokerto.

### PUBLIC HEALTH EDUCATION

The success of any health service depends to a large extent on competent direction and efficient personnel, and one of the major problems with which governments are confronted in developing their central and local health departments is that of finding sufficient numbers of properly trained men and women to staff de-

partmental divisions and local units. The problem is especially pressing at this time of expanding government welfare programs, when in many countries increased funds are being provided for health work and plans are being made for the rapid extension of services of various kinds, particularly local health centers. The Rockefeller Foundation is helping to increase the supply of specialists in public health by cooperating in the development of institutes and schools of hygiene and public health, where men may prepare for technical and administrative positions in health services, and by aiding in the establishment of courses in public health nursing in schools of nursing and of field training areas where prospective health officers, public health nurses, and sanitary officers can obtain practical experience under the direction of experts. It also provides fellowships to enable young men and women who have shown themselves especially fitted for careers in public health to prepare for posts in government health services; it finances study visits for government health officials and teachers of public health; and it makes training grants to public health workers.

#### SCHOOLS AND INSTITUTES OF HYGIENE

In 1937 the Foundation, through the International Health Division, gave assistance to

six schools or institutes of hygiene and public health. Three of these—the School of Hygiene and Public Health of the Johns Hopkins University, the School of Public Health of Harvard University, and the Institute of Public Health, Tokyo, Japan—received funds for the support of the study and training areas which they maintain as practice fields for their students. The other three—the State Hygienic Institute in Budapest, Hungary, the National Institute of Hygiene in Athens, Greece, and the School of Hygiene in Ankara, Turkey—were aided in the general development of their teaching programs. A contribution was made to the Central Medical School for Native Medical Students, Suva, Fiji Islands, toward the equipment of its new laboratory building, which serves as a center for research on the health problems of the South Pacific Islands. An emergency grant was made to the First Midwifery School in Peiping, China, which was established in 1929 with the aid of the International Health Division.

#### EDUCATION OF PUBLIC HEALTH NURSES

In a number of countries the International Health Division has aided schools of nursing to establish education for public health nursing on an equal footing with preparation for bedside

and institutional nursing. It has assisted these schools to incorporate courses in public health nursing in the regular undergraduate curriculum and has cooperated in establishing urban and rural health districts where student nurses can obtain the practice in public health work which is now considered an essential part of their general preparation for nursing.

In 1937 the Division set aside \$20,430 to aid the Government of Denmark to establish, in association with the University of Aarhus, a postgraduate school of nursing which will give an eight-month course in public health nursing. It also assisted the State School of Nursing in Bucharest, Rumania, by providing funds to supplement the salaries of the teaching staff and for the establishment of a practice district for the students. The new building for this School, which is being erected with the aid of the Foundation, will be ready for occupancy in 1938.

In Canada the Division cooperated with the University of British Columbia and the University of Toronto in the further development of their programs in public health nursing education. In the United States it continued to contribute toward the improvement of facilities for the education of public health nurses at the University of California, Western Reserve University, and the schools of nursing of Vanderbilt

University, the University of Washington, and Skidmore College.

To enable the Santo Tomas Hospital School of Nursing in Panama City to establish a course in public health nursing which will be a regular part of the program of every student, the Division made a grant of \$34,000 to the School for use during the five years beginning July 1, 1937. It also contributed \$1,000 toward the support of a nurses' urban teaching district, which will provide field experience for the students of this School.

In Puerto Rico the Division continued the cooperation in the training of public health nurses which it began nine years ago. The nursing staff which has been trained under this program now numbers 140. It is distributed in 79 centers serving a population of more than 1,700,000. In Brazil the Division is paying the salary of the American Acting Directress of the School of Nursing in Rio de Janeiro, who is serving in this capacity until a Brazilian nurse shall qualify for the post.

#### FELLOWSHIPS

The Division provided \$227,000 in 1937 for the support of fellowships in public health, study visits by government health officers and teachers of public health, and training grants for health

personnel. The Division awards fellowships and training grants to men and women who have demonstrated special aptitude for work in public health and who will be appointed to posts in the public health services of their countries upon the completion of their studies or training. During the year, 155 men and women carried on post-graduate studies under fellowships provided by the Division and 43 others held travel or training grants. These persons represented 37 different countries.

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## **THE MEDICAL SCIENCES**

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## THE MEDICAL SCIENCES

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## THE MEDICAL SCIENCES

A REPORT of one year's activity usually fails to convey the continuity and the sense of direction which gives meaning to programs of longer duration than the year under review. A single year may contain the beginnings of a long-term plan, support to a project which is well under way, or aid to bring an undertaking to conclusion. Though not reported, many of the grants made in previous years are in active course. The purposes or financial help voted within a year's time may be to explore, to create, to continue, to change, to expand, or to save some activity believed to be of value. Lest in the descriptions given below the details obliterate or confuse the purposes which underlie and run through various projects to which the Division of Medical Sciences has contributed during the year 1937, a brief definition of general policy may be helpful.

The general purpose of the program in psychiatry and allied fields is to aid in the finding, training, and encouraging of individuals of first-class intelligence and character who are eager to work at the problems of nervous and mental disorders, or the related problems of the milder neuroses. To find them it is important to improve teaching to a point where psychiatry

will attract the interest of capable persons rather than leave them indifferent, as has been too often the case in the past. To train them means to sustain, if not create, organizations adequate to give advanced training in laboratory and in clinic. By "encouraging" is meant facilitating the work of a mature teacher, investigator, or administrator. These purposes fuse one with another in many of the separate projects. To build up adequate departments of psychiatry combines all three; to encourage centers of research activity involves training and encouragement of investigators; to assist persons in the application of psychiatric knowledge profoundly affects recruitment and training without giving immediate attention to them.

And finally lest psychiatry be too narrowly interpreted it should be noted that neurology, neurosurgery, psychology, neurophysiology, neuropathology, and a number of other cognate subjects are dealt with in a similar fashion. In the following grants the three purposes of finding, training, and aiding the work of medical scientists are to be seen in varying proportions, adjusted, it is hoped, to the potentialities of each institution.

The Foundation appropriated for the Medical Sciences in 1937 \$2,392,100, of which \$1,392,100 was appropriated for work in the field of psy-

chiarty, \$240,000 for fellowships, \$90,000 for small grants in aid, and \$670,000 for commitments entered into under a former program.

### DEVELOPMENT OF TEACHING IN PSYCHIATRY AND NEUROLOGY

#### HARVARD MEDICAL SCHOOL AND MASSACHUSETTS GENERAL HOSPITAL

In 1937 the Foundation made a fourth grant toward the Psychiatric Unit at the Massachusetts General Hospital under Dr. Stanley Cobb, professor of neuropathology in the Harvard Medical School, for a period of two years from September 1, 1937, in the amount of \$156,000, \$96,000 to be paid to the Harvard Medical School for its share in the joint project, and \$60,000 to the Massachusetts General Hospital. This appropriation, which follows three one-year grants, completes a period of aid covering five years.

The psychiatric unit of the Massachusetts General Hospital is used for the teaching of graduate and fourth-year students of the Harvard Medical School, and for clinical research. The most important teaching is that given informally to the resident staff, clinical clerks, and general staff. Regular exercises open to all staff members and advanced students are held weekly. Weekly seminars are attended by students, social

workers, doctors, and psychologists. Plans are in progress to increase the service which this Unit already gives to the other departments of the Massachusetts General Hospital, and to provide more intimate relationship with the medical services. The consultation work with other departments is important. While the larger number of calls for consultations come from the medical and emergency wards, psychiatric advice is requested also by the surgical and dermatological services.

Research is an essential part of the Unit, and is closely linked to the teaching. Of the 11 rooms devoted to this service, three are used as research laboratories. Many of the acute cases from other wards are returned to the services from which they were referred, free from mental symptoms; but the treatment of the milder psychoneuroses has not proved so satisfactory in that the usual laborious and prolonged analytical methods are not practical in the wards of a general hospital. Much study, therefore, is directed toward the problem of condensing or abbreviating the knowledge recently acquired by these time-consuming methods, so that it may be applied effectively and practically in a hospital. The work of the Unit is growing, and it is expected that a new hospital building will release space into which the service may expand.

**INSTITUTE OF THE PENNSYLVANIA HOSPITAL**

The Institute of the Pennsylvania Hospital, located since 1929 in a separate new building, is a unit for the training of teachers and investigators, under the direction of Dr. Earl D. Bond, who is also physician-in-chief of the Department for Mental and Nervous Diseases of the Pennsylvania Hospital, and professor of psychiatry in the School of Medicine of the University of Pennsylvania. The Institute has about 60 beds and an outpatient department. The psychiatric and psychological work of the Institute deals principally with four groups of people: the acute and chronic patients in the Department for Mental and Nervous Diseases, the research of which is under the direction of the Institute; children between the ages of four and 10, resident at the Franklin School, who are selected because of behavior disorders which follow, or resemble those which follow, mild inflammations of the brain; the student population of schools and colleges which have entered into formal or informal arrangements with the Institute; and patients whose lives seem characterized by unhappiness and inefficiency, and who come to the Institute because they recognize that they need better ways of handling their adjustments to their families and to their work.

Its affiliations provide an unusual opportunity

for the study of many aspects of mental disease, and for coordinating and comparing experiences in the various groups. The Institute stresses research and training in the prevention of mental disease, particularly by giving attention to those neurotic patients who have not made satisfactory adjustments to life, and whom most hospitals and physicians are unable to help. Many of this group are often gifted individuals, and it is perhaps possible that the progress of the world is hindered as much by the regression of these individuals to lifelong unhappiness and inefficiency, as it is by the loss of those who are confined to hospitals because of the more severe mental disorders. It is also an important objective of the Institute of the Pennsylvania Hospital to direct the attention of physicians to mental factors in the causes of illness, and to mental factors which are often residual in the form of nervous illness after the physical disease has disappeared.

The Foundation has aided this work since 1934, and in 1937 made a further grant of \$36,000 for two years, which completed a five-year period. These grants provided each year two psychiatrists for the work on the milder mental disorders at the Institute, two junior psychiatrists for research on the psychoses at the Department for Mental and Nervous Diseases,

a psychiatrist to devote full time to the children at the Franklin School, and \$4,500 for general research, including salaries of other workers, and supplies.

Besides the momentum given to research, these appointments provide valuable training to young workers; during the first three years of Foundation assistance, some 13 individuals received experience and training in these positions under the leadership of Dr. Bond and the senior staff. Early members of the group are now occupying posts of importance in other institutions.

#### UNIVERSITY OF COLORADO SCHOOL OF MEDICINE: PSYCHIATRIC LIAISON DEPARTMENT

The Foundation has been assisting the University of Colorado School of Medicine in the development of psychiatric teaching in a general hospital. This school has a full-time Department of Psychiatry, developed under Dr. Franklin G. Ebaugh, professor of psychiatry. Instruction in psychiatry is carried on as a major division of clinical teaching, and the subject, as presented to students, emphasizes the study of the patient as a whole, in which factors of emotional life, conditions of employment, family life and other social factors are considered in arriving at opin-

ions for treatment. The teaching schedule includes efforts to extend the limits of psychiatric interest beyond the frankly advanced mental states to the early recognition in children and adults of mental deviations which tend to interfere with social efficiency, or predispose the individual to a mental or emotional disorder. Emphasis is placed on the importance of recognition by the student, of psychiatric problems in the medical and surgical wards and general dispensaries.

The aid given by the Foundation was specifically to promote and extend this aspect of the psychiatric teaching by providing a Psychiatric Liaison Department, which should operate in the School of Medicine and its teaching hospital, the Colorado General Hospital. The amount appropriated by the Foundation provided a full-time psychiatrist, a psychiatric social worker, and a secretary. Aid began in 1934, and in 1937 a further grant of \$20,000 was made for two years to complete a five-year period.

Through a system of clinically illustrated lectures, supervised ward rounds and outpatient interviews, and conferences led by the liaison psychiatrist, the students are taught to regard patients in the medical, surgical, obstetrical, pediatric, and other departments of a general hospital from the psychiatric point of view, and

are taught methods of therapy under these conditions. Research in this field of the influence of the mental upon the physical state is also being undertaken. An interesting aspect of the work is an indication that the length of hospital stay is decreased through the employment of psychiatric therapy along with the regular physical therapy, and that this saving in patient cost may ultimately defray a considerable portion of the yearly cost of a complete, full-time department of liaison psychiatry. Through its sociological work the Department has established an active and friendly working basis with a large number of schools, has obtained the cooperation of social welfare agencies, and has found many other ways of serving the community.

The interest of the students in this work is reflected in the fact that so large a number of senior students have chosen the elective course in therapy and psychosomatic research that it will be given twice during the school year 1937-1938. That the work is becoming known and is arousing more than local interest is exemplified by the fact that teachers from seven medical schools have requested the privilege of working with the Liaison Department in the Colorado General Hospital, although the Department has found it impossible to take on this additional responsibility except in one or two instances.

JOHNS HOPKINS UNIVERSITY SCHOOL OF  
MEDICINE: DEPARTMENT OF PSYCHIATRY

At Johns Hopkins University School of Medicine, under Professor Adolf Meyer, head of the Department of Psychiatry and director of the Phipps Psychiatric Clinic, the Foundation aided in 1933 teaching and research in neurophysiology and psychobiology, over a period of four years, and made an additional grant in 1937 of \$45,000 for a period of two years beginning July 1, 1937.

In the Pavlovian Laboratory under Dr. W. Horsley Gantt, a former pupil of Pavlov, studies have been carried on to discover more about the anatomical structures involved in the conditioned reflex, the relation between the conditioned reflex and the unconditioned reflex, and to develop further the use of the conditioned reflex as a method of experimentation. By bringing about artificially a state of uncertainty or conflict, nervous disturbances have been produced in dogs. Observations are conducted on the duration, treatment, and various other aspects of such disturbances. Some of the experimental animals have been in the laboratory four or five years, and have been studied almost daily.

The Psychobiological Laboratory under the direction of a psychologist, Dr. Curt P. Richter, is attempting to discover the effect of biological

or physiological changes on more obvious aspects of the organism. These studies include an investigation of the amount of activity in experimental animals, as influenced by various biological and physiological factors, such as experimental modification of endocrine functions and of dietary components. Studies are being made of patients, and experiments for psychobiological correlation are being carried out on students.

The Department of Psychiatry in the Johns Hopkins School of Medicine is an important training center, and the existence of research projects such as those of the Pavlovian and Psychobiological Laboratories are valuable in providing opportunities for training in research to junior staff members, postgraduate and graduate students. The studies of both laboratories are closely related to clinical work.

#### YALE UNIVERSITY SCHOOL OF MEDICINE: DEPARTMENT OF PSYCHIATRY

In 1929 Yale University, with the aid of a grant from the Foundation, established the Institute of Human Relations. It was planned that by cooperation of certain facilities of the Law School, the Medical School, the Divinity School, and the Faculty of Arts and Sciences, a concerted attack on the problems of human behavior would

be made under conditions and with resources never before secured. Researches were carried out in psychology, the social sciences, child development, anthropology, neurophysiology, and psychiatry. As the experiment progressed, changes in policy were made to meet the demands of the practical working out of the scheme. In the past three years, the policy has been directed toward the use of the moneys available for the Institute as fluid research funds. The fact that the budgets for certain divisions of the work, such as psychiatry, were fixed charges did not accord with this method of utilizing funds. Furthermore, as the Department of Psychiatry, unlike any other in the Institute of Human Relations, was responsible for the teaching of all medical students and for the care of patients, the authorities of the Institute, the School of Medicine, and the University agreed that the administration of the Department of Psychiatry belonged logically in the School of Medicine, rather than in the Institute.

A contribution of \$1,000,000 for the development of psychiatry had been included in the original plan of establishment of the Institute, \$500,000 for the general purposes of psychiatry, and \$500,000 for the accommodation and care of patients, over a ten-year period. The terms of the original ten-year plan for the Institute implied

further consideration or interest on the part of the Foundation. It seemed fitting, therefore, that, even though the Department of Psychiatry will be removed from the direct administration of the Institute of Human Relations, the Foundation should continue its aid until final adjustments can be made to provide for the future of this Department. In 1937 the Foundation accordingly appropriated \$300,000 for the support of the Department of Psychiatry in the School of Medicine over a period of four years beginning July 1, 1939, following the expiration of the previous ten-year period of aid to the Institute of Human Relations for psychiatry.

#### UNIVERSITY OF PARIS: DEPARTMENT OF NEUROSURGERY

In 1937 the Foundation made a grant of 1,500,000 francs (\$60,000) to the University of Paris toward the endowment of a department of neurosurgery, on condition that the University should establish in the Faculty of Medicine a chair of neurosurgery before the close of the year 1938. Authorities of the University of Paris already have taken steps to establish the chair.

The development of neurosurgery in Paris to this point is principally the work of Dr. Clovis Vincent, who will occupy the Chair of Neurosurgery in the University of Paris, and who has

been director of the Neurosurgical Division of the Hôpital de la Pitié. In 1928, after a visit to Dr. Harvey Cushing in Boston, Dr. Vincent decided to direct his attention particularly to neurosurgery, and reorganized his unit in the Hôpital de la Pitié to that end. Dr. Vincent soon realized that in order to build up neurosurgery in France and to promote neurological research, promising young workers specially trained in neurological research would be necessary; and that to conduct such training effectively his unit would need recognition as a university department and greater financial assistance.

Partly for the expenses of the work of émigré scientists from Spain and partly for special instruments to be used in studies of the brain, the Foundation gave a small grant in aid early in 1937. The 3,000,000 francs provided jointly by the Faculty of Medicine and the Foundation (1,500,000 francs from each) should furnish an income of about 135,000 francs; Dr. Vincent's budget has been less than half this amount, and much of the research of his department was supported by additional sums which he secured from other sources.

#### ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION

Encouragement and stimulation of research in mental hospitals is a part of the general plan

of the Foundation for aid to the training of workers in psychiatry. To this end the Foundation appropriated in 1937 to the Royal Medico-Psychological Association, London, £1,775 (\$9,050) for use over a period of three years.

A young medical officer in a provincial mental hospital often finds himself cut off from libraries, and contacts with academic teachers and research workers to the extent that his attempts to undertake research are frequently made so difficult as to cause his permanent discouragement. Because Professor Frederick Golla of the Central Pathological Laboratory of the Maudsley Hospital, London, believed that in this way contributions of competent workers might be lost to psychiatric work he devised the plan which the Foundation has aided.

Among other procedures directed toward overcoming the isolation of these workers, it has been planned to provide advice on research projects, to furnish information and short abstracts of articles, arrange for the circulation of books, arrange for visits of workers to research centers, and possibly provide aid in the form of traveling expenses or equipment in certain instances.

The amount supplied by the Foundation will provide a secretary, general office and traveling expenses, fees to abstractors, grants to the psychiatrists selected for visits, books for circula-

tion, and other expenses for putting the plan into operation.

### DEVELOPMENT OF RESEARCH IN PSYCHIATRY AND NEUROLOGY

#### UNIVERSITY OF CAMBRIDGE

Toward the building up of departments of research the Foundation made two grants in 1937 to the University of Cambridge, England, toward the development of its Department of Experimental Medicine and the expansion of its Department of Experimental Psychology. When in the 1920's the University erected new buildings for physiological chemistry and parasitology the Foundation aided by contributing toward construction of a pathology building, and endowment of the work in pathology.

In addition to its work in the fundamental sciences, the University has been contemplating for some years the establishment in its Department of Experimental Medicine of a research department in clinical medicine. Under Professor John A. Ryle, who took up his post as regius professor of physic in October 1935, a clinical research group already has been organized, and a system of cooperation has been worked out with Addenbrooke's Hospital, which, although not connected with the University, is very close to it. Toward this development in experimental medi-

cine, the Foundation has appropriated £8,000 (\$40,800), to be used over a period of five years for salaries of a full-time pathologist, a part-time research radiologist, and a full-time psychiatrist.

The aim of the Department of Experimental Medicine is to promote a unified attack of all the medical sciences on the problems of experimental medicine. Professor Ryle's associates in the departments of physiology, pharmacology, pathology, biochemistry, and psychology, are co-operating with him in his efforts to bring about a better liaison between the departments. Professor Ryle regards this cooperative approach to the problems of clinical medicine as closely involving psychiatry. The presence of a psychiatrist within the Department, which the Foundation's grant makes possible, insures still further a psychiatric viewpoint of the problems of clinical medicine.

The staff of Addenbrooke's Hospital are honorary members of the Department. Six medical beds have been set aside at the Hospital for the research purposes of the Department of Experimental Medicine, and all of the beds, approximately 80, are available for teaching and study. Besides its direct attack on clinical research, the Department will be a training center for clinical research workers, and will do some undergraduate teaching.

The Laboratory for Experimental Psychology was established in 1913. Recognition of the importance of the subject resulted in the establishment in 1932 of a chair of Experimental Psychology. Not only is this Department cooperating with the new Department of Experimental Medicine, but it is very closely linked with the biological sciences. It is administered in a group which includes physiology, pathology, biochemistry, and parasitology, and is represented on the Medical Board of the University. It has also extremely good working relationships with the Departments of Physics and Zoology and the Food Investigation Station. The head of the Department, Professor F. C. Bartlett, is directing the psychological research according to a scheme of development, the general purpose of which is to establish the contributions which can be made by psychology toward medicine in a wide sense. The Department does not represent any particular theory or field of psychology, but it does ask that all incoming research students treat psychology as a biological science, and take every possible advantage of the close proximity of the Physiological School which is emphasizing research on the central nervous system. In planning their research work, students are encouraged to seek expert advice from other scientific departments in the University.

Valuable training in research has been given by this center to men who now staff other departments of psychology and hospitals, and it is expected that the expanded program will attract first quality younger medical students into psychology as a form of preparation for careers in research and teaching in medical psychology.

The Department has grown rapidly since the War, has occupied all available space, and in fact encroaches on the space of the Department of Physiology. The University is building an extension, therefore, and the Foundation's grant of £11,360 (\$56,800) over the period January 1, 1938 to December 31, 1942, is to provide for the installation of equipment (e.g., for the reduction of noise, temperature control, and for lighting control for special experiments); to aid in the initial equipment of an adequate workshop; and to aid toward general maintenance of the Department over a period of five years.

#### UNIVERSITY OF FREIBURG: NEUROPSYCHIATRIC CLINIC

To research in the Neuropsychiatric Clinic under Professor Kurt Beringer in the University of Freiburg, the Foundation gave in 1937 RM 56,000 (\$19,600) for a three-year period beginning January 1, 1938, of which RM 46,000 was to be used for salaries of special research assis-

tants, three technical assistants, and a special mechanic, and RM 10,000 for scientific apparatus and supplies.

The Neuropsychiatric Clinic at Freiburg contains 200 beds with 1,800 admissions annually; which provide abundance of material for study. Professor Beringer's unit consists of two associates and five assistants, but the additional personnel made possible by the Foundation's contribution should make his unit considerably more effective. Professor Beringer's research interests are mainly two: an attempt to analyze by modern laboratory methods the underlying physiological disturbances produced in experimental psychoses caused by mescalin, hashish, and other drugs, with the hope of revealing the etiology and pathology of naturally occurring psychoses, such as dementia praecox and manic depressive insanity; and the study of metabolism of schizophrenics in insulin shock. In this work he maintains a close cooperation with the Medical Clinic and with the Biochemical Institute.

#### UNIVERSITY OF OSLO: INSTITUTE OF ANATOMY

In order to aid in promoting neurological research in Norway, Professor K. E. Schreiner, director of the Institute of Anatomy, University of Oslo, set aside several years ago space and equipment in his Institute, for a laboratory of

neuropathological and neuroanatomical research. The laboratory operates under an unusual collaboration of leaders in neuropathology, neuroanatomy, and neurophysiology within the University of Oslo, and in cooperation with the Dikemark Insane Asylum near Oslo, and other neurological and psychiatric hospitals throughout Norway. It has taken over neuropathological examinations from these hospitals, and is fully equipped for neuroanatomical and neuropathological investigations. Through the cooperation of the director of the Dikemark Insane Asylum, necessary laboratory facilities have been secured for handling bacteriological, chemical, and physiological aspects of neurological research.

The research program includes a study of the brain of one of the most primitive vertebrates, the cyclostome *petromyzon*, in an attempt to carry further the analysis of the fundamental pattern in the organization of the vertebrate brain; a study of cerebral localization, carried out on monkeys; and studies in cerebral circulation. An investigation of aphasia and related problems is also going forward. Besides work of major interest in neuropathology and neuroanatomy, a school of young neuropathologists is being developed in this laboratory.

In 1937 the Foundation appropriated toward the research program 34,000 Norwegian kroner

(\$8,850) over a period of four years beginning April 15, 1937. The Foundation had given previously a small grant in aid of \$2,300, and a regular fellowship and two special fellowships to workers in this laboratory.

#### UNIVERSITY OF HELSINKI: PHYSIOLOGICAL INSTITUTE

Toward research in a special field of neurophysiology directed by Dr. Ragnar Granit, the Foundation appropriated \$15,000 to the University of Helsinki. Dr. Granit and his collaborators are interested especially in neurophysiology of the eye, including the optic tract, and covering such problems as color vision, as well as general neurological problems of excitation, inhibition, interaction, and synchronization. This grant is made for special and expensive apparatus necessary for this kind of work, including apparatus for electro-physiological research. As it is difficult to get delivery of equipment of this kind because of other demands on optical firms and makers of electrical equipment, the grant is to be available for four years, until December 31, 1941. The Government of Finland has granted an additional \$5,000 toward the cost of the equipment needed.

As a fellow of The Rockefeller Foundation, Dr. Granit worked with Professor C. S. Sherrington at Oxford for over a year, and after returning

to the University of Helsinki, was appointed professor of physiology.

#### HARVARD UNIVERSITY MEDICAL SCHOOL: RESEARCH IN EPILEPSY

Epilepsy is a neurological disease about which medical men as well as laymen are still imperfectly informed. The estimated cost of institutional care of chronic cases in the United States is about \$12,000,000, while the amount now spent for research on this disease is perhaps only about \$10,000. The only research in the United States in the baffling problem of epilepsy which has been carried on continuously for as long a period as 15 years is under the auspices of the Harvard Medical School.

The Harvard unit under the leadership of Dr. W. G. Lennox, assistant professor of neurology, is established in the Boston City Hospital where it has access to ample clinical material. This group proposes a continuation and intensification of its research in epilepsy and its allied disorders, particularly narcolepsy and migraine. The technique of electro-encephalography is of value in the study of epilepsy, and is being further developed in this unit. With this technique, the investigators are attacking the problem of the neurological mechanism of seizures, the point of their origin in the brain, and the nervous

pathway by which they spread. They are conducting, also, with this technique a study of the effect of certain conditions and drugs on seizures. A second phase of the work is an investigation into the chemistry of the body and the brain as it relates to electrical discharge from the brain cells.

For this work the Foundation appropriated in 1937 \$52,500 to cover a period of three years beginning July 1, 1937. Previously a grant in aid of \$500 had been given to enable Dr. Lennox to familiarize himself with research on epilepsy elsewhere in the United States and Canada; and of \$1,125 to enable him to have the services of an electrical engineer for the work in electroencephalography.

#### JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE: DEPARTMENT OF ANATOMY

As an aid to the understanding of nervous and mental diseases, the study of the cerebral cortex and the pyramidal and extrapyramidal systems is of importance. Doctors Marion Hines and Sarah S. Tower of the Department of Anatomy in the School of Medicine of Johns Hopkins University, are engaged in an analysis of the contribution which certain parts of the cerebral cortex make to different aspects of movement, and the functions of the pyramidal and extra-



Photograph Excised Here

Laboratory for Experimental Psychology, University of Cambridge.  
Practical class at work.



Photograph Excised Here

Institute of Anatomy, University of Oslo. "The study" in basement of laboratory where researches in neuropathology and neuroanatomy are being carried out.

pyramidal systems, especially in relation to the development of movements of precision and of progression, such as the fine, isolated movements of the hands and fingers. These studies bear upon the determination of the functions of different parts of the brain. To this work the Foundation contributed in 1937 \$10,000, over a five-year period beginning September 1, 1937, to be used for technical assistance, supplies, and equipment.

#### UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE: DEPARTMENT OF MEDICINE

For aid to clinical research on nutrition in relation to the nervous system, in the Department of Internal Medicine of the College of Medicine of the University of Cincinnati, the Foundation gave in 1937 \$37,500 to be used over a period of five years. This research is conducted under the general supervision of the Director of the Department of Internal Medicine, Dr. M. A. Blankenhorn, by Dr. Tom D. Spies, with the aid of Dr. C. D. Aring as neurologist.

The aid given by the Foundation provides a sum sufficient to allow Dr. Aring to give his whole time to the work, salaries for other assistants, funds for the special care of patients under observation, and other necessary expenses. The research planned includes studies of the relationship of malnutrition to changes in the



Photograph Excised Here

Physiological Institute, University of Helsinki, Finland. Mechanic and  
assistant in workshop.



Photograph Excised Here

Relay test room operators at work in connection with the study of  
industrial hazards in progress at Harvard University.

central and peripheral nervous system, to some types of heart disease, and to the gastro-intestinal tract; the relationship of secondary disturbances in metabolism to direct effects of chronic alcoholic addiction; studies of specific deficiency diseases with special emphasis on better definition of symptoms and the early recognition of deficiency states, particularly in cases of pellagra; and the relationship of nutrition to certain types of insanity.

The number of clinicians with special interest in nutrition and its neurological and psychiatric aspects is not large. Certain advantages exist in the University of Cincinnati for carrying out work in this field. Laboratory and other space needed has been provided by the University itself. It has established also a unit of neurosurgery in the Department of Surgery, with which clinical neurology in the Department of Medicine will cooperate closely. The Foundation made a grant in aid of \$3,000 for equipment for the neurosurgical unit, which will be used jointly by the neurosurgeon and Dr. Aring, and was purchased with a view to the needs of Dr. Aring's work. The Cincinnati General Hospital and its outpatient department supply a very large number of cases showing nutritional deficiencies so that ample clinical material is available. The Department of Medicine has established friendly

relations with the workhouse in Cincinnati and with the state mental hospital. Dr. Spies has had considerable experience in nutritional disorders at Western Reserve University, and in a special study of pellagra which he conducted at Birmingham, Alabama, under the auspices of University Hospitals in Cleveland in cooperation with the University of Cincinnati College of Medicine and other agencies; Dr. Aring received research training in neurology at Yale and at the National Hospital, Queen Square, London, as a fellow of the General Education Board.

#### NORTHWESTERN UNIVERSITY MEDICAL SCHOOL: INSTITUTE OF NEUROLOGY

Neuroanatomical and neurophysiological studies of the hypothalamus, including the pituitary body, promise to yield results of importance to psychiatry and neurology. Toward research in these fields the Foundation appropriated in 1937 \$25,000 over a period of five years to Northwestern University Medical School, Chicago. The grant follows two preliminary grants, one of \$4,000 for the year beginning July 1, 1934, and one of \$8,000 for the two years beginning July 1, 1935.

The research aided, under the direction of Professor S. W. Ranson, director of the Institute of Neurology, is centered principally on investi-

gation of the anatomy and functions of the hypothalamic region of the brain, its control over the sympathetic nervous system, the role which it plays in emotional reactions and in the regulation of body temperature and carbohydrate metabolism. It has been found that catalepsy and somnolence, followed by profound changes in character and emotional reactivity may be produced in cats and in monkeys by damage to the hypothalamus. The relation of diabetes insipidus and the neurohormonal control of water balance to a tract in the hypothalamus which includes the neural division of the pituitary body has been studied. Besides research the aims of the Institute include the selection and training of young men in neurology and neurological investigation.

CORNELL UNIVERSITY MEDICAL COLLEGE:  
DEPARTMENT OF MEDICINE

In 1937 the Foundation granted \$5,000 for one year beginning July 1, 1937, for neurological research and teaching in the Department of Medicine of Cornell University Medical College, New York City, in continuation of aid begun in 1936. The unit for neurological research is under the direction of Dr. Harold G. Wolff.

The studies, which are concerned with the relationship between neurological and psychiatric manifestations, and physiological and bio-

chemical peculiarities and changes, include particularly research on the mechanism of migraine, gastric ulcer, and muscular dystrophy.

#### WORCESTER STATE HOSPITAL: RESEARCH UNIT

In about 1928 the Worcester State Hospital for mental diseases at Worcester, Massachusetts, started a diagnostic endocrine survey of patients suffering from dementia praecox, which involved the collection of a relatively large amount of metabolic and anthropometric data. As the work progressed new leads were explored which developed into a program of research on the causation and treatment of dementia praecox by a group of about 30 persons. Although this work is not carried on directly by a medical school, it has the advantage of being conducted in a hospital where large numbers of mental patients suffering from dementia praecox are available constantly for study over long periods of time. The research is directed by Dr. R. G. Hoskins, research associate in physiology of the Harvard Medical School, whose services were put at the disposal of the Worcester State Hospital by the Memorial Foundation for Neuro-Endocrine Research of Boston, for which he is director of research. Over a period of three years the Foundation has given two grants to this work, amounting to \$49,500, and in 1937

it appropriated \$49,500 for a further period of three years beginning July 1, 1937. It is hoped that aid to research in a state hospital will stimulate research and tend to improve care and treatment in other institutions of this kind.

Approximately one-fifth of all the hospital beds in the United States are occupied by patients suffering from mental symptoms commonly designated dementia praecox, also known as schizophrenia. It is well to reserve judgment upon the nature of these symptoms and, indeed, upon the validity of their being assembled under one name, so recent and incomplete have been the studies upon them. Many methods of treatment have been tried, and in many instances, varying degrees of restoration of the patient have been obtained.

The general principle animating the research at Worcester State Hospital has been a study of the "homeostasis" of the dementia praecox patient as contrasted with that of the normal person. By "homeostasis" is meant the ability of the physiologic system to put into effect mechanisms which correct the distortion of any added factor. The underlying characteristic of the schizophrenic patient appears to be a disturbed "homeostasis." In the view of Hoskins and his colleagues, schizophrenia is characterized especially by unsteadiness of functions, often

with several times the normal amount of variability, and of inefficient adaptiveness to changed conditions (to heat or cold, for instance); in other words the schizophrenic shows "physiological clumsiness." A difference in oxygen metabolism appears to exist in schizophrenic patients as compared with normal persons. Endocrine studies, including the influence of the various hormones, form an important part of the research. Psychiatric and psychophysiologic studies are coordinated with the other work. The Worcester unit has a great advantage in the presence of a Department of Biometrics for the analysis of the data obtained.

#### MEDICAL RESEARCH COUNCIL OF GREAT BRITAIN: HEREDITY OF MENTAL DISEASES

The Medical Research Council of Great Britain, together with the Darwin Trust and the Royal Eastern Counties' Institution, a hospital for mental diseases at Colchester, near London, are members of a joint committee which supplies funds for a department for research in the heredity of mental diseases at the Royal Eastern Counties' Institution. To the Medical Research Council, for the research department at Colchester, the Foundation gave in 1937 £3,700 (\$18,500), £700 for equipment of a new labora-

tory, and up to £3,000 for increased expenses over a period of five years beginning September 1, 1937.

This research was begun in the Royal Eastern Counties' Institution in 1931. A gradual increase in the work has made a new laboratory and additional assistance necessary to a satisfactory continuance of the research. Funds for the new laboratory building have been secured from other sources. The work is under the direction of Dr. L. S. Penrose.

The greater part of the work is a study of the family histories of 1,280 patients, a survey which will include probably from 20,000 to 50,000 individuals in all. This work is facilitated because the Eastern Counties' Institution is in an area of stable population where relatives of patients can be reached easily. It is proposed to continue the work by obtaining a complete family history of each new admission. Other research is being conducted, such as an investigation of the biochemistry of phenylketonuria, in collaboration with Dr. J. H. Quastel of the Cardiff City Mental Hospital, Cardiff; and a study in collaboration with the Galton Laboratory, London (aided by the Foundation through the Medical Research Council in 1936), to determine by serological methods whether hereditary factors are present in the blood of mentally defective patients.

**WALTER AND ELIZA HALL INSTITUTE OF  
RESEARCH IN PATHOLOGY AND MEDICINE,  
MELBOURNE, AUSTRALIA**

The Walter and Eliza Hall Institute under the direction of Dr. Charles H. Kellaway, who visited the United States as guest of the Foundation in 1933, and gave the Dohme lectures at Johns Hopkins University in 1936, has been the precursor of five other research institutes in Australia. It is affiliated with the University of Melbourne, and is located on the grounds of the Melbourne Hospital. The Foundation aided research in virus diseases, especially those affecting the nervous system, at this Institute over the three-year period 1934 to 1937; and in 1937 continued aid toward salaries of workers, equipment and consumable supplies, for a further period of two years beginning July 1, 1937, in the amount of £2,000 (\$8,000), which represented half the budget for virus research, of which the Commonwealth Government provides the other half.

The research is carried out principally by Dr. F. M. Burnet, assistant director, and other workers in the virus research unit. Dr. Burnet has had extensive experience in virus work. The Foundation previously aided the National Institute for Medical Research, Hampstead, England, to make it possible for Dr. Burnet to spend

two years there for the double purpose of providing an opportunity for him to profit from contact with workers in the same field, and of enabling the Institute to take advantage of his experience and ability in virus research. Although the first interest of Dr. Burnet was in poliomyelitis, encephalitis lethargica, X disease, and other types of encephalitis which might occur in Australia, he organized his research unit to investigate other virus diseases in the absence of suitable cases of virus disease of the nervous system. As the virus research unit was prepared to seize every opportunity to investigate any virus disease which might crop up, Dr. Burnet and Dr. Kellaway were ready to attack the problem of poliomyelitis when an epidemic broke out in Melbourne in 1937.

### STUDIES IN MEDICAL, SOCIOLOGICAL, AND INDUSTRIAL PROBLEMS

#### HARVARD UNIVERSITY: RESEARCH IN INDUSTRIAL HAZARDS

To a coordinated study of industrial hazards at Harvard University the Foundation gave in 1937 \$360,000 to be expended over a five-year period beginning July 1, 1937. The present grant continues aid at a diminishing rate which was

begun by the Laura Spelman Rockefeller Memorial for work in industrial psychology, and later taken over by The Rockefeller Foundation to be included in the whole project of industrial hazards to which aid was given for a seven-year period which expired June 30, 1937.

The collaboration of departments in this program has been effective, spontaneous, and tends to widen steadily. The work was first started in the Graduate School of Business Administration because of the conclusion that a real basis for many most important aspects of business administration could not be secured except through prolonged effort to learn more about the psychological factors which control human behavior. The psychologist, Dr. Elton Mayo, who began to explore this field soon found that the range of investigation must be broadened further, because human problems in business administration, and particularly in the labor field, proved to depend in many cases not only on psychological, but on individual physiological problems. Dr. L. J. Henderson took up the physiological application of the work at the Fatigue Laboratory which was organized for that purpose. This combined work showed that problems of human behavior often turned on social factors, and the sociological viewpoint had to be included. A social anthropologist was added to the work, and

studies of groups from the sociological angle were made. It became increasingly evident that "the most important scientific background for business training was not engineering or economics but human biology in its broadest sense." In the School of Public Health investigations of the external hazards from the usual health standpoint, such as methods of protecting workers from the dangers of materials used, had been going on for some time, and was now brought into closer correlation with the research on other hazards. The Department of Physiology in the Medical School is also related to the research in industrial hazards, as is the Engineering School, the Law School, and the departments of psychology and social sciences of the University.

The aims of the Fatigue Laboratory are to set up quantitative descriptions of the physiological experiences of everyday life; and to articulate the physiological results and the psychological and sociological work of the Business School with certain parts of the work of the laboratories and clinics of the Massachusetts General Hospital, with the functional anthropological work included in the general plan, and with various other investigations in progress in the University.

Aside from the building of a whole new attitude and method of research in the field of industry and business, a few of the more specific

studies are: an investigation of high temperature in the steel mills at Youngstown, Ohio, which has led to a satisfactory procedure now in use to prevent the occurrence of heat cramps; a sociological study by the technique of the interview of some 40,000 employees of a large industrial concern; an expedition to the Andes to study the physiology of high altitudes; and studies of physiological and psychological aspects of aviation. Social anthropological studies have been made at Newburyport, Massachusetts, Natchez, Mississippi, and County Clare, Ireland.

This whole group of studies and the general concept of the work seeks to apply clinical methods to the investigation and discovery of procedures for the solution of administrative and industrial problems.

#### JOHNS HOPKINS UNIVERSITY: ACCESSORY FACTORS OF HEALTH

To the study at Johns Hopkins University School of Medicine of the personality and environment of the patient in relation to his disease, the Foundation continued in 1937 aid in the amount of \$8,000 for a second year.

As a result of the preliminary studies, a new course on the social aspects of medicine is given to third-year students at the Johns Hopkins School of Medicine. Members of the Department

of Medicine and officers of the School of Hygiene and of the Eastern Health District surrounding the Johns Hopkins Hospital and the School of Hygiene are cooperating with Dr. G. Canby Robinson, who directs the work.

Dr. Robinson's studies have shown that of 168 unselected patients, 150, or 89 per cent, presented personality and social problems related to their illnesses, and that in many instances a solution of these problems contributed to the early recovery of the patients.

#### CHICAGO AREA PROJECT

Following three annual appropriations of \$22,500, the Foundation granted in 1937 \$45,000 for the two-year period beginning October 1, 1937, as a final contribution to the Chicago Area Project.

In 1937 this group, which includes in its personnel sociologists and psychiatrists, continued its studies of the abnormal behavior of the youth in certain areas in Chicago. It is expected that with the end of the five years of study which the present grant completes, certain definite information about the factors which cause delinquency will have been secured. For instance, it has become evident that the formative period of delinquent behavior is between seven and nine years and not 12 to 14, as heretofore supposed.

According to its settled policy the Project cooperates with and encourages the activities of all neighborhood agencies which contribute in any way to the prevention of delinquency, with the hope that the neighborhood eventually will become able to manage its own problems of delinquency.

#### NATIONAL COMMITTEE ON MATERNAL HEALTH

The Foundation's grant of \$6,000 in 1937 to the National Committee on Maternal Health, is to be applied toward the administrative expenses of this Committee for the year beginning October 1, 1937. The work of the Committee is not specifically in the field of psychiatry, yet the results of the work which it promotes and the studies it supports can with profit be used by psychiatrists, and in fact, without further knowledge of these fields, the psychiatrist will remain, as he is to a considerable extent now, often unable to give effectual aid to persons in serious states of discouragement and confusion. On the other hand, psychiatry is directly applicable to some aspects of the Committee's work.

The National Committee on Maternal Health was organized in 1923 as a voluntary group for the study of certain medical aspects of marriage, especially clinical research regarding human sex

relationships and patterns. Its research program will be in charge of Dr. Earl T. Engle of the Department of Anatomy of the College of Physicians and Surgeons, Columbia University. With expenses for administration ensured by the grant from the Foundation and other sources, the Committee can give its attention to various research projects planned and under way. It is planned that the advisers to the specific programs will represent public health, gynecology, urology, medicine, psychiatry, human genetics, sociology. The studies and research projects proposed would be conducted by qualified specialists on full- or part-time salary from the Committee and under the Committee's supervision, in hospitals and university departments where they hold appointments and where their status makes the prosecution of research inconspicuous and effective.

### FELLOWSHIPS

For fellowships in the Medical Sciences the Foundation appropriated \$120,000 in 1937 to be administered directly by Foundation officers. For administration by other agencies, it appropriated \$120,000, of which \$75,000 was given to the National Research Council, Washington, D.C., and \$45,000 to the Medical Research Council of Great Britain, London.

Foundation fellowships are given only to men and women who show unusual originality and ability in research, and who have had several years' experience beyond their formal professional training. They are in practically every case recommended by a professor or superior in the department in which they work, and are usually seen by a member of the Foundation staff before the fellowship is granted. The period of the fellowship grant is usually a year; in some cases the time may be extended; in others special grants for shorter periods may be made, principally to men who have already established a scientific reputation, and are beyond the age usual for holders of fellowship grants.

In 1937 72 fellowships in the medical sciences were administered directly by the Foundation, 17 of which were appointed under a joint program from funds of the General Education Board.

Besides special training in the chosen field of study, for which the appointment is made primarily, the international character of these fellowships brings another type of experience. The fellow's acquaintance with somewhat different customs and culture broadens his general background; and in many instances he makes lasting friendships, and finds opportunities and pathways for scientific cooperation and interchange of ideas when he returns to his own

country. In 1937 the 72 fellows came from 18 different countries, as follows: Argentina, Austria, China, Italy, Republic of Lebanon, and Peru, 1 each; Estonia, France, Japan, Latvia, Norway, and Portugal, 2 each; Hungary, 3; Germany, Sweden, and Switzerland, 5 each; Great Britain, 15; and the United States, 21. The men and women from these 18 countries studied in more than 9 different countries, as follows: Sweden, Switzerland, Denmark, and Austria, 1 each; Canada and Belgium, 2 each; Germany, 5; Great Britain, 18; the United States, 36; and 5 divided their time between several European centers. Five of those counted as spending the major part of their time in one country, spent a shorter time in another country.

Practically all of the fellowships granted were in the fields of neurology and psychiatry and public health teaching, in which the work of the Medical Sciences is concentrated. Forty-one fellows, one of whom studied also in psychiatry, studied neurological subjects including neurophysiology, neuropathology, neurosurgery, neuroanatomy, clinical neurology, and radiology in relation to neurology; 17 studied psychiatry, including 1 who studied the biochemical and physiological aspects of psychiatry, 2 who studied human genetics in relation to mental disease, and 1 who studied also neuropathology; 2 studied

psychoanalysis; 3, experimental psychology; and 2, legal medicine. Four studied public health teaching. One each studied physiology, endocrinology, and pharmacology.

The previous appropriation to the National Research Council for medical fellowships, aid to which began in 1922, expires June 30, 1938, and the grant of \$75,000 made by the Foundation in 1937 is to continue aid for the three-year period July 1, 1938 to June 30, 1941. The Council receives no other support for medical fellowships, and it is the only American agency offering fellowships in all the medical sciences. The fellowships are allotted to young men and women in the early postdoctorate period, who show definite promise of achievement in the academic field. Of the 237 fellows appointed since 1922, who had completed their studies on January 1, 1937, 184 held posts in educational institutions and 22 in hospital and research institutes. There are in the list 31 professors, 27 associate professors, 52 assistant professors, and 6 directors of research laboratories. During 1937 18 fellows were actively at work, of whom 9 were appointed in 1937, and 9 continued their work from the previous year.

The grant of \$45,000 to the British Medical Research Council continues for a period of three years, July 1, 1937 to June 30, 1940, aid for

fellowships begun in 1923. Records of the first 70 of the 87 fellows appointed since 1923 showed that 64, 12 of whom were professors, held teaching and research posts. In the opinion of the Council, these fellows have not only strengthened the scientific staffs of many institutions, but have also influenced decisively a trend in British medicine toward a more scientific type of medical practice. The fellows selected by the Council have been of exceptionally high grade, due, it is believed, in large part to the commanding position of the Council in England and its excellent machinery for the selection of fellows. In 1937 7 fellows received appointments and began their work.

From funds granted by the Foundation to the China Medical Board, Inc., for maintenance of the Peiping Union Medical College, the College provided 11 of its staff members with fellowships for study abroad, and made nine other appointments from other schools in China for study at the Peiping Union Medical College. One hundred one additional small grants were made for individuals to work at the College, either in a junior capacity, or for short periods of time.

#### GRANTS IN AID, VISITS, AND SURVEYS

In 1937 the program of grants in aid of small research projects, or research for which only com-

paratively small additional sums were needed for its completion, was continued. Forty-five grants which ranged in amount from \$520 to \$7,000, and totaled in all \$112,440, were made in the medical sciences during the year. An appropriation of \$90,000 was made to carry on the program in 1938 at a decreased level of expenditure.

These small grants were all in the fields in which the interest of the Medical Sciences is centered, psychiatry, and its related subjects, and public health teaching. Twenty-eight grants were made in the general field of neurology, including neurophysiology, neuropathology, neuroanatomy, and neurosurgery; 3 in neuropsychiatry; 4 in psychiatry; 5 for studies in the relation of heredity to mental disease; 3 in psychology; and 2 in public health teaching. Three of the grants in aid were used to equip or to complete equipment for research laboratories; 36 were used for general research expenses, such as small pieces of equipment, expendable supplies, experimental animals and their upkeep, and technical and secretarial assistance; 5, for salaries of research assistants; and 1 for an honorarium and expenses of visits to promote the teaching of rural hygiene in medical schools.

Eighteen grants were made for the work of former fellows, either directly or indirectly to

men under whom they were working. A former fellow of the International Health Division, now an authority on rural hygiene, Dr. A. Stampar, was engaged under one of the grants for public health teaching to visit medical schools in the United States and Canada, where he gave lectures, conferences, and seminars in rural hygiene. Dr. Stampar was director of health of Yugoslavia for about 12 years. He is now attached to the Health Section of the League of Nations, but secured leave of absence from this post for the time required to make the necessary visits.

The grants aided research in 13 different countries: Argentina, Czechoslovakia, and Iceland, 1 each; Denmark, the Netherlands, Norway, and Sweden, 2 each; Canada, 3; Switzerland, 4; Germany and the United States, 6 each; France, 7; and Great Britain, 8.

A grant of \$1,200 was made to enable a former fellow, Dr. Gilbert E. Phillips, Lecturer in Surgery, University of Sydney Medical School, to visit neurosurgical departments in the United States and Canada to help him in developing his neurosurgical work in Sydney; and \$3,300 was designated to enable Dr. Norman Jolliffe of New York University College of Medicine to make a survey of studies in alcoholism which are being conducted in Europe.

## FORMER PROGRAM

YALE UNIVERSITY SCHOOL OF MEDICINE:  
FLUID RESEARCH FUND

In 1937 the Foundation capitalized by an endowment of \$250,000 a fluid research fund for the School of Medicine of Yale University. In 1929 the Foundation granted for research in the School of Medicine, \$147,500 to be paid in yearly allotments over a period of eight years ending with the year 1936-1937. To the yearly allotments from The Rockefeller Foundation the University added sufficient funds to make the yearly total for this purpose \$25,000. The Foundation agreed at the time of the appropriation in 1929 to share equally with Yale University in the capitalization of this sum provided the Foundation's share of the endowment should not exceed \$250,000.

The purpose of this particular fund, known as a fluid research fund, was to make available sums outside of the fixed budgetary allocations, that could be drawn upon immediately when the need arose so that valuable research problems would not have to be delayed, or possibly abandoned, because of immobility or lack of funds. Aid was needed for professional and technical assistants in research, for the maintenance of patients pre-

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senting clinical problems which should be investigated in detail, and for the supply of materials necessary for the conduct of such investigations. With a fluid research fund which could be used for any type of research whenever an interesting problem developed, research could be advanced even though a particular departmental budget should be at the time limited. The work of staff members could be supported, irrespective of their rank, on the basis of the merit of their problems.

During the period since 1929 the yearly grants have encouraged research as an important function of the School of Medicine at Yale. During the depression, the University kept the regular budgetary allotments for research at the same level as before, and continued its share of the fluid research funds so that no diminution of its research program was necessary during these years. The capitalization of the fund by endowment assures continuance of the work on the same level.

#### CHINA MEDICAL BOARD, INC.

In 1937 \$420,000 was appropriated to the China Medical Board, Inc., for operation and other requirements of the Peiping Union Medical College, Peking, China, to supplement income

from the China Medical Board's own funds for the year 1937-1938.

Peking has escaped the destruction which has visited Shanghai and Nanking, and other cities in China. The section in North China where it is situated has been fairly undisturbed, aside from interruptions of communication lines and other dislocations because of troop movements. Some real difficulty has been experienced because of the departure of some of the Chinese members of the staff to the medical corps of the Chinese army, or other government positions. The hostilities have had, so far, little effect on attendance and registration; of 110 students expected to report for work in the fall of 1937, all but four or five had arrived by November, and all of those registered in the School of Nursing reported for work.



# **THE NATURAL SCIENCES**

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*During 1937*

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## THE NATURAL SCIENCES

**I**N 1937 The Rockefeller Foundation appropriated \$1,144,055 for the advancement of research in the natural sciences. All but a very small percentage of this amount was given for the support of projects in experimental biology, inasmuch as the Foundation believes that in the field of the natural sciences it can at present best serve the cause of human betterment by assisting investigations through which man acquires the basic knowledge on which his physical and mental health and well-being depend. Under this program, aid was given to a number of significant studies in biochemistry, biophysics, physiology, nutrition, endocrinology, genetics, and the biology of sex and reproduction.

### PROGRAM IN EXPERIMENTAL BIOLOGY

#### CALIFORNIA INSTITUTE OF TECHNOLOGY: DEVELOPMENT OF ORGANIC CHEMISTRY IN RELATION TO BIOLOGICAL PROBLEMS

The California Institute of Technology has grown during the past 25 years into an outstanding center for research in the natural sciences. The earlier program having emphasized the physical sciences, the later develop-

ments have stressed the life sciences, particularly genetics and plant and animal physiology. Existing work in biochemistry and biophysics already go far to connect and interrelate the Institute's interests in the physical and the life sciences; but it is proposed to strengthen this interrelation by the development of a broad program in the organic chemistry of natural substances. This program will be in close relation with the researches in structural chemistry of Dr. Linus Pauling and his group, who have paid great attention in recent years to the problem of elucidating the structure of some of the more complicated molecules of biological significance. The Rockefeller Foundation has contributed to Dr. Pauling's work since 1934, and it has given support since 1936 to the California Institute's work in biochemistry, biophysics, plant and animal physiology, and genetics, which is under the direction of Professor T. H. Morgan.

The California Institute of Technology is now building a major addition to the Crellin Laboratory of Chemistry, and this addition will be devoted primarily to the program in organic chemistry. The Rockefeller Foundation appropriated, toward the support of this work, the sum of \$300,000 available over not more than six years beginning July 1, 1938. These funds

will assist in furnishing proper equipment for the work. After the program is established, it is contemplated that approximately \$10,000 will be allotted annually for structural chemistry, a similar sum for researches in biochemistry, biophysics, and physiology, which are related to the general program, and the remainder for the organic chemical research itself.

#### PRINCETON UNIVERSITY: RESEARCH IN BIO-ORGANIC CHEMISTRY

Princeton University has recently undertaken to increase its facilities and personnel for research in the organic chemistry of natural substances. The Foundation is aiding this project by a grant of \$33,000, of which \$15,000 is to be used for the equipment of additional laboratory space for the work and the remainder for the salaries of research assistants during the three years beginning July 1, 1937.

The work for which this aid is especially designed is that of Professor E. S. Wallis and Professor Eugen Pacsu. Professor Wallis is studying the chemistry of the sex hormones and the substances (sterols, or solid alcohols) from which these are derived. He is also investigating the structure of the plant sterol, cytosterol. Professor Pacsu is studying the chemistry of sugars.

**NATIONAL RESEARCH COUNCIL:  
BIOPHYSICAL RESEARCH**

The Committee on Biophysics of the National Research Council is giving general direction to a program of research in biophysics which is being developed in Washington under the auspices of the United States Public Health Service and the National Bureau of Standards of the Department of Commerce. This program will be concerned to some considerable extent with problems basic to the practical or applied research work of the Public Health Service, but it will also relate to and serve the interests of a number of bureaus of the Department of Agriculture and such agencies as the Smithsonian Institution, the Carnegie Institution of Washington, and the George Washington University. One of its chief purposes will be the development of instruments and methods which will expedite the research work of the cooperating agencies, but it will also include studies of a number of basic or "pure" biophysical problems to which various practical or applied research programs lead back. Toward the support of this program of biophysical research fundamentally related to definite practical problems in biology The Rockefeller Foundation is contributing \$75,000 over the period ending June 30, 1942.

The staff conducting this program will consist

of a biophysicist, who will be in charge of the work, an associate in physics, an organic chemist, a chemical assistant, and laboratory assistants. Facilities for the development, construction, and standardization of apparatus will for the present be furnished by the National Bureau of Standards, while laboratory space is available at the National Institute of Health. On the completion of the new research institute of the Public Health Service the work will be transferred to a laboratory of biophysics which will be provided in the new quarters.

#### UNIVERSITY OF STOCKHOLM: EXPERIMENTAL BIOLOGY

At the University of Stockholm, under the leadership of Professor John Runnström, a cellular physiologist, there has been in progress for some time a cooperative program in experimental biology in which the Departments of Biochemistry, Biophysics, Embryology and Genetics, and Medicine, as well as Professor Runnström's own department have been participating. The work has been handicapped by the fact that the different research projects included in the program have been carried on in widely separated and in wholly inadequate quarters in various buildings of the University. To remedy this difficulty The Rockefeller

Foundation is aiding the University in building an Institute of Experimental Biology which will house the Departments of Cellular Physiology, Biochemistry, and Biophysics. From local sources the University has obtained funds for the construction of a building adjacent to the new Institute, in which the Department of Embryology and Genetics and an Institute for Metabolic Diseases and Experimental Pathology will be installed.

In the new quarters Professor Runnström will direct a coordinated program in cell metabolism and cell respiration. The Departments of Biochemistry and Biophysics will collaborate in the phases of the work requiring the techniques of chemistry and physics. The Department of Embryology and Genetics will cooperate in research in the mechanics of development, and the Institute for Metabolic Diseases and Experimental Pathology will work closely with Professor Runnström in studies of carbohydrate metabolism.

The Rockefeller Foundation is contributing \$65,000 toward the cost of building and equipping the Institute of Experimental Biology and is providing \$24,465 toward the support of the coordinated research program under the direction of Professor Runnström during the five-year period 1938-1942.

UNIVERSITY OF BERNE: APPLICATION  
OF PHYSICOCHEMICAL TECHNIQUES  
TO PHYSIOLOGICAL STUDIES

The Rockefeller Foundation has made a grant of \$28,000 to the University of Berne toward the purchase of equipment for the use of Professor Alexander von Muralt, director of the Institute of Physiology, who is developing a program of research in nerve and muscle physiology. This program, which includes studies of (1) chemical wave transmission in nerves, (2) muscle tissue and particularly the muscle protein, myosin, and (3) the permeability of membranes to substances of interest in blood physiology, calls for various optical techniques and other physicochemical methods, since it involves work with materials too delicate or too minute in amount to be studied by ordinary chemical methods. The physicochemical methods which are to be used require a somewhat extensive set-up of instruments and apparatus. The Foundation's grant will be available over a period of four years for the purchase of this equipment as it is needed for the expansion of the work. The Canton of Berne is planning to expend about \$56,000 for the reconstruction and modernization of the Institute laboratories.

In the course of the study of chemical wave transmission in nerves Professor von Muralt

and his associates found a substance which is liberated in very small amounts as the excitation wave passes along the nerve. They are now making studies with delicate optical techniques to determine the origin and nature of this substance.

UNIVERSITY OF COPENHAGEN, UNIVERSITY OF  
MINNESOTA, AND COLLÈGE DE FRANCE:  
APPARATUS FOR TAGGING THE ATOMS

Biological and medical scientists have recently begun to use some minute research tools from the physical laboratory which promise to be of revolutionary importance in their work. These little implements are artificially produced radioactive atoms of the various chemical elements and are technically known as isotopes. Chemically they are indistinguishable from other atoms of the same substance, and hence if they are introduced into a plant or an animal they behave in the same general way within the organism as the ordinary substance does. But their radioactive properties proclaim their presence wherever they may be, so their movements can be traced as easily as though each one carried a visible label or tag. By introducing these tagged atoms into a plant or an animal and later making chemical tests for their presence in its tissues and fluids, investigators can follow the course of a

given element throughout an organism, can find out how permeable the tissues are to the element, what capacity they have for storing it, etc. They can also use these atoms as markers for tracing the passage of fluids to and from the tissue cells. Thus these tiny bodies can bring to light many facts about metabolism which have heretofore been shrouded in mystery. It is possible that ordinary elements that have been made radioactive may have therapeutic value, but at present their chief use is to show how chemicals behave in an organism and how the organism makes use of them.

Temporary radioactivity can be imparted to ordinary substances by subjecting them to eruptions from exploding radium or other naturally radioactive elements; but this method is not practicable for furnishing research workers with the variety and quantity of tagged atoms that they need for their experiments, because the numbers that can be made in this way are limited. A means of satisfying the demands of investigators has been found however.

Two physicists, Robert J. van de Graaff of the Massachusetts Institute of Technology and Ernest O. Lawrence of the University of California, have developed powerful high voltage machines capable of producing radioactive atoms of practically any chemical element in any

quantity desired. Each of these machines accomplishes its task by hurling charged particles—the so-called deuterons or heavy hydrogen nuclei—at some chemical element. When the projectile hits the nucleus of the bombarded element it is captured by this, and out fly other particles—in some cases deuterons but usually protons, the nuclei of ordinary hydrogen atoms. When these flying particles strike bits of matter they induce radioactivity in these substances.

In the van de Graaff machine electrical charges accumulated on a metal sphere generate a direct current with enormous voltage, which is discharged into a long vacuum tube. The bombarding projectiles are released into the tube and are hurled at the target at the other end of the tube, producing a stream of high-speed particles capable of making substances radioactive. In Lawrence's machine, which he calls a cyclotron, the projectiles are whirled around and around between the poles of a magnet, receiving a powerful pulse of electricity at each revolution until they acquire the tremendous speed desired; then they are hurled at their target, and protons and deuterons with energies as high as 6,000,000 volts are obtained. With access to apparatus of either of these types biological and medical investigators can obtain labelled atoms of many substances whose function in the living organ-

ism they wish to study. These materials possessing induced radioactivity are nontoxic and can therefore be introduced into the digestive tract or administered intravenously without harmful effect.

The Rockefeller Foundation is interested in furthering biochemical research with artificially radioactive substances. It has therefore contributed funds to the University of Copenhagen, the University of Minnesota, and the Collège de France to enable these institutions to install high-powered generators for the production of such materials. The University of Copenhagen is to receive \$12,500, payable during the two years beginning September 1, 1937, toward the construction and testing of a cyclotron. The University of Minnesota has been granted \$36,000 to be available over the four-year period beginning July 1, 1937, partly for the construction and testing of a van de Graaff generator of the pressure type developed at Wisconsin, and partly for research, at both the University and the affiliated Mayo Clinic, with the radioactive atoms supplied by this machine. In Paris four institutions are collaborating in experiments in the use of artificial radioactive substances in biological and medical research. These are the Collège de France, the Institute of Physical Chemistry of the Sorbonne, the Rothschild

Foundation, and the Radium Institute. The Rockefeller Foundation is assisting two laboratories of the Collège de France to meet the costs of work in connection with this project. It has set aside \$15,000 to be used by the Laboratory of Atomic Synthesis of this institution during the five-year period beginning November 1, 1937, for the purchase of equipment and for the salary of a research assistant in biology, and it has provided \$3,000 to enable the Laboratory of Nuclear Chemistry to employ an assistant during the year beginning July 1, 1937, to direct the design and installation of a cyclotron for the preparation of radioactive elements. The research program at the University of Copenhagen is under the direction of Professor Niels Bohr, that at the University of Minnesota under Professor J. T. Tate, and that in Paris under the direction of Professor Frédéric Joliot.

#### UNIVERSITY OF VIRGINIA: DEVELOPMENT OF AN ELECTRICALLY DRIVEN ULTRACENTRIFUGE

Another instrument of the physical sciences which investigators are using to probe some of the mysteries of living matter is the ultracentrifuge, a machine of enormous rotational speed for the sedimentation and study of substances in

solution which are too small to be made visible by any known means or to be separated out of the solution by any other process now in use. Capable of speeds of over 60,000 revolutions a minute and producing a centrifugal force over 300,000 times as great as gravity, this machine can hurl out of a mixture the various heavier types of particles which it contains, down to those of the most minute size. By means of optical and camera systems connected with the instrument, sedimentation can be observed, timed, and photographed as it occurs. From the sedimentation records obtained in this way the size, weight, and in some cases the shape and general chemical make-up of the precipitated particles can be determined.

The ultracentrifuge has enabled the biologist to learn a great deal about the proteins, the basic building material of living matter. It has shown him, for example, just how many different kinds of protein molecules are present in the blood and other body fluids, and how large and how heavy these various types of molecules are. It has revealed that in persons with certain organic diseases the protein molecules in the blood differ in size and shape from those in healthy persons, a fact which may be of great importance to medicine, for it may be found possible to trace pathological changes in men and an-

imals to changes in protein composition. Other achievements of outstanding importance to medicine and biology which the ultracentrifuge has made possible have been the concentration of the virus which causes yellow fever in man, the virus of infectious papillomatosis in rabbits, and a number of viruses responsible for mosaic diseases in plants.

There are two types of ultracentrifuge in use at the present time: the oil-driven type designed by Professor The Svedberg of the University of Uppsala, Sweden, and the air-driven type, which has been developed on the basis of principles first described by Professor J. W. Beams and E. G. Pickels at the University of Virginia, and has been specially developed by Dr. Johannes Bauer and Pickels in the laboratories of the International Health Division of The Rockefeller Foundation at The Rockefeller Institute for Medical Research. Professor Beams and his associates are now building and testing ultracentrifuges of a third type. These operate by means of an electric drive and it is hoped that they will eventually be of simpler construction than either the oil- or air-driven instruments. The Rockefeller Foundation made a grant of \$8,000 to the University of Virginia in 1937 toward the cost of developing this simpler type of ultracentrifuge.

### UNIVERSITY OF Utrecht: THE SPECTROSCOPE AS A TOOL OF BIOLOGY

The spectroscope, an optical instrument for forming and analyzing the spectra of the rays of light or other radiant energy emitted by incandescent substances or luminous bodies, has long been an indispensable tool of the physicist and the astronomer, enabling the one to identify the chemical elements in the materials of this planet and the other to determine the composition of the sun and the stars. During recent years this instrument has occupied a more and more important place in biological and medical research, making possible minute measurements too delicate for other techniques.

The Rockefeller Foundation has made grants to several investigators to enable them to test the value of spectrographic methods in the solution of certain problems of biology and medicine. Since 1934 it has given assistance for the joint work of Professor L. S. Ornstein of the Institute of Physics of the University of Utrecht, Netherlands, and Professor A. J. Kluyver of the Laboratory of Microbiology of the Technical Institute of Delft, who are using spectral techniques in a study of radiant energy and biological activity in the simplest form of life—bacteria. In one series of investigations these workers are attempting to measure the energy radiated when

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oxygen is absorbed by a living organism, using for this purpose a strain of bacteria which emits light during oxygen assimilation. In another series they are trying to determine the chemical activity in a living organism due to radiant energy, using in this instance the so-called sulphur bacteria, which under the stimulus of light absorbs carbon dioxide and liberates oxygen—a process analogous to plant metabolism. These reactions are fundamental to life processes, and their study with such a tool as spectroscopy, which permits of accurate instantaneous measurement of the undisturbed phenomena, offers a field of exceptional interest.

In 1936 the Foundation made a grant of \$59,850 to the University of Utrecht for the construction of additional laboratory space for these studies, and for the salaries of additional personnel and the purchase of supplies and equipment during the years 1938-1942.

STRANGEWAYS RESEARCH LABORATORY:  
INCREASED FACILITIES FOR STUDIES  
IN TISSUE CULTURES

For many years the Strangeways Research Laboratory in Cambridge, England, has specialized in the study of normal and abnormal cellular growth in artificially cultured tissues. It has become widely known for its successful work in

this field, and an increasing number of investigators are asking for the privilege of visiting the laboratory to learn the tissue culture technique for use in their own researches in experimental biology and experimental medicine. The Strangeways Laboratory building is small, and if the visitors were to be accommodated without curtailing the regular activities of the staff, additional working space was needed. It seemed advisable therefore to add another wing to the building, to be used chiefly for workrooms for visitors. To enable the Laboratory to construct and equip this wing The Rockefeller Foundation made a grant of \$32,830.

There are many problems of embryology, biology, and medicine which can be studied to great advantage in cells which have been removed from a living animal or an embryo and allowed to continue their growth in artificial cultures. These cultures provide greatly simplified experimental conditions under which cells can be observed as individual entities, uninfluenced by the physiological activities of the body as a whole. In other words, they enable the investigator to see how the cells themselves function and react under varying conditions, and to determine how far certain biological reactions are caused by the cells involved and how far they are due to the physiological processes of the body.

The tissue culture has proved an excellent medium for the study of the effect of x-rays, gamma rays, and radium on normal cells and on those of tumorous growths. The data furnished by these studies are of great value as a guide to work under the complex conditions existing in the living body.

#### UNIVERSITY OF MANCHESTER: RESEARCH ON VITAMINS AND RELATED SUBSTANCES

Within the past few years vitamin has become a familiar household word. It is common knowledge that these substances, present in the roots and leaves of plants, in fruits, and in such animal products as milk, butter, eggs, and cod-liver oil, are essential to man's growth and well-being, and that foods in which they are contained must be included in the daily diet if health is to be preserved. It is only within the present generation, however, that the importance of these vital food elements was recognized. In the early years of the century investigators, wishing to determine the relative dietary value of proteins, carbohydrates, fats, and inorganic salts, which were then believed to be the sole essential factors in nutrition, fed these substances to animals in pure form. On these rations the animals sickened and died. The more the foods were purified the sooner the animals succumbed. But when small amounts

of natural foods were added to the experimental diet the animals thrived. It thus became evident that there are substances other than proteins, carbohydrates, fats, and salts, which occur in natural foods and are essential to life. Investigators in many laboratories took up the study of these elements, and gradually a number of different ones were identified. In time they came to be known as vitamins and were designated by letter names. The chemical structure of some of them has been definitely determined; some of them have been prepared artificially in the laboratory.

Certain important roles of the vitamins have been shown to be regulation of growth and protection against various diseases. For example, vitamin A promotes growth and resistance to respiratory infections and prevents certain eye defects, notably night blindness; B<sub>1</sub> prevents beriberi; B<sub>2</sub> prevents pellagra; B<sub>3</sub> is important to growth; C protects against scurvy; D prevents rickets and insures the proper development of the bones and teeth; E has been shown to prevent sterility in animals. Other vitamins are being discovered from time to time, and much remains to be learned about the group as a whole.

The Rockefeller Foundation has contributed toward research on vitamins and related substances in a number of institutions. During the

past year it made a grant of \$25,000 to the University of Manchester, England, toward the investigations of vitamins A and D which are being carried on there under the direction of Professor I. M. Heilbron. This sum will provide for the salaries of research assistants for a period of four years.

Professor Heilbron is studying the evolution of vitamins A and D, using spectroscopic methods and other techniques of organic chemistry to trace the steps by which these compounds are built up from their most rudimentary precursors in plants and animals. He is also investigating the relationship between these vitamins and substances of similar structure which are present in living organisms. He has made an extensive study of the orange-red hydrocarbon, carotene, from which vitamin A is directly derived, and of the closely associated substance, lutein, both of which are widely distributed in plants and animals. These compounds are formed in grass and other green plants and in marine algae. They find their way into the milk of cows and the eggs of chickens that eat grass and green herbs, and into the livers of fish that eat small marine animals which feed on algae. Leafy green vegetables, milk, butter, eggs, and fish-liver oil are therefore important sources of vitamin A. Professor Heilbron has found that the chemical structure of

carotene and lutein establishes their connection with isoprene, a hydrocarbon that may be regarded as a fundamental unit from which numerous important plant products are elaborated.

The chemical composition of vitamin D has not been definitely determined, but this substance can be artificially produced by treating various plant and animal compounds with ultra-violet light. It has been found that in all matter which can thus be endowed with vitamin D there is present one of the group of solid higher alcohols known as sterols. It is evident therefore that these substances bear a close relationship to vitamin D. It has also been shown that they are intimately connected with the sex hormones. Professor Heilbron is endeavoring to obtain precise information concerning the mechanism of the formation of vitamin D and the sex hormones in the animal body. He is studying the chemistry of the sterols and is tracing their presence in plants and animals, from the simplest forms upward, in order to determine where and how these substances, as well as vitamin D and the sex hormones, are built up.

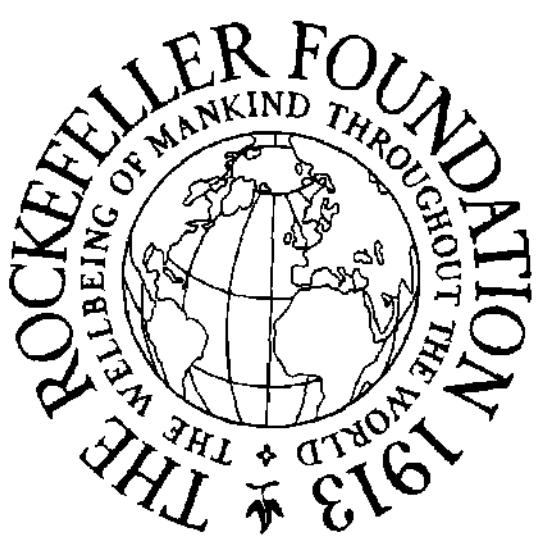
#### HARVARD UNIVERSITY: PHYSICOCHEMICAL STUDIES OF THE PROTEINS

The proteins are the main ingredients of protoplasm, the material of which all living things

are made. They form the greater part of plant and animal tissue. Man's brain, his muscles, sinews, and blood, his hair and nails consist largely of proteins, and these substances are an essential part of his diet, for the protoplasm within his body cells is continually wearing out and requiring repair, and as protein can be built up only from protein, he must obtain the material for protein repair from such animal products as meat, milk, and eggs, and from various vegetables and fruits in which it is contained.

The proteins are made up of groups of simpler substances, which are called amino acids. There are 20 or more of these, and they combine in different proportions to form the various proteins. All of them contain carbon, hydrogen, oxygen, and nitrogen, and some of them contain in addition iron, phosphorous, and sulphur. In the laboratory various proteins have been broken down into the amino acids of which they are composed, and these have been extensively studied; but investigators have not yet found out how nature pieces these together in the protein molecule. And not only is the exact structure of the proteins far from clear, but much remains to be learned about their behavior within the cells, that is, what they do to keep the cells alive and to cause them to reproduce.

In a number of institutions in recent years in-



Laboratory of Atomic  
Synthesis, Collège de  
France. High tension  
equipment.

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Film balance, Department of Chemistry, University of Chicago, where  
research in the field of surface chemistry is being carried out in coopera-  
tion with the Division of the Biological Sciences.

vestigators have been applying the accurate techniques of physical and organic chemistry to the study of the proteins in an effort to clear up the mystery that surrounds them. At the Harvard Medical School Professor E. J. Cohn and his associates in the Department of Physical Chemistry have for some time been carrying on studies which have a direct bearing on the question of the behavior of tissue proteins in the body. They have been investigating the solubility of proteins and amino acids in various solutions and mixtures and observing how these substances act in solution; and they have been gathering data on the electrical properties of the proteins. The Rockefeller Foundation has been contributing toward Professor Cohn's work since 1930. Its most recent grant has been \$12,500 for use during the year beginning September 1, 1937.

#### STANFORD UNIVERSITY: STUDIES IN PROTEIN CHEMISTRY AND METABOLISM

Another study in which the techniques of physical chemistry are being used to explore the mysteries of protein behavior is being conducted by Dr. Thomas Addis and his associates at Stanford University. This study, which is concerned chiefly with the way in which the body



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California Institute of Technology, outstanding center for research in the natural sciences. The program of organic chemistry is closely allied to the development of biological problems.

stores and uses the proteins, is an outgrowth of research on the functions of the kidney which Dr. Addis began several years ago. The early research showed that in steadily advancing diseases of the kidney which cause progressive destruction of the renal tissues, the continued life and fair general health of the patient depends on a progressive enlargement of those tissues which remain—that is, on what is known as compensatory hypertrophy of the diseased organs. It was apparent that if rational methods of treating these destructive diseases of the kidney were to be developed, the factors that accelerate or inhibit the replacement of the lost tissues of the organs would have to be understood. Investigation of these factors gradually led back to more and more fundamental problems, until now Dr. Addis and his associates are working on such basic matters as the distribution of proteins in the body, general protein metabolism, and the biochemical aspects of compensatory hypertrophy of the kidney.

The study of protein distribution in the body requires delicate and accurate techniques. Professor Addis has devised methods whereby the proteins forming the essential structure of the various organs of the body and of the body as a whole can be measured separately from the media within which they operate and from

storage and accessory materials. By these methods the protein content of each organ can be determined, and the enlargement of organs due to storage of protein, carbohydrate, and fat can be distinguished from enlargement due to hypertrophy. For the furtherance of Dr. Addis's investigations, which are contributing to the clarification of protein structure and behavior, the Foundation has provided the sum of \$27,000 to be used for the salaries of research assistants and for the purchase of equipment and supplies during the three years beginning July 1, 1937.

#### THE CARLSBERG FOUNDATION: RESEARCH ON ENZYMES AND PROTEINS

In its task of turning food into tissues and energy the human body makes use of substances which are called enzymes. These substances are elaborated by cells, but we do not, in general, know of just what they consist or how they do their work. We know, however, that an enzyme is a catalyst, a substance which causes two other substances to react chemically without itself being consumed in the course of its action. The body digests its various foods, that is, breaks them down into simpler substances, by combining them with water; and it is the enzymes of the digestive tract which bring about this interaction

of food substances and water. They cause the proteins in the food to split up into amino acids. These pass through the intestinal wall into the blood and are carried to the liver, where some of them are converted into glucose. Others are carried throughout the body and, with the aid of enzymes in the body cells, are rebuilt into the various kinds of tissue proteins. Discovery of the nature and working methods of the enzymes would therefore be a long step toward the understanding of the proteins.

In 1935 and 1936 The Rockefeller Foundation made small grants to the Carlsberg Foundation in Copenhagen for research in enzyme chemistry under the direction of Professor K. U. Linderstrøm-Lang in the Carlsberg Laboratory. During the past year it appropriated \$18,710 for this work during the period March 1, 1937 to December 31, 1941. Professor Linderstrøm-Lang and his associates are now engaged in micro-chemical studies of the cells of the stomach wall, proceeding cell-layer by cell-layer and making simultaneous observations of the structure of the cells and the chemical and enzyme activity which is taking place in them. They are also co-operating with Professor August Krogh of the Department of Zoophysiology of the University of Copenhagen in studies of protein chemistry.

## UNIVERSITY OF STOCKHOLM: STUDIES OF ENZYMES AND VITAMINS

Research on enzymes and vitamins is also receiving Foundation support at the University of Stockholm, where Professor H. von Euler, director of the Biochemical Institute, has been studying the chemistry of these substances for a number of years. In connection with these investigations Professor von Euler has trained a considerable number of research workers, among whom have been nine Rockefeller Foundation fellows.

The Biochemical Institute of the University of Stockholm was established in 1928 with the aid of the International Education Board. The University is now organizing a Department of Organic Chemistry in the Institute, which will also be under the direction of Professor von Euler; and the Foundation is contributing \$11,700 for scientific equipment and supplies for the laboratory of the new Department. One of the functions of this laboratory will be to provide the facilities and the organic chemical material required for the more biological aspects of Professor von Euler's work on enzymes and vitamins. Another function will be the training of personnel in modern techniques in organic chemistry.

**COLUMBIA UNIVERSITY: STUDIES IN  
NUTRITION**

The question of what man should eat in order to attain optimal health and physical development, always one of universal interest, has in recent years become the subject of laboratory study in numbers of institutions throughout the world. But human beings are not practical subjects for large-scale laboratory feeding experiments, and persons engaged in this research must try out their theories on small animals that can be raised in quantities and whose life span is brief enough to permit an investigator to observe the effects of certain diets on the individuals of several generations from their infancy to old age. The rat is particularly well adapted for this work because its nutritional needs are apparently rather similar to those of humans except that the rat is able to synthesize vitamin C, while man is dependent upon his food for this important element. While it by no means follows that diets that do wonders for rats in the way of health and longevity will be equally beneficial to man, the results of nutritional studies in these animals suggest many interesting lines of approach to the problems of human nutrition.

The Rockefeller Foundation is giving assistance to several studies in animal nutrition.

Among these are the investigations of Professor H. C. Sherman at Columbia University, toward which it has made a grant of \$16,500 for salaries of assistants and for the purchase of supplies during a three-year period beginning July 1, 1937.

Professor Sherman is carrying on his studies with a colony of white rats numbering about one thousand, which was started over a quarter of a century ago. In these animals he has been able to show that growth, adult vitality, fertility, and length of life span can be improved to a considerable extent by raising the diet from one that is merely adequate to one which he calls optimal. Both of these diets consist of the two common foodstuffs, wheat and milk. Diet A, the minimum adequate diet, is five-sixths ground whole wheat and one-sixth dried whole milk, with ordinary table salt and distilled water. The highly favorable Diet B consists of the same foods as Diet A, but the milk is increased from one-sixth to two-sixths of the total amount and the wheat is reduced to four-sixths.

Years of experiment on many generations of rats, with careful and detailed recording of the measurements, weight, and general condition of the experimental animals, were required to establish, first, what food elements in what amounts constituted the minimal adequate diet

for these animals and, second, what modification in this combination was necessary to produce the diet most favorable for them. When it became evident that the adequate diet could be made highly favorable by increasing the proportion of milk, studies were begun to determine what ingredients of milk carried the health promoting factors. A prominent component of this food, calcium, was tested first, and it was shown that this substance plays an extremely important part in the building and maintenance of tissue and the lengthening of the life span. Further study indicated that two other components of milk, vitamin A and the so-called flavin factor (one of the constituents of vitamin B) also have a vital role in the promotion of growth, stamina, and longevity. It now remains to determine what is the standard intake of these food elements for optimal nutritional well-being, and Professor Sherman's present experiments are directed toward this end.

#### UNIVERSITY OF PENNSYLVANIA: THE RELATION OF DIET TO RESISTANCE TO INFECTION

Another project in the field of nutrition to which the Foundation is contributing is the work of Dr. C. F. Church of the Medical School of the University of Pennsylvania, who is investigating the influence of minerals and other elements in

the diet on resistance to infection. Dr. Church has used as subjects of study, mice of three strains: a resistant strain, of which, after infection with mouse typhoid, only 10 per cent died in 10 days; a susceptible strain, of which all died in 10 days; and an intermediate line, of which 60 per cent died in 10 days. These strains have been bred from hereditary lines of mice developed by Dr. L. T. Webster of The Rockefeller Institute for Medical Research. In recent work Dr. Church has concentrated his attention on the resistant line, called strain A, and the line of intermediate resistance, strain D. For the experimental feeding of the mice he has prepared a synthetic diet, any element of which can be altered at will. Comparative tests have shown that this diet is as adequate for the growth and well-being of the animals as the ordinary diets of colony mice.

When Dr. Church fed mice of strain A on a modification of the synthetic diet in which the mineral content was diminished by reducing each of six elements—calcium, magnesium, sodium, potassium, phosphorus, and chlorine—to one-fourth of their original amounts, the resistance of these animals to mouse typhoid was lowered about 25 per cent. Reducing the calcium content of the diet, leaving all other factors unchanged, lowered the resistance of the A mice in an almost

equal degree, but had no effect on the D mice. Reducing the potassium content of the diet lowered the resistance of the D mice approximately 25 per cent but had no effect on the A mice. The omission of fat from the diet made no difference in the resistance of either line of mice. The maternal diet of D mice had a profound influence on the resistance of the progeny, showing that this factor plays an important role in the development of resistant and susceptible stocks.

Dr. Church is continuing the study of the protective effects of the various mineral elements in the diet of mice and is making a preliminary investigation of the role of carbohydrates and proteins in mouse resistance to disease. The Foundation is providing \$12,000 toward the support of this work during the three years ending June 30, 1940.

#### NATIONAL RESEARCH COUNCIL: PROGRAM OF THE COMMITTEE FOR RESEARCH IN PROBLEMS OF SEX

The biology and physiology of sex have an important place in a program in experimental biology. Since the year 1931 The Rockefeller Foundation has been giving support to a National Research Council project for the development of research in these fields under the leadership of its Committee for Research in

Problems of Sex. The Foundation's appropriations for the work of this Committee have totaled \$720,000, the most recent grant providing \$200,000 for use during the three years beginning July 1, 1938.

From the funds which it receives the Committee makes grants to investigators working on various basic problems in the biology and physiology of sex. During 1937 it made 17 grants totaling \$66,900. The six major contributions, amounting to \$47,000, went to Professors Edgar Allen and R. M. Yerkes of Yale University, for studies of sexual and reproductive phenomena in monkeys and apes; to Professor Philip Bard of the Johns Hopkins University School of Medicine, for research on the neural basis of sexual behavior; to Dr. Carney Landis of the New York State Psychiatric Institute and Hospital, for psychobiological studies of sexual factors in the development of personality; to Professor P. E. Smith of the College of Physicians and Surgeons of Columbia University, for research on the cytology and physiology of mammalian reproduction; to Professor Emil Witschi of Iowa State University, for investigations of the physiology of reproduction; and to Professor W. C. Young of Brown University, for structural and behavioral studies of the reproductive cycle in the guinea pig.

Of the Foundation's recent grant to the Committee, approximately two-thirds will be allotted to major programs now in progress, the success of which depends upon their continuation over a number of years. The remaining one-third will be used for the development of new programs, for special conferences or symposia, and for surveys and publications.

**BRUSH FOUNDATION, WESTERN RESERVE  
UNIVERSITY: RESEARCH ON HUMAN OVULATION**

The facts concerning human reproduction have a vital bearing on social and medical problems, and yet man continues to be largely ignorant concerning the human sexual and reproductive cycles. This has been due in part to prejudices and taboos of long standing and interestingly enough, in part to the great importance of these matters, for the very preciousness of man has hindered investigators from attempting to learn in the human organism those facts about the reproductive cycle that are well known in many animals. Only relatively recently has a good start been made in research on the human reproductive and sexual cycles. Evidence, not yet complete, is being accumulated on the time of human ovulation in the monthly cycle. Among the investigators working on this problem is Dr. B. B. Rubenstein of the Brush Foundation

at Western Reserve University, whose studies deal with the correlation between the time of ovulation and variations in body temperature. The Rockefeller Foundation has made a grant of \$18,000 to the Brush Foundation toward the support of Dr. Rubenstein's work for three years beginning July 1, 1937.

#### COLUMBIA UNIVERSITY: STUDIES IN ENDOCRINOLOGY

The endocrine glands and their secretions, the hormones, which are so important to man's physical and mental health, are being studied in many laboratories today. We have found out a great deal about these tiny glands and the minute substances which they send throughout the body to perform various vitally essential tasks, but endocrinology still presents vast numbers of unsolved problems. The Rockefeller Foundation is contributing toward the work of several investigators who are attacking some of these problems. Among the grants which it made for such work during the past year was one of \$47,500 to Columbia University, for studies under the direction of Dr. P. E. Smith of the College of Physicians and Surgeons over the period July 1, 1937 to June 30, 1940.

Since 1928 the work of Dr. Smith and his associates has received support from the National

Research Council's Committee for Research in Problems of Sex. Through an agreement with the Committee the Foundation is continuing this support on a somewhat increased basis. During the period of the Foundation's aid, as in the past, Dr. Smith's program will include investigations of the structure, functions, and interrelations of the endocrine glands, with special reference to the reproductive system, and with emphasis on the application of the results of experimental work to the solution of clinical problems in endocrinology.

#### HARVARD UNIVERSITY: THE PHYSIOLOGY AND CHEMISTRY OF THE SEX HORMONES

The Foundation has made a grant of \$18,000 for the support, during a four-year period beginning July 1, 1937, of another program in endocrinology which was developed under the auspices of the National Research Council's Committee for Research in Problems of Sex. This is a study by Professor F. L. Hisaw, at Harvard University, on the physiology and chemistry of the hormones responsible for regulating the activities of the male and female reproductive tracts. The endocrine glands supplying these hormones are the pituitary, the testes, the ovaries, and the placenta; but certain other ductless glands, such as the thyroid and the adrenals,

play an indirect and secondary part in the regulatory process. The fact that the observed physiological effects of many hormones depend upon a balance between two or more internal secretions has led Professor Hisaw to include in his studies endocrine glands not ordinarily considered in research on the physiology of reproduction. Professor Hisaw's work has also shown that some non-specific organic and inorganic substances influence certain hormone actions. For example, yeast extracts and copper salts greatly increase the action on the ovary of that one of the pituitary hormones which governs the functioning of the sex glands.

#### OHIO STATE UNIVERSITY: STUDIES OF THE HORMONE OF THE ADRENAL CORTEX

The adrenals are a pair of endocrine glands lying close to the kidneys. An adrenal has an outer coat or cortex and an inner portion or medulla. Each of these portions secretes a substance, or hormone, of vital importance to the body. The physiological, chemical, and medical aspects of these hormones are being studied by many investigators. The Rockefeller Foundation has been contributing toward the work of one of these, Professor F. A. Hartman of Ohio State University, since 1935. In 1937 it appro-

priated \$15,000 for the continuance of this aid during the two years ending June 30, 1939.

Professor Hartman's work is concerned chiefly with the chemistry and the physiological action of the cortex hormone, cortin. His program for the next two years will include, in addition to further studies of the chemical nature of this substance, research on material in certain extract fractions which has been found to destroy it. He will also investigate the effects of cortical extracts on the metabolism of normal persons and the relation of experimental adrenal insufficiency to the ability of animals to meet stress.

CARNEGIE INSTITUTION OF WASHINGTON:  
INVESTIGATING THE STRUCTURE OF  
THE CHROMOSOMES

The Foundation has appropriated \$5,000 for a year's research in the Department of Embryology of the Carnegie Institution of Washington on methods of preparing chromosomes, the minute carriers of plant and animal heredity, for study by x-ray. This work is under the direction of Dr. C. W. Metz, and will be carried out in collaboration with Professor W. T. Astbury of the University of Leeds, England.

During the past few years Professor Astbury

has been developing x-ray methods of examining biological substances, which are yielding important information concerning the structure of these materials. There have been various recent suggestions for using these methods to test out hypotheses with regard to the molecular structure of the chromosomes. Before this could be done it would be necessary to carry out the extremely delicate task of extricating from inside individual cells a large number of the minute threadlike chromosomes and arranging them in a bundle suitable for x-ray study. This microscopic and difficult task could be performed only by someone with a great deal of experience in handling such material, especially by micromanipulative procedures.

On recent visits to this country Professor Astbury and Professor Dorothy Wrinch of the University of Oxford discussed this problem with Dr. Metz, and a plan was developed whereby Professor Astbury will send a worker from his laboratory to collaborate with a member of Dr. Metz's staff in an investigation of possible methods of obtaining chromosome preparations for x-ray studies. The Foundation's grant will be used for stipends for these two workers. If their efforts meet with success an advance of great importance to genetics will have been made.

**LONG ISLAND BIOLOGICAL ASSOCIATION:  
SYMPOSIA ON BIOLOGY**

Since 1934 the Foundation has contributed toward the support of summer symposia on quantitative biology held by the Long Island Biological Association at the Cold Spring Harbor Laboratory. In 1937 it appropriated \$20,000 for the meetings which will take place in the summers of 1938 and 1939. To these symposia, which last for five weeks, the Association invites about thirty persons, acknowledged experts in the biological fields. There are daily meetings, for which programs are carefully prepared in advance. One or two papers are read at each meeting. All the papers presented during the course of the five weeks, together with abstracts of the detailed discussions which follow their reading, are printed in an annual volume. The subjects considered at the 1937 session were enzymes, hormones, and vitamins.

These symposia give ample opportunity for the full discussion of questions under consideration, for a thoroughgoing interchange of ideas, and for the correlation of information from various fields. They are an excellent means of arousing interest in new lines of research. In 1936 and 1937 a few of the persons taking part in the symposium were invited to remain after the session to carry out cooperative researches

on points developed during the meetings. This innovation has proved extremely valuable.

The Foundation's most recent grant to the Association will provide \$10,000 for each of the next two symposia. This sum will pay the traveling and living expenses of the persons taking part in these sessions, the cost of research for a brief period following each session, and the expenses connected with the publication of papers and discussions.

### GENERAL PROGRAM

#### AMERICAN MATHEMATICAL SOCIETY: INTERNATIONAL CONGRESS OF MATHEMATICIANS

In 1937 the Foundation made only one appropriation in the natural sciences outside its specific interest (the field of experimental biology). This was a grant of \$7,500 to the American Mathematical Society toward the expenses of the International Congress of Mathematicians to be held in Boston in 1940. Exception was made in the case of this project because of its importance for the entire field of the natural sciences and for science as a whole.

Mathematics is a discipline which is basic to advance in all of the sciences. It is a field that has no natural source of support, and the mathematical societies have been heavily burdened

financially by unusually high costs of mathematical publication. It is most desirable that the Boston conference be successful, since this is the first time that the United States has formally acted as host to the mathematicians of the world. Furthermore, this is a time when international congresses, particularly when they refer to a wholly noncontroversial discipline and when they are held in peaceful surroundings, have a special significance.

#### GRANTS IN AID

In 1937 the Foundation made 69 grants in aid, ranging from \$350 to \$7,000 and totaling \$171,524, to provide scientific equipment, research supplies, and technical assistance for investigators in the field of the natural sciences engaged in important studies along the lines of Foundation interests. As in the case of the larger contributions for work in this field, the grants in aid were provided chiefly for research in experimental biology. Fourteen of the projects receiving assistance were in the field of biochemistry, 12 were concerned with the application of the techniques of physics and chemistry to biological problems, 11 were in endocrinology, 5 each in biology and physiology, 4 in genetics, 3 each in organic chemistry and embryology, 2

each in biophysical chemistry and mathematics, and 1 each in biomathematics, biophysics, plant physiology, zoology, nutrition, tissue culture, and physical chemistry and cell physiology. An emergency grant was made to the American Documentation Institute of Washington toward development of a Biblioilm Service for the reproduction of scientific and scholarly literature. The grants were distributed among the following 14 countries: United States, 31; England, 9; France, 6; Denmark and Sweden, 5 each; Austria, Canada, Norway, and Switzerland, 2 each; China, Germany, Italy, Poland, and Scotland, 1 each.

### FELLOWSHIPS

In connection with its program in the natural sciences the Foundation provides a limited number of fellowships to give especially qualified young investigators opportunities for advanced training in research. These fellowships are granted almost entirely for work in experimental biology and are awarded to men and women who for the most part have had experience beyond their academic work and who give promise of becoming leaders in their fields. For the support of this fellowship program the Foundation appropriated \$140,000 in 1937. In addition to making direct fellowship grants to individuals the

Foundation contributes to the fellowship program of the National Research Council which provides for training in research in the natural sciences for American and Canadian students working in this country and abroad. A grant for the support of this program during the three years, beginning July 1, 1937, was made in 1936.

During 1937 the Foundation administered 95 fellowships in the natural sciences. Forty-six of these were new appointments, 46 were continued from previous years, and 3 were renewals. Eighteen of the 95 fellowships, held by Americans, were supported with funds provided by the General Education Board, which collaborated with the Foundation in fellowship programs. The remaining 77 fellowships, supported with Foundation funds, went to citizens of 20 countries: the United States, 17; Great Britain, 13; France, 8; Hungary, 6; Poland, 5; Sweden, 4; Denmark, Germany, Switzerland, 3 each; Bulgaria, Netherlands, Spain, Yugoslavia, 2 each; Austria, Belgium, Finland, Greece, Ireland, Italy, and Turkey, 1 each.

Of the total 95 persons holding these fellowships 21 worked in the field of biochemistry, 12 in biophysics, 17 in physiology, 14 in genetics, 8 in experimental embryology, 8 in experimental cytology, 6 in endocrinology, 5 in biomathematics, 2 each in biology, immunochemistry, and

microbiology, and 1 each in organic chemistry, experimental morphology, neurobiology, and experimental anatomy. Six of the fellows worked in more than one field.

The 95 fellows carried on their studies in the following countries: the United States, 47; England, 22; Denmark, 7; Sweden, 6; Germany, 5; Switzerland, 4; Netherlands, 3; Belgium and Scotland, 2 each; Argentina, Canada, and France, 1 each. Six worked in more than one country.

With funds contributed by the Foundation, the National Research Council supported 58 fellows in the natural sciences during 1937. Twenty-nine of these worked in the physical sciences, 27 in the biological sciences, and 2 in the field of geology.



## **THE SOCIAL SCIENCES**

**THE SOCIAL SCIENCES STAFF**  
*During 1937*

**DIRECTOR**  
**EDMUND E. DAY<sup>1</sup>**

**ASSOCIATE DIRECTOR<sup>2</sup>**  
**SYDNOR WALKER**

**ASSISTANT DIRECTORS**  
**TRACY B. KITTREDGE**  
**STACY MAY**  
**JOHN V. VAN SICKLE**

<sup>1</sup> Resigned June 30, 1937.

<sup>2</sup> Acting Director from July 1, 1937.

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## THE SOCIAL SCIENCES

**I**N 1937 The Rockefeller Foundation's program in the social sciences continued to emphasize limited objectives and to concentrate upon areas of special interest. As in 1936 attention was given to three fields—social security, public administration, and international relations—which appear to present opportunities for the direct application of the results of research to problems of immediate social significance. The Foundation in supporting work in these areas has hoped that scientific knowledge might be increased, that public opinion might be clarified through the effective presentation of the results of research, and that techniques for dealing with the practical activities of organization and administration would evolve. More than two-thirds of the money appropriated by the Foundation in the social science field in 1937 was for work in the three programs mentioned above. These funds were apportioned as follows: social security, \$598,275; public administration, \$245,500; international relations, \$508,550; amounting in all to \$1,352,325, out of a total of \$1,962,325 devoted to the social sciences during the year.

The program in social security has as its objective the promotion of research designed (1) to

record current economic changes of a cyclical or structural nature and to analyze their causes and consequences; and (2) to improve the operation and analyze the effects of the devices which modern society (and specifically the United States) adopts to protect the individual from the insecurities incident to modern living.

In the development of the field of social security the larger part of the Foundation's assistance is given to undertakings which record and analyze economic change, i.e., to the universities and research institutes in the United States and a number of European countries which are working intensively upon problems of the business cycle and upon related studies of current economic phenomena. The secondary aim of the program is the analysis and improvement of methods to protect the individual from the consequences of economic instability, and, for the time being, is chiefly concerned with the American situation as it has developed under federal and state security and relief legislation.

The program in public administration of the Foundation is chiefly directed toward bringing about a closer, and more mutually helpful, relationship between practical administrators in the government service and social scientists in the universities. The means employed to advance this end are support of research upon ad-

ministrative problems, support of training of a higher type of personnel for career service in the government, and support of organizations which link the practitioner and research groups in the field of public administration.

The Foundation program in international relations has for several years stated two objectives: (1) the promotion of understanding of world problems among larger sections of the public; and (2) the creation of more competent technical staffs attached to official or governmental bodies which are handling important international matters.

At present the greater part of Foundation effort to promote better international relations is reflected in the support of enterprises concerned with the study of international problems for the purpose of informing and guiding public opinion. Certain organizations, such as the Royal Institute of International Affairs in England and the Foreign Policy Association in the United States, carry on the two functions of study and dissemination with almost equal emphasis. Other organizations are concerned almost entirely with research of basic type and with the building up of personnel able both to carry on research and to give technical advice to official and non-official organizations operating in the field of international affairs. A third group of organiza-

tions, like the International Studies Conference, seek ultimately to guide public opinion and policy, but their immediate programs emphasize research and periodic conferences which are constituted upon a national basis. The opportunity afforded for the direct contact of a number of national groups with one another is perhaps the most significant feature of this third type of international organization.

During 1937 further appropriations were made to universities which under former program had received funds for general research in the social sciences. Also, grants which were in support of general work in the social sciences were made in 1937 to the Social Science Research Council. There follows a description of new activities undertaken by the Foundation in 1937.

### SOCIAL SECURITY

#### NATIONAL INSTITUTE OF ECONOMIC AND SOCIAL RESEARCH OF GREAT BRITAIN

The desirability of establishing a British institute of economic research has been under discussion by English economists for some years past and has resulted in the creation of the National Institute of Economic and Social Research. This Institute came into being upon the initiative of the Halley Stewart Trust; but, in making up the income required to finance the

work of its early years, the Halley Stewart, Pilgrim, and Leverhulme trustees all collaborated, and The Rockefeller Foundation agreed to appropriate to the general budget of the Institute, when incorporated, the sum of \$150,000 over a five-year period beginning approximately January 1, 1938. At a meeting held in London, November 22, 1937, the Institute was successfully launched; Sir Josiah Stamp was appointed president, and Sir William Beveridge, chairman of the organizing subcommittee.

The Institute is independent of all other economic research institutions and serves as an organ for collecting and allocating funds for coordinated research among these institutions. Through the personnel and procedures already established it commands the confidence of academic bodies and the ready cooperation of university teachers and departments in its work. By the scope and character of its program the Institute will keep the continuing support of men of affairs. It must remain free of any suspicion of political association or propaganda to engage in the realistic study of the problems of contemporary society. Its principal functions are to conduct research, to provide assistance and facilities for research to members of university staffs and others working on projects within the Institute's program, to collaborate with foreign

institutes with a view to securing comparative studies of common problems, to publish or to assist in the publication of research, and to seek funds for economic and social research.

#### LONDON AND CAMBRIDGE ECONOMIC SERVICE OF GREAT BRITAIN

The London and Cambridge Economic Service carries on fundamental research into the causes and characteristics of the fluctuations of modern business enterprise, using methods similar to those employed at Harvard, the Institut für Konjunkturforschung at Berlin, and at other official or university centers in a number of European countries. The Service was founded in 1923 by members of the staffs of the economic departments of the University of Cambridge and in the London School of Economics, and had the support of the Harvard Economic Society. A small executive committee controls the Service, which has its office in the London School of Economics. The Chairman is A. M. Carr-Saunders, now director of the School; and Professor A. L. Bowley, statistician, has been editor of the Service since its commencement.

The Service is largely supported from the sales of its publications: a monthly bulletin, a monthly supplement, and occasional special memoranda. The bulletin, relating to the general

business position of the United Kingdom, contains a full selection of statistical series covering the principal fields of economic activity, charts of the more important series, a detailed analysis of the implications of recent statistics, and a brief general summary of the editorial committee's views on the current economic position and immediate prospects. The monthly and quarterly supplements provide statistical series and appreciations of the situation in various European countries. The special memoranda, of which some 44 have appeared to date, range over a wide field, the following titles being illustrative: Stocks of Staple Commodities; Seasonal Variations in Finance, Prices, and Industry; Physical Volume of Production. The Service also publishes a monthly foreign supplement dealing with France, Germany, and (quarterly) with Holland, Italy, Belgium, and Canada. Thus there is provided, in compact and convenient form, a range of statistical information which could otherwise be obtained only by consulting a large number of separate sources. The Service is entirely nonpolitical.

The London and Cambridge Economic Service, which is the oldest institute in Europe in the field of business cycle research, has a program more highly specialized on the technical and descriptive aspects of the business cycle than is

usual in Europe. For this reason, there will be no conflict between the Service and the newly organized National Institute of Economic and Social Research which will be more concerned with long-run problems of fundamental economic analysis.

The Foundation is aiding the project by providing \$15,000 to the London and Cambridge Economic Service for the development of research on problems of the business cycle over a three-year period beginning approximately October 1, 1937. The funds are being used for the salary of a full-time statistical economist and for expenses of publication of bulletins, supplements, and special memoranda.

#### UNIVERSITY OF OXFORD. INSTITUTE OF STATISTICS: BUSINESS CYCLE DEVELOPMENTS

The Foundation has aided Oxford's program in the social sciences since 1934. In response to an application made by a Committee on Social Studies which had been set up in Oxford the year before, a grant of \$130,000 was made by the Foundation toward the establishment of an Institute of Statistics and for the promotion of research in general over a five-year period ending in 1940. In 1937 a further appropriation of \$17,000 was made available for the development of research relating to business cycle develop-

ments in Great Britain. This grant will also terminate in 1940.

The research provided for in the 1937 appropriation of the Foundation centers upon the problem of "trade fluctuations." There will be studies of fluctuations in the attitude of investors and in the demand for investment goods during a trade cycle, measurements of frictions of adjustment of the factors of production and re-employment policy during the cycle. In addition, a group of nine tutors are making a cooperative study of the business cycle in Great Britain since 1924. They have been meeting regularly with business men, spending their vacations in industrial centers, and are now engaged in sifting and analyzing their data. Certain of the research projects will be completed within approximately two years, but additional time is allowed to prepare for publication.

The continued development of the social sciences at Oxford was assured when Lord Nuffield in October 1937, made a magnificent gift of £1,000,000 to the University of Oxford for the building and endowment of a graduate college of social studies. A large tract of land as the site for the new buildings was also given by Lord Nuffield. The studies supported by The Rockefeller Foundation were introductory to the larger development of the social sciences at Oxford.

University which Nuffield College will make possible.

SOCIAL SCIENCE RESEARCH COUNCIL:  
COMMITTEE ON SOCIAL SECURITY

In 1935 \$225,000 was appropriated to the Social Science Research Council for the expenses of a social security committee and staff, and an additional \$110,500 was allocated for special studies. The Foundation provided \$60,000 for the continued work of the Committee through a grant made in 1937 for the two-year period beginning July 1, 1938 and ending June 30, 1940.

Under the Chairmanship of Professor Joseph H. Willits of the University of Pennsylvania an advisory committee of nine was named in the summer of 1935 and Dr. J. Frederick Dewhurst was appointed director of staff. Staff headquarters were set up in Washington in close contact with responsible officials in the Social Security Board, the Federal Emergency Relief Administration, and other official agencies in the field of social security in Washington and in the states.

The evolution of the program of the Committee has been determined by the experimental nature of the undertaking as affected by the uncertain and rapidly changing official policies in the social security program, the interest and

activities of other organizations in this field, and the desirability, wherever possible, of stimulating and promoting research on the part of other organizations rather than directly undertaking such research. During the first year, the primary emphasis was upon exploratory investigations, stimulation and encouragement of research and collaboration with other agencies, service activities, and advice and consultation with government officials and agencies. During the second year members of staff devoted more time to a limited number of important problems upon which major policy decisions may be expected within the next few years. In the course of the two years a considerable task has been accomplished in integrating the field by analyzing and relating its problems.

A supplementary appropriation of \$12,000 was made by the Foundation in 1937 to the Social Science Research Council for its Committee on Social Security to finance a study of the mobility of labor and unemployment over the two-year period beginning November 1, 1937 and ending October 31, 1939.

The Committee is employing Mr. W. S. Woytinsky to study the mobility of labor and unemployment from the point of view of social security legislation. Mr. Woytinsky has completed for the Committee a study of labor under

the existing social security laws which interprets statistics of the labor market having particular importance for the administration and development of legislative action. The new study is closely related to the one completed and is regarded as an essential supplement. Labor turnover has been studied from the point of view of management, and as a problem of personnel technique, but not comprehensively as related to unemployment. The investigation will consist of three parts: turnover of labor; territorial, industrial, and occupational shifting of labor; unemployment. Data will be segregated by states and by geographical divisions in order to meet the practical needs of the Board. The Social Security Board is providing all technical facilities, including office space and clerical assistance.

In 1937 \$30,000 for the use of the Committee on Social Security was appropriated for the completion of a study, initiated in 1936 by the Public Administration Committee of the Social Science Research Council, of state unemployment compensation administration. The grant was made to cover the eighteen-month period July 1, 1937 to December 31, 1938. The project has continued under the direction of Mr. Walter Matscheck of the Public Administration Committee's staff. The accomplishments to date are the publication of detailed studies of the administration of un-

employment compensation in Wisconsin and New Hampshire, and the completion of an intensive study, made at the express request of the Social Security Board, of those phases of unemployment compensation and employment service in Great Britain and Germany that are of particular interest to state administrators in this country.

The most important and the most difficult part of the administration of unemployment compensation is the administration of benefit payments. Twenty-three states start to pay benefits in January 1938; the first six months of such payments will present diverse and crucial administrative problems. The experience in Wisconsin, the only state already making benefit payments, will be interesting to observe and study with a view to early publication of data for the benefit of other states. Field work in 1937 was upon general administration, administration of contribution collections, employee record administration, and state preparations for payment of benefits. It is planned to devote the first six months of 1938 to an intensive field study of actual benefit-paying experience, the development of the federal-state relations, and the growth of unemployment compensation administration as a whole. The Rockefeller Foundation's 1937 grant will permit Mr. Matscheck and

staff to concentrate upon those administrative problems which are involved in the payment of benefits.

#### STATE CHARITIES AID ASSOCIATION

The State Charities Aid Association has a half-century of successful accomplishment in the welfare field to its credit. It is an unofficial, non-partisan, and nonsectarian organization of citizens devoted to improvement of the quality and efficiency of governmental services for health and welfare. Its purposes are accomplished through the cooperation of groups of interested citizens, the widespread dissemination of information to the public regarding health and welfare services, recommendations to local and state legislative bodies, advice to, and constructive criticism of, the public authorities responsible for such services.

In 1937 the sum of \$80,000 was allocated by the Foundation to the State Charities Aid Association toward the expenses of establishing local citizens' public welfare committees in New York State during the three-year period January 1, 1938 to December 31, 1940. The principal functions of these committees will be: to inform themselves regarding the operation of public welfare activities in the county; to keep

the community continuously informed of the facts regarding public relief and welfare; to work for the promotion of high standards in local administration; and to cooperate with the central association of the State Charities Aid Association in the formulation and sponsorship of sound social legislation. To develop these local committees and to provide them with factual information and leadership, the Association proposes to organize a corps of resident regional secretaries, one for each of the districts which has been established by the State Department of Social Welfare for its administrative purposes. Eight secretaries will be required, two for New York City and six for the rest of the state. In addition there will be a chief field supervisor and two assistants, a general director, assistant-director, and publications editor.

The program proposed will attempt to meet the need for informed public opinion in the new, rather chaotic, and enormously expanded field of public welfare. Extensive inquiries among state officials in the public welfare field have revealed unexpected unanimity of opinion regarding the practical values to be expected from the friendly and constructive criticism of public welfare administration which is proposed. The plan promises to give effective emphasis to educational work of constructive character.

**ONTARIO MEDICAL ASSOCIATION: MEDICAL  
RELIEF RECORDS**

Since 1935 the Ontario Medical Association has had a contract with the Provincial Government to provide medical care to the relief population. The amount paid by the government to the Association has varied from time to time, but, since March 1, 1937, a new agreement covering a period of two years calls for a rate of 35 cents per relief recipient throughout the province. In return each relief recipient is entitled to extra-institutional medical treatment, including obstetrical care, with free choice of physicians. Local committees of doctors administer the funds.

In 1937 the Foundation appropriated the sum of \$24,275 to the Ontario Medical Association to enable Essex County to continue research in the development of medical relief records, the grant to be available over a period of 18 months beginning February 1, 1937 and ending July 1, 1938. Essex County adopted a method of direct reporting by doctors on Hollerith cards—a method which reduces paper work, increases the comparability of medical diagnoses, and makes possible the rapid correlation of valuable medical and financial data. Part of the Foundation's grant will be reserved for research and publica-

tion in order that the public at large may have the benefit of the information contained in the records.

The Essex County experiment has attracted wide attention and its methods have been adapted for use in other places. In April 1937 five counties in Ontario adjacent to Essex entered the system and its adoption is under consideration in British Columbia and Nova Scotia. South Dakota has applied the system in the medical care of its relief population; North and South Dakota, Washington State, Florida, and some other states may adapt it in dealing with the resettlement and farm loan families. Chicago is considering its use in the control and treatment of syphilis. Another development has been the adoption by the New York State Medical Society of a resolution to study the system and to present it to the American Medical Association. The results of the experiment to June 1, 1937, were published in a pamphlet entitled, *Medical Relief Administration: The Experience in Essex County, Ontario*.

#### AUSTRIAN INSTITUTE FOR TRADE CYCLE RESEARCH

The Austrian Institute for Trade Cycle Research was established in 1927 and over a ten-

year period played an important role in the economic life of Austria and Central Europe. The Institute carried on successfully the several activities of research, publication, technical services to public authorities, international collaboration, and training. The Foundation provided funds for the research program of the Institute from 1931 until 1938, and research appeared basic to the other activities of the Institute which were largely supported from Austrian sources. Close working arrangements existed with the Ministry of Finance, the Federal Statistical Office, the Austrian Chamber of Commerce, and the Austrian Bankers' Association. Also the Institute housed the secretariat of the Danubian study, set up by the International Studies Conference, and, through its director's membership on the Committee of Statistical Experts, collaborated with the Financial Section of the League of Nations.

In October 1937 the Foundation appropriated \$18,000 to the Austrian Institute for Trade Cycle Research toward its general budget over a three-year period beginning January 1, 1938. At the time when this action was taken the uncertain political situation of Central Europe was commented upon, but the decision was made to continue support, since neither the director nor the work of the Institute was subjected to politi-

cal pressure and accomplishments were satisfactory. The first quarterly payment was made on this grant in January 1938. With the absorption of Austria by Germany in March, the subsequent appointment of the director of the Berlin Business Cycle Institute as the head of the Austrian Institute, the dismissal of a number of the former staff, and the publication in April of the *Monthly Bulletin of the Austrian Institute* making clear the fact of its subordinate position to the Berlin Institute, the Foundation has suspended payments on the appropriation, since it is apparent that the conditions under which the grant was made no longer exist.

#### UNIVERSITY OF SOFIA, BULGARIA: STATISTICAL INSTITUTE OF ECONOMIC RESEARCH

The Institute, modeled upon the Austrian Institute of Trade Cycle Research, is in its third year of operation and the achievements to date are numerous. The activities fall under the headings of: a published review of the current economic situation, research, technical services to public authorities, international collaboration, and training. The review of the current economic situation is published in the *Bulletin Mensuel* of the State Statistical Office which takes joint responsibility with the Institute for the collection of basic statistical data and the accompanying

analysis. Studies of fundamental character are published in Bulgarian and French, German or English, in the Institute's quarterly journal and cover such subjects as the structure of the Bulgarian economy, Bulgarian finances, problems of the business cycle, and statistical method. To date 23 special studies have appeared.

The Institute actively participates in international undertakings. The director, Professor Oskar Anderson, is an associate member of the Committee of Statistical Experts of the League of Nations and has a genuinely international reputation. At the request of the Financial Section of the League, the Institute recently completed a study of the influence of the business cycle on the financial system of Bulgaria. The director also prepared for the League an extensive memorandum on the problem of the construction of an internationally comparable index of production. The Institute is cooperating in the study of economic problems of the Danubian Basin which is now being made under the auspices of the International Studies Conference.

Part of the significance of the program of the Bulgarian Institute lies in the fact that, with really capable scientific direction, it is unique in working upon the problems of a simple agrarian economy. The Institute had been free from official influence and its studies have illuminated important economic and financial problems.

In 1937 the University of Sofia received \$24,000 from the Foundation toward the budget of the Statistical Institute for a three- and one-half-year period beginning July 1, 1938 and ending December 31, 1941. This grant is to be used for salaries of the staff and possibly to provide small sums for foreign publications and travel.

#### LEAGUE OF NATIONS: FINANCIAL SECTION AND ECONOMIC INTELLIGENCE SERVICE

The Financial Section and Economic Intelligence Service of the League of Nations is recognized as an authoritative source of information upon the economic aspect of international affairs. A well-trained technical staff drawn from many countries produces studies of recognized accuracy and objectivity. The Financial Section and the national institutes of economic research now existing in many European countries fortify one another's work, since the national groups borrow heavily from the Section's published and unpublished materials to view their own situations in a world setting, the Section depending upon the national institutes for specific data.

In 1937 the Foundation made a grant of \$98,000 to the Financial Section and Economic Intelligence Service of the League of Nations, for use in the period September 1, 1938 to December 31, 1942, for the promotion of analyti-

cal research work. Since 1929, in addition to this new grant, the Financial Section has been the recipient of four grants, totaling \$305,000, all of which have been devoted toward strengthening the research work which underlies and vitalizes the Section's current studies. Regular publications are the *Monthly Bulletin of Statistics*, the *Annual Review of World Trade*, *Balances of Payments*, the *World Economic Survey*, *World Production and Prices*, and *Money and Banking*. Studies of double taxation, of monetary and banking laws, and of world industrial activity, to mention a few investigations made possible by Foundation funds, have provided a broader scientific base for the above reports. The current Foundation appropriation has been used primarily for an inquiry into the causes of the recurrence of periods of economic depression. All the major theories of the business cycle are analyzed, compared, and to some extent synthesized in a book by Dr. Gottfried von Haberler entitled *Prosperity and Depression*. It embodies the results of an inquiry made with the aid of specialists from seven countries.

NATIONAL BUREAU OF ECONOMIC RESEARCH,  
NEW YORK CITY: FINANCIAL RESEARCH

The sum of \$70,000 was appropriated by the Foundation to the National Bureau of Economic

Research in 1937 for the support of planning and research in the field of finance over the two-year period January 1, 1938 to December 31, 1939.

The proposal grew out of a survey made by the Exploratory Committee on Financial Research appointed by the National Bureau in June 1936, at the request and with the support of the Association of Reserve City Bankers. The National Bureau was asked and agreed to undertake two of the specific studies recommended by the Exploratory Committee: changes in the capital requirements of business, the future of commercial loans, and the demand for short-term capital loans; consumer credit and instalment financing—how they may best be related to our industrial and financial life. The Bureau will participate in this research, but the main functions will be those of stimulation and coordination. A committee made up of 15 to 25 persons who are drawn from the National Bureau, university faculties, governmental agencies, financial and industrial groups, will formulate general policies, determine and direct the general research program, authorize and supervise the financing of specific projects, and review studies in progress and recommend publication. An executive officer of the National Bureau has been appointed as director of research immediately in charge of the committee program and, in addi-

tion, will carry on its own research. A national advisory council consisting of bankers, business men, public and private authorities, appointed by the National Bureau in consultation with the board of trustees of the Association of Reserve City Bankers and other cooperating groups, will advise regarding proposed and going projects and will have the opportunity of examining projects and manuscript and adding dissenting opinions to the published reports.

Industry has long recognized the importance of cooperative effort in research and has spent large sums annually for investigations in the field of pure science. Leaders of the banking profession recognize a corresponding responsibility for the promotion of fundamental research in the financial field, and, to achieve this purpose, the National Bureau expects to bring together, and co-ordinate under independent and competent scientific auspices, leaders of the banking profession, government officials responsible for the regulation of the banking system, and students of banking.

#### PUBLIC ADMINISTRATION

##### HARVARD UNIVERSITY: SCHOOL OF PUBLIC ADMINISTRATION

In 1935 the Foundation appropriated \$66,000 to Harvard toward the support of a program for

public service training during the five-year period July 1, 1935 to June 30, 1940. With the aid of this grant Harvard organized seminars and field supervision for graduate students in the social sciences planning for public service careers. The University offered fellowship funds to support approximately six men annually upon internships in active public service as part of a three-year graduate training program.

In 1936 Harvard was placed in a position to enlarge greatly its work in public administration through gifts totaling \$2,250,000 from Mr. Lucius N. Littauer for the establishment of a Graduate School of Public Administration. A special commission, appointed to draw up plans for the School's operation, recommended that the program be developed through active experimentation over a three-semester period.

During this period, ending in June 1938, it was proposed to explore what contributions in research and training a University could make to public administration. Five research seminars were organized in the following fields: problems of fiscal policy; public aspects of price policy; the administrative process; land use planning and its control and direction; the public relations of governmental agencies. The seminars were placed under the direction of faculty members working in related disciplines. But, in order to provide for

an objective appraisal of what university scholarship might contribute to governmental practice, plans were laid to bring into each seminar, for varying periods of time, consultants who were experienced public administrators. The Foundation was asked to provide the necessary funds for bringing in these outside consultants, and in 1937 it made a grant of \$65,000 for this purpose.

#### INSTITUTE OF PUBLIC ADMINISTRATION: STUDY OF INDEPENDENT REGULATORY COMMISSIONS

The Institute of Public Administration, New York City, which is affiliated with Columbia University, was given \$18,000 in 1937 for a study of the administrative aspects of independent regulatory commissions over a period of one year. In 1931 the Foundation made a grant of \$750,000 toward the endowment of the Institute and prior to that the Foundation and the Laura Spelman Rockefeller Memorial had contributed to its annual operating budget.

The present grant will enable Professor Robert E. Cushman of Cornell University to complete a study upon which he has been working during the past summer and autumn. This study of the administrative aspects of independent regulatory commissions has attracted the attention of scholars of public administration and public law as

a pioneering venture into a relatively unexplored field. In continuing his work Professor Cushman will deal, not with substantive functions, but with administrative organization and operation. In American practice independent regulatory agencies have been created in such large numbers that the responsibility for their administration, with which the Chief Executive is charged, has become an unduly formidable task. Proposals for simplification through placing them within appropriate established departments meet the objection that their independence, particularly in their quasi-judicial functions, would be undesirably curtailed. It is with this general problem that Professor Cushman's study will deal and his outline calls for a detailed examination and analysis of American experience with variant types of regulatory bodies upon federal and state levels, together with some exploration of British and Swedish procedure with comparable agencies.

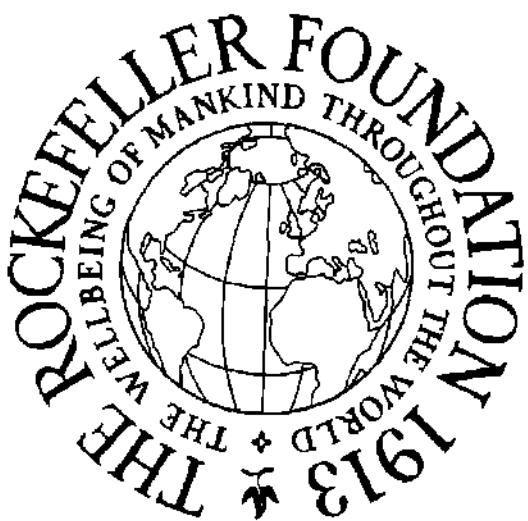
**NATIONAL INSTITUTE OF PUBLIC AFFAIRS:  
TRAINING PROGRAM FOR PUBLIC SERVICE**

The National Institute of Public Affairs, Washington, D.C., is completing the second year of its operation in Washington as a central administrative agency for graduate students looking toward public service careers and wishing to

have practical field experience in one of the federal services as part of their preliminary training. A careful selection of approximately 30 students, from ten times that number of applicants, has been made, and an internship opportunity has been arranged for each student. The Institute has provided close supervision, arranging individual and group educational opportunities to supplement the work experience. The program has proved an important link in the general field of training for public service which the Foundation is forwarding.

The record of the work to date is encouraging. Colleges and universities throughout the country are competing for the assignments, recommending their highest calibre graduates for the available posts. Most of them provide special fellowships to cover the living expenses of successful candidates who may not be able to support themselves. Although the National Institute has made no effort at permanent placement, the interns have received good governmental positions. The program has won the respect and full co-operation of officials throughout the federal departments. Due to the demand on the part of the government agencies for the services of these students it is proposed to accept 40 rather than 30 interns in the coming year.

In 1937 the Foundation supplemented, to the



Photograph Excised Here

Morning lecture hour at the Student Institute on International Problems. Under the sponsorship of the Foreign Policy Association this Leadership Institute was held in 1937 at Mendham, New Jersey.



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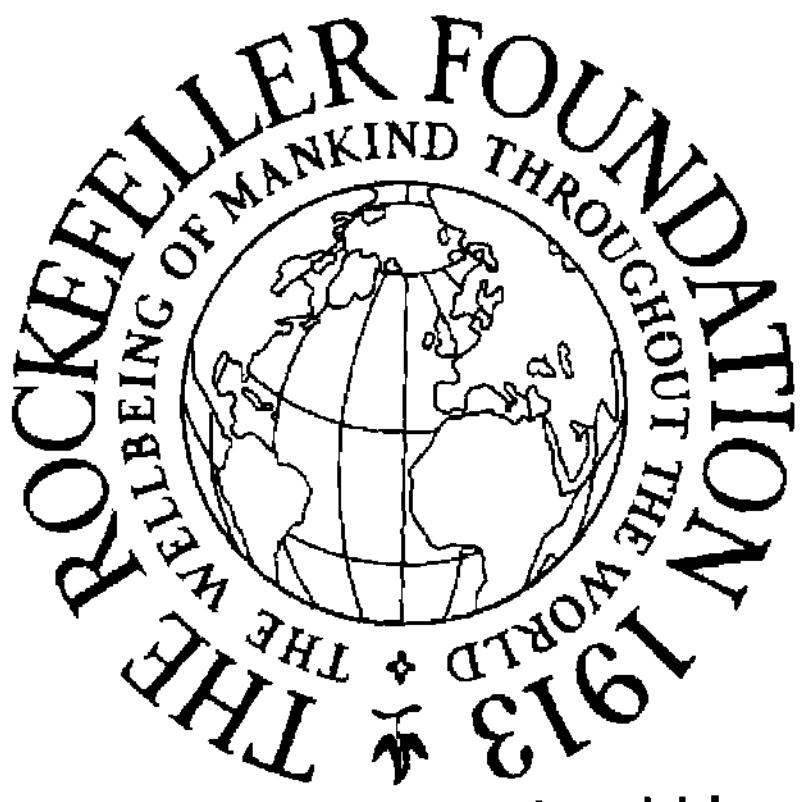
Building of the Faculty of Law, Statistical Institute of Economic Research, University of Sofia, Bulgaria.

extent of \$10,000, its 1935 grant of \$80,000 to the National Institute of Public Affairs for the direction over a three-year period of the programs of graduate students attached to the federal services for practical field experience. The grant permitted expenditures for this purpose to be maintained during the third year at the \$30,000 level found necessary in each of the first two years of the experiment.

#### NATIONAL INSTITUTE OF PUBLIC AFFAIRS: ADMINISTRATIVE PERSONNEL FOR THE INDIAN SERVICE

In 1937 the Foundation also appropriated to the National Institute of Public Affairs the sum of \$54,000 for the expenses of conducting, in behalf of the Office of Indian Affairs, a program of recruitment, internship supervision, and in-service training of administrative personnel for the Indian Service, over a period of three years beginning approximately October 15, 1937.

The Indian Service, in common with all field services of the government, though perhaps to a unique degree, is confronted with a difficult problem in recruiting its administrative personnel. Its upper administrators are responsible for directing activities covering the broad range of Indian work, including education, public health admin-



Photograph Excised Here

Peristyle and Galerie d'Orléans, Palais Royal, Paris, headquarters of the  
Institut International de Coopération Intellectuelle.

istration, land management, credit administration, and general Indian relationships. In the hope of developing a recruitment and training procedure that will improve the quality of the administrative personnel in the Indian Service and other federal field agencies, Commissioner John Collier has worked out a plan which he proposes to subject to critical experimentation in the Navajo and Pueblo areas of the southwest. The plan has the full approval and interest of the Secretaries of Interior and Agriculture and is to be carried out under the supervision of an inter-departmental committee, upon which is represented the Indian Service, the Soil Conservation Service, the Land Office, the Grazing Division, the Farm Security Administration, and the United States Forest Service. The Civil Service Commission also has appointed a representative to keep closely in touch with the project.

Under this plan, from eight to twelve interns are selected each year by the National Institute of Public Affairs from university graduates with training in public administration and with interest in and personal qualifications for Indian service work. These interns, under a specially appointed director of training, are placed at tasks designed to test their abilities, draw out their potentialities, and give them administrative experience in the field. Special facilities are offered

by the University of New Mexico and by other universities in the area, whose staffs will be supplemented by consultants drawn in for limited periods from other institutions. The training facilities thus developed are to be offered also to regular government employees holding administrative posts in the area. At the end of the year, the interns will enter a special competitive examination offered by the Civil Service Commission, where the educational prerequisite will be identical with that required of candidates for internship. Those successful in this examination will be appointed to positions of approximately the \$2,000 grade, with one year's probationary service after appointment. Throughout the probationary year, appointees will continue under educational supervision, and thus "probation" will be given more meaning than it has in most federal services at present.

As an important feature of the experiment, the National Institute and the director of training are charged with keeping careful records to measure the effectiveness of the Civil Service examinations and promotion ratings against actual achievement, and to give some index of the usefulness of pre-entry training programs for government service.

Considerable sums have been appropriated under the public administration program to train

prospective candidates for career posts in public service. The present appropriation represents a direct step on the part of public agencies to recognize such training and to make a special effort to recruit administrative personnel from those so trained.

SOCIAL SCIENCE RESEARCH COUNCIL:  
COMMITTEE ON PUBLIC ADMINISTRATION

In 1937 the Foundation appropriated to the Council for the use of its Committee on Public Administration: (1) up to \$18,000 over a period not to exceed fifteen months, beginning approximately June 1, 1937, for a study and appraisal of the work of agencies engaged in municipal or governmental research; (2) up to \$17,500 over a period not to exceed twelve months, beginning approximately August 1, 1937, for a survey of programs of training in public administration; and (3) up to \$28,000 over a period not to exceed eighteen months, beginning approximately June 1, 1937, for a survey and appraisal of the council-manager form of local government.

These studies are planned as three of a number of contemplated general appraisals of major movements and activities in its field conducted by the Public Administration Committee. As a group they are intended to describe current

status, to define developing trends, and to orient future work into more useful channels.

In 1936 the secretary of the Governmental Research Association listed 56 bureaus of local government research, the preponderant majority of which depended upon private support. In addition he reported 43 agencies of governmental research, working upon a state-wide basis, supported either by citizen contributions or by state universities. Together these research agencies operate upon budgets totaling approximately \$1,000,000 a year.

Those responsible for this movement, which was developed enthusiastically over a span of years as the most hopeful means for improving local government, have become increasingly aware of the need for some reorientation of program. Many of the functions originally performed by research bureaus are now the routine activity of the official, tax-supported research unit, the national functional association of officials, the state league of municipalities, the taxpayers' association, the community fund, the university bureau of administration, and the staff agencies of the League of Women Voters. Hence the officials of the Governmental Research Association have invited an examination of their problem by an outside agency.

The present study is designed to furnish an

objective description of the work of the bureaus, to judge its strengths and weaknesses, and to formulate a reorientation both to meet pressing modern needs and to avoid duplication with the efforts of other agencies.

Few question the necessity of sustained and intelligent citizen interest for the maintenance of good government. If the study aids in defining how that interest can most effectively be focused, and helps to channel usefully the many million dollars spent upon such effort each year, it will have made a very valuable contribution to public administration.

The program of training in public administration is of particular interest to the Foundation which has assisted in the pioneer stages by contributing considerable sums for the support of training programs of different types operating at different levels. The movement is rapidly expanding. A field of operation which only a few years ago was being actively discouraged by American universities is now being rediscovered, and there are at present an impressive number of institutions offering either pre-entry training for those who aspire to governmental positions or post-entry training to those who already occupy them. It is conceivable that as much harm may result from future overemphasis as from past neglect. The study here proposed is planned to

employ the services of a person of recognized competence with experience both in the preparation of educational surveys and in practical administrative service. The task will be to visit training projects of varying types throughout the country, to make careful note of the procedure employed in each place and to develop a record system, which may be continued over a sustained period of years, through which those who have received this specialized education may be followed in their subsequent careers and their records compared with others who have not been exposed to training of this sort. Eventually it should be possible to appraise developments with at least some degree of objectivity.

The council-manager form of government is generally accepted as the most significant American invention in local government. The first city adopted this form of government in 1908. There are now over 450 council-manager cities in this country, a number of which have 20 years or more of experience, and the movement has spread to other countries as well. But surprisingly little has been done by way of determining whether or not reputation is sustained by performance. It is proposed to provide some objective appraisal of accomplishment through an analysis of a selected group of approximately 25 council-manager cities. The study will not deal

exclusively with the business results of council-manager governments, such as efficiency and economy in administration, but will concern itself also with such broad questions as whether this form of government is more or less democratic than others; whether it elicits greater or less citizen interest; what is the level of competence and how much influence is exerted by the city managers who constitute the only professional body of career public servants in general administration in the United States.

The proposed survey and appraisal may serve both as a stimulus to a promising movement and as an aid to those seeking to eliminate weaknesses. Very recently the council-manager plan has been experimented with in county government—a field much in need of reform—and the survey will give attention to this development. It will seek, furthermore, to define criteria of governmental efficiency which lend themselves to objective measurement.

A fourth study, within the same general category, was provided by a Foundation grant of \$35,000 to enable Professor John M. Gaus, under the Committee on Public Administration, to study the administrative organization and methods of the Department of Agriculture. This study, to be conducted over a two-year period commencing February 1938, will be focused upon

the administrative organization and procedure of the United States Department of Agriculture without dealing with the economic or social expediency of particular policies. It is designed as a case study of a number of the most pressing general problems in the field of administration today.

The Department of Agriculture over a great number of years has been, perhaps, the most inventive of American governmental agencies in devising machinery adapted to the task of administering central policy in response to varied local circumstances and needs. The proposed study will examine this machinery and its operation, analyzing the line and staff agencies in Washington, the field organizations and such co-operating bodies as the state colleges, the state extension services and experiment stations, the state departments of agriculture, and the county agents. A review of how the Department administers its scientific work, its personnel policy, its planning functions, its financial program, its enforcement devices, its overhead management, and its important separate bureaus, will be undertaken. The relationships of the Department to other federal agencies, and to civic, commodity, and regional groups will be described. The full cooperation of the Department of Agriculture has been assured.

**INTERNATIONAL RELATIONS****INTERNATIONAL INSTITUTE OF INTELLECTUAL  
COOPERATION: INTERNATIONAL STUDIES  
CONFERENCE**

The International Institute of Intellectual Cooperation is an officially recognized international institution set up by the League of Nations but having an autonomous board of directors. The International Studies Conference was created by the Institute in 1927 as an independent body to carry on a program of research in international relations in which scientific institutions representing many nations were invited to participate. The membership of the International Studies Conference has increased to include five international organizations and 25 national groups. The activities of the Conference are directed toward the strengthening of the national groups, the stimulation of their research, and the coordination of research by the Secretariat of the International Institute of Intellectual Cooperation, acting for the Conference. Since 1927 the Conference has become the chief nonpolitical forum in Europe for the discussion of current international problems. It has contributed much to the growing popular interest in international affairs and to the development of national research and information programs in many coun-

tries. Through appropriations to the International Institute of Intellectual Cooperation, The Rockefeller Foundation has assisted since 1932 in the development of the International Studies Conference. The most recent appropriation was made in 1937 and provided \$100,000 over the two-year period beginning January 1, 1938. The grant is designed to further the research of the national groups, to improve the Conference's mechanism for coordination, and to provide for more effective diffusion of the results of research.

#### INTERNATIONAL INSTITUTE OF INTELLECTUAL COOPERATION: DANUBIAN ECONOMIC STUDIES

The Danubian economic studies represent a pioneer attempt to measure and appraise, on a comparable basis, postwar economic conditions in six countries which constitute an interdependent, although dislocated and nationalistic, area of Europe. Proposed by Danubian economists, the project was incorporated in 1936 into the larger study of Peaceful Change which was being organized by the International Studies Conference under the auspices of the International Institute of Intellectual Cooperation. A Committee of Experts, composed of one representative from each of the six Danubian countries (Austria, Hungary, Czechoslovakia, Rumania, Yugo-

slavia, and Bulgaria), was charged by the International Institute of Intellectual Cooperation with responsibility for planning and supervising a comprehensive investigation of the Danubian economic structure. In June 1937 the Committee was able to report to the International Studies Conference that analyses of prices and foreign trade had been completed and a chronology of economic history prepared by each country. The interest of both statesmen and economists in the early results, the success of the Committee in achieving comparability in the data collected by each country, and the relevance of the project to the 1937 and 1939 meetings of the International Studies Conference indicated the desirability of carrying it further in accordance with the original plan. In 1937 The Rockefeller Foundation appropriated \$25,000 over the three-year period beginning January 1, 1938, in order to bring the studies to a satisfactory conclusion.

#### GENEVA RESEARCH CENTER

The Geneva Research Center as an organization devoted to information and research upon international affairs has for a number of years received aid from the Foundation. The Center originated in 1930 when a group of Americans undertook to develop certain information services

related to international affairs, but it was not until 1935 that the need of making these services of use to various national organizations was recognized. A reorganization was undertaken in 1936, after a thorough survey of organizations in Europe studying international problems, a new director was appointed, and a governing board elected consisting of representatives of the Paris Centre d'Études de Politique Étrangère, the Royal Institute of International Affairs, several coordinating committees of the International Studies Conference, the International Institute of Intellectual Cooperation, and three Americans associated with the League of Nations Secretariat or allied activities in Geneva.

Since this reorganization research activities have expanded; some studies have been undertaken independently and others in collaboration with similar institutions, national and international. In addition to the research program the Center is offering facilities both for the expert who may come to Geneva to carry on a specific research project and for the immature scholar who may desire a period of residence in Geneva for study and experience. During 1937 twelve fellowships were given to men representing nine different countries. As a part of its new program the Center acts as host to conferences of experts and occasionally takes the initiative in bringing

together experts in various fields with appropriate persons in the League of Nations and the International Labor Office. The publications of the Center consist of *Special Studies*, which are published regularly, an informal news letter, and periodic monographs.

The Foundation's contribution to the Geneva Research Center in 1937 amounted to \$43,350 which is to be used for its general budget during the three-year period beginning September 1, 1937 and ending August 31, 1940.

#### NORWEGIAN COMMITTEE FOR INTERNATIONAL STUDIES

The Norwegian Committee for International Studies, organized originally to insure the participation of Norwegian scholars in the work of the International Studies Conference, has become the active leader in a national program of research in international relations. In 1937 there evolved from the *ad hoc* committee of scholars a permanent organization representative of the important Norwegian institutions concerned with the study of international questions. The new Committee proposes to encourage research with a view to popular education; the results of research to be presented to the public in a bi-weekly periodical, a series of special studies, and a certain number of books. Norwegian or-

ganizations are cooperating in the distribution of the Committee's publications to study groups, secondary school teachers, trade unions, and co-operatives. The Norwegian Committee is important not only because it is an organization which achieves national coordination of research in international relations, but because it provides for Norwegian participation in inter-Scandinavian activities in the field. The Committee has arranged for informal collaboration with similar organizations in Denmark and Sweden in order to provide for exchange of publications and to avoid duplication of effort. The Committee's activities are supported in part by an appropriation from the Foundation of \$25,000 (90,000 kroner), available over a three-year period beginning October 1, 1937.

#### ROYAL INSTITUTE OF INTERNATIONAL AFFAIRS: GENERAL PROGRAM

The Royal Institute of International Affairs is preeminent among national centers for study and research upon international affairs. It exists to encourage and to facilitate the study of international questions, and to promote the exchange of information and thought on current world problems. Through the development of the study group method of research, persons in political

life, in business, and in Empire service are brought into contact with research workers and specialists. In addition to research carried on by study groups and in the form of individual projects, the Institute has a varied program for disseminating the results of its studies and investigations. There are several publications, a library with unusual resources, an information service and a program of meetings for all members. The Institute is not only a center for international study in England, but through several branches in the dominions has a coordinating influence throughout the British Empire. The membership in Great Britain is 2,500.

Since 1932 the Royal Institute of International Affairs has received support from the Foundation for its program of research. In 1937 a new grant of \$200,000 was made toward the Institute's general expenses over the five-year period, July 1, 1937 to June 30, 1942.

#### ROYAL INSTITUTE OF INTERNATIONAL AFFAIRS: SURVEY OF REFUGEE PROBLEM

There are now in the world about 1,500,000 persons who do not belong to any nation. This situation is a result of the World War, the Russian revolution, and various other political changes which have taken place in Europe. The

principal groups concerned are: Russian refugees, Armenian refugees without Turkish citizenship under the Kemal Government, groups in the Baltic border states of Russia who, for one reason or another, have not acquired nationality in those countries, former citizens of Austria-Hungary who have not obtained citizenship in the Succession States, Italian refugees, German refugees, and, more recently, Austrian and Spanish refugees.

The 1,500,000 present-day refugees are distributed throughout all the European countries and in some American and Asiatic countries. They are deprived of the protection of consular representatives; their ability to move from country to country is limited; in some countries they suffer disqualifications before the courts and in their rights of inheritance and in their domestic relations; they have difficulty in obtaining work and in practicing a profession. Legislation applying to this class of persons existed even before the war in a small number of countries. The refugee's legal status has, however, never been carefully defined and the present economic position is distressing.

No full scientific survey has been made of the refugee problem, although certain aspects of the question have been, or are being, studied. At Chatham House a group under the direction of

Sir John Hope Simpson is seeking to unite available materials into a well-rounded piece of work. In 1937 the Foundation made an appropriation of \$30,000 for use over the period June 15, 1937 to December 31, 1938, toward the expenses of this survey of the refugee problem undertaken by the Royal Institute of International Affairs.

**ROYAL INSTITUTE OF INTERNATIONAL AFFAIRS:  
STUDY OF UPPER SILESIA**

A special project which the Royal Institute of International Affairs has recently sponsored is a series of studies on the working of the territorial provisions of the Treaty of Versailles. The Foundation appropriated \$10,200 for use over a two-year period for a study of the working of the Geneva Convention in Upper Silesia, one of this series. The Institute plans to utilize the experience of an individual who is uniquely qualified to record the actual working of the Geneva Convention and to evaluate this experience for possible future guidance. The study will, it is believed, be an important contribution to knowledge of the working of an experiment in international administration.

In 1937 the Foundation also contributed through a grant in aid of \$5,000 to Yale University toward the expenses of a study of mixed arbitral tribunals created by the Treaty of Ver-

sailles and associated peace treaties, to be undertaken by the man who was for ten years German agent before the mixed arbitral tribunals of Germany with France, with Rumania, and with Greece. The two studies will supplement each other in reviewing the situation in Upper Silesia from 1919 to 1922, during the period of the Allied occupation and the functioning of the Plebiscite Commission. Thus a complete history of one of the most complicated provisions of the Versailles Peace Settlement should be placed on record and made available for all time.

FOREIGN POLICY ASSOCIATION:  
DEPARTMENT OF POPULAR EDUCATION

Since January 1933 the Research Department of the Foreign Policy Association has received \$25,000 each year from the Foundation for its general program. Additional appropriations were made to further an experiment in popular education during the calendar years 1936 and 1937. This experiment has met with such outstanding success that in 1937 support at the rate of \$25,000 annually for the next three years was voted by the trustees of the Foundation.

The Foreign Policy Association undertook in 1935 to prepare and distribute elementary material in the field of international affairs and to encourage discussion of such material among per-

sons and groups for whom existing publications seemed unsuitable. Two years' experience has demonstrated the large possibilities of such a program of popular education. Complicated international issues have been presented in simple readable form and with accuracy in the series known as "Headline Books." From educational and labor groups, national organizations of various types interested in international relations, public and private schools, forums, and women's clubs, the demand for the "Headline Books" and for supplementary material has been enthusiastic and widespread. The question of the practicality of the experiment seems definitely answered. Distribution through noncommercial channels has been far more effective than was anticipated. Analysis shows that, of 310,000 copies, members and subscribers of the Foreign Policy Association account for 130,000; social organizations and clubs, 105,000; schools, libraries, bookstores, and study groups, 65,000; and miscellaneous sales to individuals, 10,000. Thousands in study groups in all parts of the country have made "Headline Books" the basis of discussion and study.

The Foreign Policy Association has sponsored the "Headline Books" and related activities, but the program of popular education is increasingly an independent undertaking. An editorial board is being organized with representatives of the

National Peace Conference, the fields of progressive and adult education, clubs, and forums. An arrangement has been concluded with the Conference to publish the series known as the "World Affairs Pamphlets" and to provide other material needed by member organizations of the Conference. With the assistance of these 40 member organizations a number of distribution centers and regional offices to promote the sale and use of publications should develop. In addition to these activities the Foreign Policy Association plans to explore new forms and techniques for background material and discussion outlines and to experiment also with visual education.

## GENERAL

### GRANTS IN AID

Grants in aid in the social sciences to persons and institutions are made directly by the Foundation and also through the Social Science Research Council. The majority of those awarded by the Foundation are limited to the fields of concentration of the social science program. In 1937 a total of 20 such grants in aid were made in the New York and Paris offices. The grants ranged in amount from \$400 to \$7,500 and were for purposes illustrated by the following examples:

\$7,500 to the International Student Service to undertake special research programs by its international secretariat in Geneva, through the appointment of a research secretary, by provision of expenses for travel, publications, etc. The grant is to take effect January 1, 1938 for approximately two years.

\$400 to Professor Harvey C. Mansfield of Yale University for a study of the functions of the Comptroller General of the United States for six months from approximately July 1, 1937.

\$2,000 to Professor N. F. Hall for a study of the financial consequences involved in the administration of social insurance funds in London, over a period of one year beginning January 1, 1937.

\$500 to the University of Toronto to finance in part an exploratory study of the Alberta Social Credit Experiment to be made by Professor V. F. Coe under the direction of a Committee of the Department of Political Science of the University of Toronto.

Approximately \$57,000 was appropriated for the 20 grants. The greater part of this amount was used for work in European institutions.

In addition to the awards made under the regular social science grants in aid fund, seven actions were taken under funds set up for specific purposes. Four of these grants, totaling about \$5,000, came from a special fund for implementing the International Studies Conference of 1937, which was described in the 1936 Annual Report. The three remaining grants, amounting to \$2,000, were appropriated from a

fund made available in 1935 for the liquidation of old program in the social sciences. These funds are now exhausted and no similar grants will be likely in the future.

In December 1937 \$60,000 was allocated for grants in aid in the social sciences to be used in both the New York and Paris offices of the Foundation during the year 1938.

During 1937 the Committee on Grants in Aid of the Social Science Research Council made 44 awards totaling \$24,010 from funds provided by The Rockefeller Foundation. The Council's annual report contains details of all awards as grants in aid. The Foundation made a new grant of \$25,000 in 1937 to permit the Council to continue this program.

## FELLOWSHIPS

The social science fellowship program included 75 fellowships under the direct administration of the Foundation during 1937. Only 24 of this number were new appointments in 1937; six were reappointments. The remainder were fellowships continuing from preceding years in which the appointments were originally made. Data concerning the 30 fellows of the first two groups follow:

<i>Subject of Study</i>	<i>No. of Fellows</i>	<i>Country of Origin</i>	<i>No. of Fellows</i>	<i>Country of Study</i>	<i>No. of Fellows</i>
Social Security....	12	United States.....	8	United States.....	16
International Relations.....	8	Bulgaria.....	4	England.....	5
Economics.....	6	England.....	4	Far Eastern countries.....	3
Public Administration.....	3	Mexico.....	3	Various centers...	1
Sociology.....	1	Norway.....	2	Bulgaria.....	1
		Australia.....	1	Germany.....	1
		Denmark.....	1	Netherlands.....	1
		France.....	1	Norway.....	1
		Germany.....	1	Switzerland.....	1
		Greece.....	1		
		Poland.....	1		
		Switzerland.....	1		
		League of Nations.	2		

Provision was made for fellowships in the social sciences to be allocated in 1938, \$125,000 being appropriated by the Foundation for use by both the New York and Paris offices. The Social Science Research Council likewise was the recipient of the sum of \$225,000 for research fellowships in the social sciences to be allocated during the three-year period 1938-1941.

The funds provided the Social Science Research Council by the Foundation enabled that organization to make twelve new appointments in 1937. Eleven fellowships carried over from previous years bring the total to 23 Council fellows active in 1937. With the exception of one Canadian, all the fellows were citizens of the United States. Listed below are the particular fields of study chosen and the countries in which these studies were carried out:

<i>Subject of Study</i>	<i>No. of Fellows</i>	<i>Country of Study</i>	<i>No. of Fellows</i>
Anthropology.....	3	England.....	12
Economics.....	7	Africa (Mombasa and Cape- town).....	2
History.....	5	Haiti.....	1
Political Science.....	3	The Balkan States.....	1
Psychology.....	2	Central America.....	1
Sociology.....	3	United States.....	6

The following tabulation summarizes new fellowship appointments in the social sciences made by The Rockefeller Foundation and the Social Science Research Council from 1924 to 1937 inclusive:

	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
Rockefeller Foundation	16	24	44	48	45	43	44	73	60	44	53	35	22	24
Social Science Research Council	..	15	12	17	17	25	28	25	30	15	13	13	19	12
Totals.....	16	39	56	65	62	68	72	98	90	59	66	48	41	36

## PURDUE UNIVERSITY

In January 1937 the Foundation made a grant of \$90,000 to Purdue University to enable it to continue and develop an experimental project which had been inaugurated there in the field of low-cost housing. Although the Foundation had not adopted a formal program in this field, it was felt that the goal of providing more nearly adequate housing for the great masses of the population was of major importance. Further, it was believed that high costs of building was one of the factors retarding both the improve-

ment of housing facilities available to low income groups and recovery in an important branch of the durable goods market. It was felt that a useful contribution might be made by a research group commanding the broad technical competencies available in a large university and with the university's complete freedom to reach and publish objective conclusions.

Purdue, in applying for Foundation aid, presented evidence of a previous interest in this field and of facilities, particularly upon the engineering and technical sides, for carrying forward a program of research. It had acquired in 1935 a tract of 143 acres to be used as a housing research campus, and had developed the tract with roads and necessary utilities. Six experimental houses of varying types had been constructed. The general plan of research placed emphasis upon exploration of materials, equipment, and construction methods giving promise of reducing the cost of adequate dwelling units.

The Foundation's grant was made available over a one-year period, the University undertaking to demonstrate within that time its competence to develop a program that promised to make important contributions to the field. During the year three projects were carried forward: a comparative study of the costs of building, to a common plan, two houses, one by a prefabri-

cated technique and the other of conventional materials and construction methods; a survey of the potential study of plywood; a laboratory study of the insulating qualities of prefabricated plywood panels.

#### FORMER PROGRAM

##### LELAND STANFORD, JR., UNIVERSITY

An appropriation of \$45,000 was made available in 1937 to Leland Stanford, Jr., University over the three-year period beginning September 1, 1937. The termination of this grant will mark the withdrawal of Foundation support from the Stanford program of general research in the social sciences. Assisted since 1927 by Laura Spelman Rockefeller Memorial and Rockefeller Foundation funds, the Council of Research in the Social Sciences has developed a program of national as well as regional importance. Many projects have been undertaken; among the most important are studies of the Russian and German revolutions; revision of the Binet-Simon tests; formulation of interest tests for use in vocational guidance; analysis of the Law of Domestic Relations; and studies of race relations in California.

##### UNIVERSITY OF TEXAS

The University of Texas has received a final grant of \$30,000 over a three-year period begin-

ning September 1, 1937. This grant terminates Foundation assistance to the University's general program of social science research, which has been supported since 1927. The research work at the University of Texas has been concentrated upon problems of particular significance for Texas and the Southwest. These problems have been approached from many points of view; the sociologist, the educator, the anthropologist, the economist, the political scientist, and the historian have cooperated in the study of regional conditions. The University's location, the strength of its faculty, and the wealth of archive material in its library have contributed to the success of an important program.

#### UNIVERSITY OF STOCKHOLM: SOCIAL SCIENCE INSTITUTE

The sum of \$10,000 was appropriated to the University of Stockholm in 1937 toward translation and publication expenses of the Social Science Institute. With the assistance of Laura Spelman Rockefeller Memorial and Rockefeller Foundation funds, the Institute has conducted important research since 1926 on costs of living, wages and prices, trends in population, industrialization, national income, and migration movements. Several of the investigations reached

larger proportions and entailed greater costs than were anticipated; as a result, the Institute lacked funds to complete the publication program. Foundation assistance provided for the translation into English of several volumes and the publication of important maps, tables, and diagrams. The publication of a four-volume study on internal migration in Sweden will bring to an end Foundation support of the Institute's general program of research.

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# **THE HUMANITIES**

## THE HUMANITIES STAFF

*During 1937*

DIRECTOR

DAVID H. STEVENS

ASSISTANT DIRECTORS

JOHN MARSHALL

IRVING A. LEONARD

## THE HUMANITIES

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## THE HUMANITIES

DURING 1937 the work of The Rockefeller Foundation in the humanities had two closely related purposes: one was to broaden the area of public appreciation through arts that are common in daily life; the other was to advance the free interchange of ideas among nations by making their cultural resources more readily available to all. Both scholarship and skills are involved in these processes, and society as well as the individual is concerned with the outcome. Through drama, film, and radio the Foundation is actively assisting in the development of public appreciation. Individual and group education is also aided through grants to museums for experimental exhibitions. Work with libraries is chiefly of international character and is concerned with projects aiming to promote the exchange of bibliographical and source material.

Work in drama, the most inclusive of all the arts, gives the Foundation an admirable means of widening the area of public appreciation. The demand for dramatic experience is steadily increasing in American schools, colleges, and communities. This popularity of drama as a means of self-expression and of group activity provides an excellent opportunity to assist various agencies in securing plays of good quality and in produc-

ing them under competent direction. The aim of the Foundation is to strengthen regional centers of far-reaching influence in these services, and to encourage the creation of a dramatic literature revealing the customs and traditions of our diverse regions and social groups.

In broadcasting, the Foundation's primary purpose is to assist in efforts to explore and realize the possibilities radio offers beyond mere entertainment. Of radio's present influence there can be no question. But how is that influence to be utilized most effectively for the common good? American broadcasters readily acknowledge the responsibilities implied by their franchise to use radio in the public interest, convenience, and necessity. Scholars and educators increasingly are recognizing their obligation to share in these responsibilities. The Foundation's part is to assist those directly concerned in bettering their common understanding of the task. Toward that end, it has attempted to increase practical knowledge of the educational and cultural possibilities of broadcasting.

In the case of motion pictures, the Foundation's purposes are much the same. Here is an equally influential medium whose educational and cultural possibilities are in large measure still to be realized in the United States. Clearly its educational and cultural uses are the joint

responsibility of producers, scholars, and educators. A common understanding of the task is again essential.

An important international phase of the Foundation's work in the humanities is the improvement of American understanding of the Far East and the advancement of cultural relations among the countries of the Americas. Thus far the work with Latin America is restricted to the production of radio programs and to exploratory studies. These studies are showing the possibilities for exchange of radio programs, for a greater use of archives and libraries, and for improvement in teaching of languages.

In the Far East the purposes of the program are more clearly defined and further advanced. A major one is to give American institutions direct access to the source materials of Far Eastern cultures. This can be accomplished only by an evolutionary process that begins with thorough training in the use of such languages as Russian, Chinese, and Japanese. The Foundation has cooperated with other agencies in the preparation of men to be teachers and interpreters of these languages in American universities. A by-product has been the production of much needed textbooks in Far Eastern languages. As for the teaching of English, a small committee of British, Chinese, and American scholars has made

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a unique contribution by simplifying the labor of Chinese students in making this their second language.

## DRAMA

### LELAND STANFORD, JR., UNIVERSITY: SCHOOL OF SPEECH AND DRAMA

A year ago the Foundation had a small share in the financing of the Stanford University theatre, erected by the University and its students as a memorial to those men lost in the World War. That Stanford should have chosen a theatre as its memorial is a sign of the growing interest in drama at American universities. Nowhere perhaps has that interest been more spontaneous and significant than at Stanford.

To advance the plans for effective use of the new building, in 1937 the Foundation made a grant of \$22,500 to be applied over a three-year period toward developing the work of the School of Speech and Drama, particularly through strengthening the programs of the summer quarter. Additional funds for temporary appointments to the staff during the summer sessions will bring the practical courses in dramatic composition and production into proper relation with those in dramatic literature, esthetics, music, and art. This will make possible a type of training more adequately preparing teachers

in secondary schools and colleges to serve present-day needs for instruction in the language arts. To this end programs in drama leading to the granting of a master's degree in English and public speaking have been developed in cooperation with the school of education and the department of English.

#### UNIVERSITY OF NORTH CAROLINA: CREATIVE DRAMA

A center of work in creative drama that the Foundation has assisted since 1933 is the department under the direction of Professor Koch at the University of North Carolina. Grants totaling \$39,000 made by the Foundation have enabled this department to expand its activities, and to realize more fully the values created through steady development under his guidance. The grant of the Foundation in 1937 provided \$22,000 to be expended for further expansion of the work over a period of four years.

An outstanding feature of this department's work has been the organization of the Carolina Playmakers, a group especially interested in the production of folk plays. These have been written, directed, and performed by students and graduates of the University in their courses and experimental productions; many have been pro-

duced professionally and given commercial publication. During the season 1935-1936 nearly 30,000 people attended performances staged by the Playmakers at the University or on their extended tours. These audiences gave both writers and directors the benefit of direct criticism and judgment of their craftsmanship, thus contributing an important element in the creative process of playmaking.

In 1936 the University established a regular department of dramatic art with an enlarged staff, and organized its methods of work toward higher degrees in cooperation with related departments. The ultimate aim has been to extend the influence of creative theatre and native drama throughout the state and country by working along two specific lines: the cultivation of a deeper and wider appreciation of the art of the theatre; and the competent preparation of mature students as teachers and directors of dramatic art in schools, colleges, and communities.

From many states and from foreign countries students have come to take advantage of the facilities provided by the University. Extension courses have been inaugurated in seven centers, with 150 teachers enrolled; these, and summer sessions dealing with the teaching of drama in high schools, which now offer credit courses in

this subject approved by the State Department of Education, have become a part of the cultural and educational life of the state. At Chapel Hill the Carolina Dramatic Association holds annual dramatic festivals in which actors and playwrights compete in presenting plays, many of them original scripts dealing with the traditions and customs of the southern regions.

For a number of years the community work of the University's former students and staff members has been an important factor in the life not only of North Carolina but also of other states where these students, playwrights, teachers, and directors carry on the tradition of their university work. One example of the special forms of community activity to which this work contributed in 1937 was the presentation of Paul Green's pageant, *The Lost Colony*, in which musicians, professional actors of the Federal Theatre, the Carolina Playmakers, and the residents of the community cooperated during the celebration in the summer of the 350th anniversary of the settlement of Roanoke Island. Another was the production of *A Century of Culture*, an historical pageant and masque commemorating the centennial of public education in North Carolina, presented at Duke University stadium in April, under the auspices of the North Carolina Education Association. Professor Koch collabo-

rated with students and teachers throughout the state in the writing, acting, and producing of this unique and ambitious experiment in historical pageantry.

**VASSAR COLLEGE: SUMMER INSTITUTE FOR  
DIRECTORS AND LEADERS IN FEDERAL  
THEATRE PROJECTS**

For a period of six weeks beginning June 21, 1937, Vassar College opened its experimental theatre, its laboratories, art galleries, and library, to 44 participants in a summer institute for regional and state directors of the Federal Theatre. The director of the institute was Mrs. Hallie Flanagan, a member of the Vassar faculty and national director of the Federal Theatre program. The purposes of the session were intensive study and experimentation in modern theatre practice, with lectures, discussion, and regular courses in theatrical techniques. The expenses were met in part by a grant of \$10,500 from the Foundation to Vassar College, which acted as a disbursing agency and also furnished its accommodations to the participants at nominal cost. Those invited were persons holding important positions in the Federal Theatre in all sections of the country. They were released, with salary, from their regular duties, the Founda-

tion's grant being used in large part for scholarships to meet their transportation and living expenses while in attendance.

Commenting on the composition of the group attending the Institute, the director said: "They represent a fair cross-section of the project, cutting through all lines—geographic, racial, religious, political, and educational. . . . Here are dancers, actors, musicians, vaudevillians; here are directors of the white theatre in Seattle, the Negro theatre in Chicago, the Cuban company in Tampa, and other directors from Detroit, Cincinnati, Los Angeles, Portland, Miami, Bridgeport, Des Moines, Denver, Hartford, and Boston." Many members had been trained in university schools of drama and all had had practical experience in either academic or professional theatres. As a culmination of their work the group presented a full-length play that since has had New York production. The active participation of all in conferences, however, was the most significant value in the summer's experience; these leaders returned to their assignments with an understanding of the entire program of the Federal Theatre and of the methods that had proved most effective in serving audiences in a wide variety of situations involving the use of every contemporary medium of dramatic entertainment.

## LIBRARIES AND MUSEUMS

### AMERICAN LIBRARY ASSOCIATION: MICROPHOTOGRAPHY AT THE PARIS EXPOSITION AND IN ENGLAND

Within the past few years pioneering inventors have evolved, through the use of microphotography and related processes, an economical system for duplicating, storing, and displaying the printed page. Manuscripts, charts, and all materials in flat surface are equally adaptable to preservation and secondary use on film, with the consequence that libraries are particularly interested in the possibilities of microphotography for a wide variety of services.

In fact, many uses in library or archival work are now well established in this country. Our new National Archives are to exist for users largely in film stock rather than on print paper. Increasingly newspaper publishers are using film to preserve their back files, and libraries are discarding newsprint for film reproductions of original issues. Equipment is being perfected, new applications of the microphotographic process are being found possible, and experimentation constantly goes forward.

To promote knowledge of the uses of microphotography, in 1936 the Foundation made a grant to the University of Chicago for a laboratory of microphotography. This laboratory has

the functions of production and demonstration, as well as of experiment in film service for the benefit of libraries and research workers. The installation will meet the needs of the University for this method of library material reproduction and likewise the demands of the members of the American Library Association for demonstration and training in the use of equipment. During 1937 the Foundation made an appropriation of \$16,000, this time directly to the American Library Association, to provide and equip a staff for a demonstration of the possibilities of microphotography at the Paris Exposition during the summer and autumn. Adequate exhibition space was provided in the Trocadero building, and arrangements were made whereby the Bibliothèque Nationale and the Committee on Intellectual Cooperation of the League of Nations furnished without charge materials for copying. This exhibit attracted the attention of librarians, scholars, and other visitors at the Fair from various countries. The demonstration not only provided effective publicity for the new technique, but by concentrating operations on files of rare French newspapers of the Revolutionary period, the working staff accumulated a valuable collection of films of eighteenth century sheets which are fast yellowing into brittle decay. In addition to its exhibition value, this project therefore bene-

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fitted libraries here and abroad that will have these film copies for constant reference or use by scholars.

#### BUFFALO MUSEUM OF SCIENCE: TRAINING MUSEUM PERSONNEL

During 1937 the Foundation added a third institution to those which it has aided in training museum personnel by providing opportunities for them to acquire experience in the application of new techniques of visual presentation. In 1935 appropriations for projects of this type were made to the Brooklyn Museum and to the New York Museum of Science and Industry. This year's grant provides \$50,000 to be expended by the Buffalo Museum of Science during a period of three years for experimental training of museum workers.

The Museum in Buffalo has developed its exhibition technique particularly with a view to the vivid illustration of ideas rather than to the display of a multitude of objects. Its president comments as follows on the scheme of presentation:

What we are doing is to try to write and illustrate the whole fascinating story of modern science in our document—our Museum—chapter by chapter, in our various exhibit halls, each exhibit leading naturally into the next, and each forming a part of a logical whole. We start the story with an account of the essential unity of different forms of mat-

ter, and conclude it with a demonstration of the final goal of civilization, the essential unity of mankind in our inter-dependent complex of modern life.

The extension and reorganization of the Museum's material along these lines afforded an unusual chance for workers to gain direct acquaintance with certain rather unusual features of museum work. For several years this institution has offered courses for the personnel of other museums, to which they returned after completing their studies. Recently, a shortage of funds has prevented the carrying on of this plan. Since October 1, 1937 the Foundation's grant has enabled the Buffalo Museum to provide internships for seven such workers. These interns worked in groups, three specializing in anthropology and two each in the physical and biological sciences. While this specialization was maintained throughout the year, each of the interns shared in the preparation of exhibits in the other fields and participated in general instruction in the theory and techniques of organizing museum material. These included details of special labeling, and the making of charts, working models, and dioramas, as well as the practical application of methods of articulating the educational work with that of the city school system. Arrangements were made for the interns to visit other selected museums in the United States

where outstanding work is being done in developing new and better methods of exhibition.

#### NATIONAL CENTRAL LIBRARY: BUREAU OF AMERICAN BIBLIOGRAPHY

It has not always been easy for scholars in Great Britain or on the Continent to obtain access to American books and periodicals. As a step toward discovery of new works and the interchange of printed materials across national boundaries, the Foundation in 1937 made a grant of \$22,000 to the National Central Library, London, for the establishment of a Bureau of American Bibliography to be housed in quarters provided by the Library. This grant to a British center furthers the bibliographical service that has been given to national libraries of Europe and of the Far East under aid from the Foundation.

The National Central Library is the center of all library cooperation in Great Britain. It lends nonfiction books throughout the kingdom and on the Continent, but its primary purpose is to expedite location and loan of books within Great Britain. Its usefulness is becoming generally known among scholars, students, and by the general public, all of whom can reach its union catalogues through their local or regional agencies. It is directly affiliated with 165 branch libraries

possessing over 6,500,000 volumes and files of periodicals, and it maintains master card catalogues of library holdings of all centers of importance. At the end of 1936 the approximate number of books available through the National Central Library, apart from those which might be obtained from foreign libraries, totaled nearly 21,000,000.

Up to the present time the library has not been in a position to include American books among those which its facilities make available. Librarians and scholars have for years recognized a distinct handicap in the lack of this material. The new Bureau of American Bibliography will possess all the most important American reference books and bibliographies and will be in charge of a full-time assistant with special knowledge of American materials. Perhaps the Bureau's most important contribution to scholarship will result from the acquisition of a complete set of Library of Congress catalogue cards. This accession will increase the Library's bibliographical resources by some 1,500,000 cards, with annual additions of approximately 50,000 titles. London will thus become the source of immediate information on all new books produced in the United States or catalogued by the Library of Congress. The description of older material in print and listing by indicators under subject

headings will put into general use the Library of Congress devices for finding old as well as new materials in print.

Following its practice of free service to comparable national libraries by exchange of card catalogues and bibliographical material, the Library of Congress is contributing the annual continuations to the base stock of cards forwarded to the National Central Library as a result of the present action. The Foundation's grant is being used to provide for expenses of withdrawing and arranging the set, for filing cabinets and equipment, for building up the initial stock of American reference books and bibliographies, and, during a five-year period, for adding to this collection and providing the salary of the assistant in charge of the bureau.

#### RADIO AND FILMS

##### MUSEUM OF MODERN ART. FILM LIBRARY: REPLACEMENT OF MOTION PICTURE FILMS DESTROYED BY FIRE

To the Museum of Modern Art the Foundation in 1937 contributed \$20,000 toward the expenses of replacing in its Film Library a large stock of films that were destroyed by fire during that summer. In 1935 the Foundation had granted the Museum \$120,000 to be used during a period of three years toward the cost of establishing a

department of motion pictures. Here films of all countries which are regarded as significant in the development of the motion picture were assembled and copied for noncommercial uses. Over 600,000 feet of these films were stored in a vault which was destroyed by an explosion and fire in July. Fortunately, little irreplaceable material was destroyed; but in order to avoid seriously hampering the Library's activities, it was necessary to replace much that was lost. The Foundation assumed about one-third of the expenses of the replacement, the other two-thirds being contributed from other sources. The inception and development of the Film Library have been described in the Foundation's reports for 1935 and 1936.

#### NATIONAL MUSIC LEAGUE: STUDY OF RADIO'S SERVICE IN THE FIELD OF MUSIC

A grant of \$14,000 was made during 1937 to enable the National Music League to undertake a study of the musical interests of radio listeners. The musical tastes of the American public, which for the most part hears music only over the radio, depends to a considerable degree on what music radio offers. The present study was undertaken in the hope of discovering ways in which radio might serve still further to extend public appreciation of music.

Arrangements were made by the Music League for broadcasting a series of concerts, under the title "Music and You," over Station WOR and affiliated stations of the Mutual Broadcasting System at a regular evening hour over a period of 13 weeks. The response of listeners to these programs was studied through questionnaires, telephone inquiries, and subsequent personal interviews with listeners. The National Music League has not yet issued its report of this study, but the data collected and the basic conclusions to be drawn from it should be of interest to broadcasters and to others concerned with discovering how radio can serve to develop in this country a larger and more discriminating audience for music.

#### PAN AMERICAN UNION: LATIN-AMERICAN RADIO BROADCASTS

During 1937 the Foundation contributed \$12,820 toward financing a series of experimental short-wave broadcasts to Latin America initiated by the Pan American Union and produced in collaboration with the World Wide Broadcasting Foundation over short-wave station W1XAL at Boston, Massachusetts. Sponsorship of this plan by the Pan American Union reflects the attitude of the Seventh International Conference of American States at Montevideo in 1933 and of

the Inter-American Conference for the Maintenance of Peace, at Buenos Aires in 1936. Both conferences recommended the presentation of inter-American radio programs whereby the activity of each country in the cultural, economic, and social fields could be brought to the attention of radio listeners in all the other Latin-American republics.

The series sponsored by the Pan American Union opened on October 15, and similar programs have been presented over Station W1XAL every Friday evening at nine o'clock. These programs ordinarily include talks in Spanish, Portuguese, occasionally in French, on topics of significance for Latin-American listeners relating to their social, cultural, and economic activities. Latin-American anniversaries and the music of Latin-American composers are featured. Throughout, an effort has been made to acquaint listeners in one country with the interest and culture of the others. During the progress of the series, arrangements will be made whenever possible to have programs rebroadcast in Latin America and recordings of them will be made available to selected Latin-American stations for rebroadcasting.

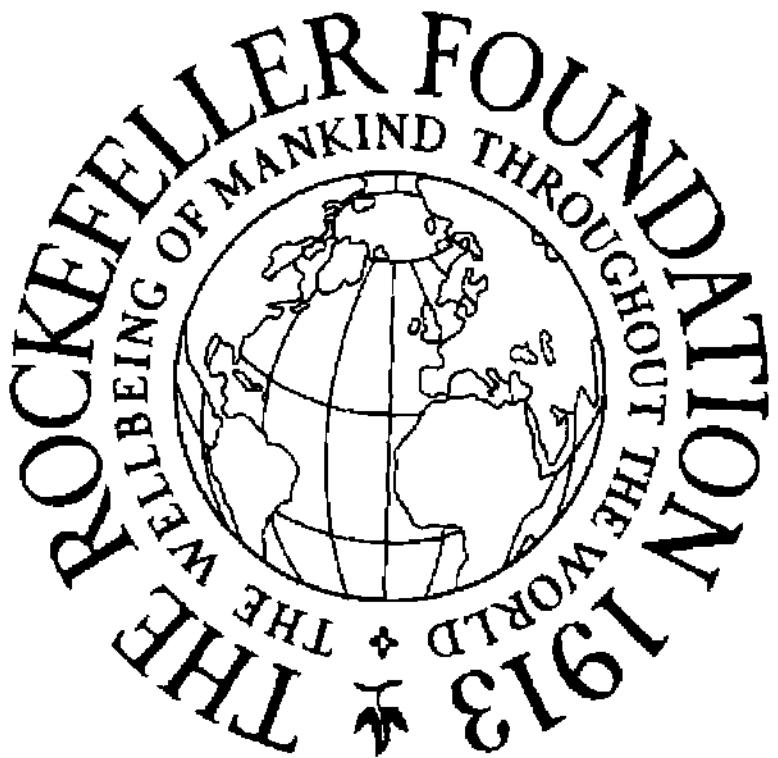
Although the project is still in the experimental stages, the Latin-American republics have already manifested their interest through

requests for recordings with permission to re-broadcast and by publicity in the local press. Members of the various diplomatic corps have taken active interest in the experiment and many of them have spoken or agreed to speak on the programs. Secretary of State Cordell Hull and his staff have cooperated whole-heartedly, Mr. Hull making the opening address during the first broadcast. Various Latin-American departments of education, universities, institutions, and government broadcasting stations also have expressed their interest and volunteered their co-operation.

#### PRINCETON UNIVERSITY: RADIO RESEARCH PROJECT

During 1937, the Foundation granted \$67,000 to Princeton University for a study of the value of radio to listeners, to be carried on by the University's School of Public and International Affairs during the two-year period beginning September 1, 1937.

During this period, the work is to be primarily methodological, the purpose being to discover ways in which it is possible to arrive at an answer to the basic question, What role is radio playing in the lives of listeners? Answering this question evidently involves a number of secondary questions, such as, Who listens? Where and



Photograph Excised Here

Restoration of objects discovered in the excavations of the Athenian Agora by the American School of Classical Studies (*above*). Temporary quarters for a few of the objects on exhibition (*below*). The Foundation contributed in 1937 to the cost of erecting a permanent museum to house the collection.

when does listening take place? What is listened to? Why and how do people listen? What are the effects of listening?

The radio industry, directly or indirectly, has of course carried on extensive listener research; but most of that research has been primarily concerned with the listener as a prospective purchaser of products advertised by radio. In consequence, relatively little is known of the listener as an individual with individual needs and interests that radio does or could serve. But those needs and interests are evidently fundamental in the use of radio for educational or cultural purposes.

Methods developed in the industry's research point the way to the information that is needed. The first task of the Princeton radio research project is to discover how those methods are to be modified or developed to serve its purposes.

The study is being conducted by three men trained in the techniques of social research: Professor Paul Lazarsfeld serves as director, Professor Hadley Cantril of Princeton University and Dr. Frank Stanton of the Market Research Division of the Columbia Broadcasting System as associate directors. The study is one of a number which are sponsored by the Federal Radio Education Committee.



Photograph Excised Here

Illustrating the exhibition technique of the Buffalo Museum of Science. Objects are displayed in combination with reproductions of the original settings to which they belonged.

### UNIVERSITY BROADCASTING COUNCIL: EDUCATIONAL AND CULTURAL PROGRAMS

One of the first grants made by the Foundation in the field of radio was the appropriation in 1935 of \$46,000 toward the work of the University Broadcasting Council, a nonprofit corporation in Chicago representing the University of Chicago, Northwestern University, and De Paul University in a cooperative effort to develop radio programs of educational and cultural value. The early work of this organization was described in some detail in the Foundation's Annual Report for 1935. During the two years of its activity the Council has built up an able executive staff which has enlisted the interest of a considerable body of faculty members from the three participating universities and has given them substantial help in putting their special knowledge to practical use in broadcasting. It has established satisfactory relations with the local stations and networks over which its programs are broadcast. For the year 1936 the Council received the Women's National Radio Committee award for its NBC network feature, *The University of Chicago Round Table*, as the best educational radio program of the year.

In 1937 the Foundation made a second grant to the Council, appropriating \$60,000 to be expended over a period of three years for further

experimentation aimed at discovering how programs of educational and cultural value can be made most generally effective.

### LATIN-AMERICAN AND FAR EASTERN INTERESTS

#### AMERICAN COUNCIL OF LEARNED SOCIETIES: CHINESE AND JAPANESE CATALOGUES

One of the major grants of the Foundation during 1937 enabled the American Council of Learned Societies to promote systematic cataloguing of the larger collections of Chinese and Japanese books in the United States.

The committees of the Council dealing with Chinese and Japanese studies met in September for discussion of the needs and opportunities in research and in teaching within this country, as well as methods of cooperation with scholars in the Far East. The primary requirement recognized by the group was the cataloguing of present resources of American libraries, in order that interlibrary loans might be handled efficiently and purchasing of new titles might be accomplished with the least possible duplication. The grant of the Foundation will provide for the cataloguing during a five-year period beginning January 1, 1938. The first two years will be given to cataloguing the collections of the Li-

brary of Congress. In most respects the plan of cataloguing will follow that developed at the Harvard-Yenching Institute. The materials for that catalogue were completed during 1937 and were taken to China for printing in book form as well as on library cards that can be distributed to other libraries. The plan of production for a uniform series of book catalogues makes certain a standardized method and eventually a series of volumes showing locations of Chinese and Japanese books in all parts of the country. At the end of the five-year period it is expected that the five or six largest collections will be represented in the series. It then will be practicable to produce supplementary volumes at stated periods and so to keep all the participating libraries informed regarding the holdings of the others.

Advantage to scholars here and abroad will be very great, as this bibliographical resource will show immediately where a book can be borrowed most easily within their own country or where it can be found for copying by microfilm. Some time ago the Foundation participated in the plan of the Council to secure microfilm copies of books and manuscripts in China and to render the same sort of service from the Library of Congress. Equipment for the photographing of requested materials was manufactured for use in the National Library in Peiping, but thus far it has not

been installed there. The Library of Congress, however, is rendering this service at low cost, and eventually cooperation with countries in the Far East will give to scholars on both sides of the Pacific access to all classes of materials not controlled by copyright. This is only one of the interesting developments that will follow from the proper cataloguing of American libraries in these languages.

Another general need for the development of Chinese and Japanese studies in the United States to be recognized by these committees is to aid individual scholars or small projects through grants in aid. A grant of the Foundation for this purpose was made available during the period October 1, 1937 to December 31, 1938, to the amount of \$10,000. A part of the amount is to be used for administrative expenses of the two committees, but the major part is to be distributed in small grants as recommended for approval of the Executive Committee of the Council.

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#### COLUMBIA UNIVERSITY: FAR EASTERN STUDIES

Interest in Japanese studies at Columbia University began in 1929 when friends in Japan gave the University a notable collection of Japanese books and pamphlets. Though Chinese studies have had a steady development at the University, the resources of this collection had only moderate

use until a few years ago. It was then that a committee of the faculty took the responsibility of giving attention to opportunities for development of Chinese and Japanese studies in the University. The result has been a steady growth of interest and an increase of investigation and of teaching in Japanese subjects as well as in Chinese. In this development the American Council of Learned Societies and the Institute of Pacific Relations have taken part, and the Society for Japanese Studies in New York City has cooperated in various useful ways.

With the funds provided by the Foundation during 1935 and 1936, the committee was enabled to give the work in Japanese an established place in the University curriculum. There was also brought about a useful relationship of Columbia and universities in the East for programs of work in Japanese and Chinese. Both of these outcomes were in great part due to the help of Sir George Sansom, who served as visiting professor of Japanese during a period of leave from his regular duties at the British Embassy in Tokyo. Since the time of his visit the University has increased its library holdings and in the current year has appointed lecturers in Japanese art, literature, language, and history. With one of the best collections of Japanese works outside Japan, Columbia now also has courses providing a satis-

factory foundation in Japanese studies for workers in all aspects of Far Eastern culture.

In 1937 the Foundation made a further grant to Columbia University of \$7,500 for work in this field, to be available over the three-year period January 1, 1938 to December 31, 1940. This grant is for book purchases, occasional lectures, and general expenses that cannot now be met from current funds of the University.

#### ORTHOLOGICAL INSTITUTE OF CHINA: GENERAL EXPENSES

In 1937 the sum of \$29,000 was appropriated to the Orthological Institute of China for general expenses of the Institute during the period April 1, 1937 to June 30, 1938. Theoretical studies of English for oriental students are now ready for testing in China in advance of general use. The year of work by the Peiping group likewise has produced a body of material for schools, so that from the material point of view conditions are ripe for intensive experiments with new texts under guidance of a group of Chinese, British, and American collaborators.

The work in China is directed by Mr. R. D. Jameson, former professor of English in Tsing Hua University. He is assisted by two other Americans as collaborators and by five Chinese assistants. Dr. I. A. Richards of the University

of Cambridge, adviser to the group, is lending valuable assistance. The Western Languages Association of China, made up of native teachers, is cooperating by publishing special reports and studies in its bulletin and by putting the teaching plans into effect in schools and colleges.

In June 1937 new manuals were in preparation for experimental use in middle schools. Plans included also the production of weekly copy for a page of the *North China Daily*, a Peiping newspaper that offered to the government Committee on Broadcast Education this corollary to its radio lessons in English. The Ministry of Education had requested the Institute to prepare a national program for the teaching of English. These were the favorable circumstances supporting the project at the time of the Foundation renewal of its aid to the group in China.

As their work was modified drastically during the latter half of the year, experimental class routines have been curtailed and staff has been reduced at the Peiping headquarters. But operations on a limited scale will be continued under funds that are to be available until June 30, 1938.

#### ROYAL ONTARIO MUSEUM OF ARCHAEOLOGY: FAR EASTERN STUDIES

The Royal Ontario Museum of Archaeology in Toronto has perhaps the largest and most varied

collection of Chinese art and craft work in or out of China: 19 galleries house the public exhibits and in addition thousands of objects are held in storage until they can be critically studied and classified by experts. An excellent working library of 45,000 volumes gathered by a Chinese scholar, Dr. C. T. Wang, has recently been secured by the Museum. Before shipment to Toronto it was fully catalogued for use by Western students and is now installed in a modern library building forming a new wing of the Museum structure. These ample quarters for research and teaching have been provided by four friends of the Museum to house the new collection. All the work is under direction of a staff serving both the Museum and the University of Toronto Graduate School.

The acquisition of these resources is due chiefly to the efforts of Bishop William C. White, who during his many years of work in the Far East directed purchases for the Museum. For the past three years he has been on the University faculty. As keeper of the Far Eastern collection, he is working to interpret these Chinese exhibits more effectively to the general public as well as to students of the University. He has secured the services of the Reverend J. M. Menzies, a missionary in China for 27 years, to assist in this work, and with help of his colleagues has

organized the courses in Chinese art, architecture, cultural history, and languages for the Graduate School of the University.

As a consequence Toronto offers work in Far Eastern subjects not duplicated elsewhere and supplementing at essential points what is now available in American universities and museums. Recognizing these advantages, the Foundation in 1937 made an appropriation of \$25,000 to the Royal Ontario Museum of Archaeology to be used for temporary appointments, book purchases, and the preparation and printing of its new handbooks. The grant is to be available over the period January 1, 1938 to December 31, 1942.

#### YALE UNIVERSITY: CHINESE STUDIES

Yale University is one of the major American institutions to receive funds from the Foundation for development of Far Eastern studies within the current program. Aid at first was given indirectly through a project of the American Council of the Institute of Pacific Relations, to develop materials for teaching Western students the Chinese language. For this purpose in 1935 the Foundation contributed \$17,500 for use during a three-year period. The grant of \$35,800 made in 1937 to the University, is for the general development of Chinese studies over the five-year period beginning July 1, 1937.

Under the grant to the Council, Professor George A. Kennedy is now in the second year of his work on texts that are being tested experimentally both at Yale University and at summer sessions concerned with special problems of language study. In the summer of 1938 he will again direct the work in Chinese language at the University of Michigan linguistic institute. Aid in the immediate development of Chinese studies at Yale is being given through the appointment as visiting professor of Dr. F. K. Li, a member of the Academia Sinica at Nanking. Part of the Foundation grant will also be used for equipment and printing expenses and for student assistance.

#### FELLOWSHIPS AND GRANTS IN AID

The 1937 program for fellowships in the humanities was based on an appropriation of \$85,000 and on a fund set up by the General Education Board for the same purpose. A total of 66 fellowships in this field was administered by the officers, all selections being with reference to the need for personnel in the special fields of Foundation work in the humanities. The Board fellows, 26 in number, were from the United States, but had their training in this country or abroad as indicated by the requirements of each individual for future usefulness in his field.

The 40 Foundation fellows were distributed according to country of origin as follows: Argentina, 1; Canada, 1; China, 4; Cuba, 1; Great Britain, 1; Hawaii, 1; Japan, 1; Mexico, 1; Norway, 1; Puerto Rico, 1; United States, 26; Venezuela, 1. Of the Foundation fellows, 9 studied the administrative practice of various American and English libraries, 1, archives and libraries in South America; 4 devoted their time to the study of the Chinese and Japanese languages and history at different centers in the United States and Japan. Thirteen studied drama, playwriting, scenic design, and production in the university drama schools at Cornell, Leland Stanford, Jr., Iowa, North Carolina, and Yale, and at the University of Mexico; 1, drama, art, music, and literature in religious education at the University of Chicago. In the field of radio and film production 7 fellows studied methods of broadcasting and of planning and producing programs, at the Columbia Broadcasting System and the National Broadcasting Company in this country, and at the British Broadcasting Corporation, London; 1, broadcasting in Central America; 1, radio forum work, with the League for Political Education; 1, educational and cultural influence of radio and motion pictures, at the Columbia Broadcasting System and several other places in the United States; 2, film production methods at

the Film Center, London, and at the Film Library of the Museum of Modern Art, New York City.

Of the 26 fellows working through General Education Board funds, 5 in New York City studied methods of planning and producing radio programs. At various centers in this country 7 worked on the different phases of play production, playwriting, scene design, and stage direction. In Japan and the United States 6 studied Chinese and Japanese languages and history. At Hollywood and elsewhere in the United States, 5 studied methods of planning and producing motion pictures. Study of the Russian language, of German culture in America, and of the educational use of motion pictures was also provided for by 3 fellowships.

Provision was also made for a certain number of grants in aid to help in the investigation of new projects or for the continuation or termination of others in progress. The sum of \$66,900 was designated to sponsor 27 undertakings, the sums ranging from \$200 to \$7,500. These items illustrate the grants made:

\$5,000 to the University of Liverpool for research by Professor W. E. Collinson on the problems of comparative linguistics that relate to the definition of an auxiliary language.

\$3,000 to Mr. Louis Adamic to assist in collection of materials on the cultural life of foreign language groups in the United States.

- \$7,500 to the University of Michigan to provide emergency aid to the Dictionary projects.
- \$3,000 to the Bureau of Educational Research of Ohio State University to enable Professor W. S. Hendrix to conduct a study of the value of foreign short-wave broadcasts in modern language study.
- \$5,000 to the National Theatre Conference to assist in projects during the year beginning approximately July 1, 1937.
- \$4,200 to the American Federation of Art to enable it to assemble and send to the Paris Exposition an exhibit of American handcrafts and folk art.
- \$500 to provide supplementary assistance for the manufacture of film-copying apparatus for the National Library of Peiping.
- \$2,000 to Mills College, California, to enable it to purchase printed materials on Chinese art.
- \$3,500 to the Museum of Modern Art Film Library as special aid for Paul Rotha in developing the instructional program of the library.
- \$2,000 to Princeton University in partial support of a seminar in Arabic and Islamic studies, sponsored by the American Council of Learned Societies.

## GENERAL

### AMERICAN NATIONAL COMMITTEE ON INTERNATIONAL INTELLECTUAL COOPERATION: COPYRIGHT

The rights of authors and of all creative workers in the field of arts are protected internationally, to a limited degree, under the Berne Convention as revised in 1928. The United States, however,

is not a member of the Convention nor are many other nations that affect interests in these matters. At the present time the United States, Russia, and China, three major countries, do not subscribe to this Convention. The only country in South America now a member is Brazil. Consequently, though the general interest of the United States is identical with that of other democratic countries, namely the establishment of procedures that protect the free spirit of culture in its expressions through art and literature, it is limited in practice to special understandings with other nations.

Until the United States becomes a party to the international Convention, American authors lack a guarantee of national treatment. At the same time there are in effect various restrictions from the American side that operate to the disadvantage of foreign countries and forces within the United States that complicate the domestic situation.

In order to secure objective treatment of copyright questions as a means to better understanding here and abroad, the American National Committee on International Intellectual Cooperation has acted to bring together a fundamental body of facts touching all aspects of the problem. The chairman, Professor J. T. Shotwell, of Columbia University, has chosen a subcom-

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mittee under the guidance of Mr. Waldo G. Leland, Secretary of the American Council of Learned Societies, to begin inquiries into the interest of the United States in copyright; and with cooperation of all industries and organizations concerned, it is hoped in this first stage of investigation to find agreements on essential points.

The recurring international conferences of American states have already dealt with copyright matters, most recently at the sessions held at Buenos Aires in 1936. A special committee then created has done preliminary work and has had discussions with official groups in Europe. At the Eighth International Conference of American States, scheduled to meet at Lima in December 1939, further steps toward agreement will be practicable. Beyond that outcome is the hope to bring all countries in the Americas into a universal Berne Convention representing the best interests of all its members.

In order to enable the American National Committee to promote its efforts for the protection of literary and artistic works by means of international copyright, particularly among the countries of the American continents, the Foundation in 1937 made an appropriation of \$5,000 to be available during the period December 1, 1937 to December 31, 1938.

## INTERNATIONAL COMMITTEE OF HISTORICAL SCIENCES: GENERAL EXPENSES

The International Committee of Historical Sciences has been active for some 30 years in the fields of historical teaching and research, dealing with various phases and forces such as colonial development, the history of science, of the press, of pacifism, and of diplomacy. It now has 42 member countries that are participants in the work of its subcommittees and in the congresses held at five-year intervals for cooperative planning on a wide range of international activities. It publishes a bulletin for prompt distribution of news and annual bibliographies that are products of hundreds of experts working in some 20 different languages. Political and economic factors in international relationships are dealt with only as these appear in the documentary material previous to 1919. Present international questions are held to be beyond the province of the various subcommittees, but in the bibliographies appear current references to historical studies that are vital for contemporary interpretation of international trends. In addition to its annual bibliographies covering the 10 years 1926-1935, the Committee of Historical Science has sponsored the publication of authoritative studies on the history of banking in all countries, on the constitutions of modern states, on the history of

diplomacy, and on similar subjects of international character.

For most of the member countries, dues are provided from governmental sources. The co-operation of the Rockefeller boards has been constant since 1926, when the American Historical Association secured the first grant toward establishing the Committee on a sound basis for international operations. In 1937 the Foundation made another appropriation to be used during the period January 1, 1938 to December 31, 1940, providing \$16,800 toward the expenses of its general budget, of its publications, and of its next congress.

The special committee on the teaching of history now has the reviewing of all materials used in history texts of the Scandinavian countries. It also is responsible for the collaboration now in effect between German and French scholars to the same end, and it will participate in the revision of texts that is to be carried out by scholars in Argentina, China, and Brazil.

#### FORMER PROGRAM

##### AMERICAN COUNCIL OF LEARNED SOCIETIES: LINGUISTIC ATLAS

The Linguistic Atlas of New England is an outcome of plans put into effect in 1930 by the American Council of Learned Societies to as-

semble the evidence which exists in spoken language on the social and cultural development of the United States. The general purpose of the plan was to gather such a mass of data throughout New England that scholars could define closely its cultural areas of pioneer settlement, the lines of migration westward, and the history of the total population. The work was done by interview. Clear dialectical features of urban and rural population, of racial and class groups were collected by recordings and in conversations conducted by expert field workers. These are now being recorded on maps that chart the appearance of significant speech forms among various regions of settlement and along arteries of communication within New England and westward.

The Atlas has hitherto been carried by the Council on its general appropriations from the Foundation for the support of projects within the entire field of humanistic studies. The Foundation has given fellowships for work in other areas having important dialectical features, so that study at the Brown University headquarters would prepare men to use these techniques for similar regional studies. A great amount of new material has been brought to the workrooms at the University and its classification is virtually complete. Brown also gives the services of a staff member as director.

In 1937 the Foundation appropriated to the American Council of Learned Societies the sum of \$7,000 for use over the period October 15, 1937 to December 31, 1938, toward the completion of the Linguistic Atlas of New England. The directors of the project estimate that all the work can be completed by the end of 1938, when the dialect studies of New England will be available at Brown University for use by investigators in any field of American local history. The completed work will be a key to regional history and a basis for studies of social and cultural development in other parts of the United States. The grant is to be applied to the final stages of preparing materials for use and for a publication fund to issue the first of three volumes.

AMERICAN SCHOOL OF CLASSICAL STUDIES:  
AGORA MUSEUM

Excavation of the Athenian Agora has been the major project of the American School of Classical Studies since 1930. The School has had constant support from officials of the Greek Ministry of Education, of the city of Athens, and of the government. From Mr. John D. Rockefeller, Jr., it has had successive grants for purchase of plots comprising the 20 acres in the heart of the city that are included in the boundaries of

the area, and for the expense of excavation. The large sums required for this project have been expended with the greatest care, and it is clear that the final grant made by Mr. Rockefeller in 1936 will bring the work to completion in 1940. Since 1929 the Foundation has supported the fellowship program of the School to bring younger American scholars to the Agora excavation on assignments that advance the work and that give them excellent field experience. A total of \$87,000 has been appropriated for such use.

From the beginning all objects discovered in the excavation have been housed in expropriated residence buildings standing on plots within the area. As the five buildings so used are in the line of progress of the excavators, the necessity of providing a permanent museum presses upon the school with ever-increasing urgency. The city of Athens has agreed to contribute funds to buy a site for the museum building at the northwestern boundary of the area, and plans have been drawn for an appropriate building in harmony with the surroundings. These plans include adequate working quarters for the small staff to be kept on duty after the entire property has been turned over to the government, as well as storage and exhibition rooms for materials and records. Access will be given visitors to the public exhibitions, and research workers will be admitted for

special investigations to the storage and work rooms.

The museum and the adjacent archaeological park will provide an unequaled source of knowledge of the history of Greek civilization. The exhibition rooms of the museum will display in sequence the growth of domestic and fine arts through all the periods from 2500 B.C. to 1700 A.D., providing new data for tracing the influences of Greek and foreign traditions and for dating conclusively countless facts of art history that hitherto have been subject to speculation. To make the Agora Museum an international center of research and inquiry on the history of art in the Near East, the directors of the American School have now the essential materials. Under the guidance of Professor T. Leslie Shear, in charge of research and excavation throughout the period of work, these materials have been brought under constant and careful scrutiny of experts trained in the study of every type of object brought to light from the excavation. It is to assist with the popular and scholarly outcomes from the Agora project that the Foundation appropriated the sum of \$150,000 toward the cost of erecting the Museum. The officers of the School plan to excavate the site of the building during 1939 and to finish the construction before the final date of the grant, December 31, 1940.

**JOHNS HOPKINS UNIVERSITY: SPENSER PROJECT**

One of the major undertakings initiated by American universities under term grants of the Foundation for work in the humanities was a variorum edition of the works of Edmund Spenser. This was projected by the late Professor Edwin Greenlaw of Johns Hopkins University under grants to that university.

The general plan of the variorum Spenser calls for a critical text of all the prose and poetry, notes, and citations from the literary criticism of the past 300 years. The volumes already in print have a value for students of literature comparable to those in the Furness variorum edition of Shakespeare. When completed, this edition of Spenser will be the most useful source for students seeking information on his life and works. It will contain new data on Spenser's life, on the history of Great Britain in the sixteenth century, and on the Renaissance tradition in Europe until the close of the seventeenth century.

In supplementation of the grant made to Johns Hopkins University in 1935, the Foundation in 1937 appropriated \$4,000 toward the expenses of completing the Spenser project. Six volumes are now in print. Through the efforts of Professor Charles G. Osgood and Dr. Ray Heffner the edition will probably be completed within 18 months from January 1, 1937.



**SPECIAL RESEARCH AID FUND FOR  
DEPOSED SCHOLARS**

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## SPECIAL RESEARCH AID FUND FOR DEPOSED SCHOLARS

**S**INCE 1933 the Foundation has made annual appropriations for a Special Research Aid Fund for allocation to institutions in behalf of European scholars whose productive careers had been interrupted because of political conditions. In 1937 the sum of \$50,000 was appropriated for this purpose. Of this amount, a total of \$34,350 was allocated during the year to 12 different universities offering faculty posts to a total of 17 scholars. This involved aid to eight universities in the United States and two each in England and France.

Although it is impossible to obtain exact figures, it is probable that not less than 2,000 teachers and research workers, many of them men of international repute and distinction, have already been dismissed from their posts in Germany alone. The majority of these are now exiles in other countries. This wholesale expulsion of German scholars, unique in academic history, was followed by the organization of national committees in a number of countries. Through the efforts of these and other interested groups, positions, some temporary, some perma-

nent, have been found for many scholars in universities and research institutions throughout the world. Because of its interest in the continuance of important scientific work, the Foundation has been glad to assist in these efforts. The Foundation has been unable to assist individual scholars directly. Dealing only with institutions, the Foundation has, in response to their requests, contributed toward the salaries of those deposed scholars for whom there seemed a strong probability of permanent employment.

At the end of 1937 the Foundation under this program had granted a total of \$566,611 on behalf of 152 individual deposed scholars, the great majority of whom have found permanent posts in the countries of their adoption. Of these scholars, 151 were formerly Germans. These exiles are now residents in 11 different countries.

## **CHINA PROGRAM**

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CHINA PROGRAM STAFF  
*During 1937*

SELSKAR M. GUNN, *Vice-President of  
The Rockefeller Foundation*

BRIAN R. DYER  
JOHN B. GRANT, M.D.

## CHINA PROGRAM

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## CHINA PROGRAM

FOUNDATION cooperation in the development of a program of assistance in rural reconstruction started actively on July 1, 1935. The following remarks indicating the progress of the work cover the period July 1, 1936 to June 30, 1937. The total appropriations made for the China Program in 1937 in United States currency totaled \$394,875. There was no interference with any of the activities as a result of military operations until after the end of June. Consequently the comments which follow describe the work carried out before such interruptions. Six of the eight major projects in which the Foundation was interested have been forced to leave the areas in which their work was being done. The only two exceptions have been Yenching University in Peiping and the Chinese Mass Education Movement in Changsha, although in connection with the latter that part of the field work which was being carried on in Ting Hsien, Hopei, has had to be abandoned. The other institutions have been forced to proceed to Central and West China where they are in the process of reestablishing themselves and taking up in their new locations the work which was begun elsewhere.

It may be of interest to note that in no case

has a project been discontinued, although of course the normal development of the work has been rudely interrupted.

### PROGRAM IN EDUCATION AND RURAL RECONSTRUCTION

#### NORTH CHINA COUNCIL FOR RURAL RECONSTRUCTION

The North China Council for Rural Reconstruction organized in April 1936, by the cooperation of the National Tsing Hua University, Nankai University, Yenching University, the Peiping Union Medical College, the University of Nan-kang, and the Chinese National Association of the Mass Education Movement, developed its work and plans in 1937, in Tsining, a district in the southwestern part of Shantung Province. Necessarily, the hostilities in China caused the modification of certain activities, and the introduction of others to meet exigencies of the national crisis.

The Council cooperated with the health program of the Mass Education Movement at Ting Hsien in Hopei Province; but devoted most of its energies to the Rural Institute conducted in Tsining. The work of the Institute was carried on under seven departments: the departments of civil administration, economics, social administration, agriculture, engineering, social medicine,

and education. A station for intensive experimental work for all the departments was operated in the district of Nan Chia Ts'un. Through these departments representing various aspects of rural life, the knowledge and methods gathered and formulated by the Council, were actually applied to the population of Tsining.

The principal function of the Rural Institute was training, the training of its own assistants for positions in other similar units so that the work might be extended, the training of students, including those from the cooperating universities, and the education of the people themselves. The carrying out of the work of the Council was very greatly helped, and in fact, the application of its plans and methods was made possible by the fact that members of the staff of the Institute actually assumed positions of responsibility in the local government.

Responsibility for arranging the cooperation and interchange of personnel between the Rural Institute and the county government was assumed by the department of social administration. This department served also to coordinate and correlate all plans, projects, and activities of the other departments of the Institute.

The Foundation appropriated to the North China Council for Rural Reconstruction for the period April 15, 1937 to June 30, 1938, L.C.

\$330,000 toward its budget, chiefly for the expenses of training and investigation. More than L.C.\$600,000 of local tax-derived funds were to be controlled by the Council.

#### CHINESE NATIONAL ASSOCIATION OF THE MASS EDUCATION MOVEMENT

In 1937, upon groundwork laid in 1936, the Chinese National Association of the Mass Education Movement went forward with two new major undertakings. Its headquarters had been transferred from Ting Hsien in Hopei Province to Changsha, Hunan Province, where the district of Hengshan was designated by the provincial government as a demonstration area; and plans had been formulated for cooperation with Szechuen in a reorganization of that province as a whole. The station at Ting Hsien in North China was not lessened in importance, however, for the demands of the expanded work of the Movement, and of governments of other provinces for personnel, created extreme pressure on the training program at that station.

In Hengshan in the Province of Hunan, with most of the administrative and political changes accomplished in 1936, the more intensive reconstruction was begun in 1937. One of the first needs, the training of village leaders, was met by the establishment of an Experimental Rural

Normal School of senior grade. In the Province of Szechuen, an area of over 52,000,000 population, the Mass Education Movement proceeded with perhaps its most ambitious undertaking, the economic and political reconstruction of the province as a unit, to be completed in a period of three years. Intensive and sample surveys of typical districts were made, and the Government of Hsintu was taken over in April 1937, as an experiment county. At Ting Hsien emphasis was laid upon the Institute of Social Reconstruction, the instrumentality for training personnel. To meet the demand from other parts of the country for junior leaders trained in reconstruction, a section was added for the training of senior middle school graduates.

The experience of the Movement, and in fact, the idea dominating the reconstruction technique, is that very little, if any reconstruction along social lines can be carried out with the farming population unenlightened. In the two newer demonstration centers, therefore, schools for the people were to be extensively promoted to give training in civic service along the lines developed at Ting Hsien, and to inform the people of the objectives and purposes of the work. In these centers were to be developed all the educational, health, agricultural, civic, social, and other features of reconstruction that

had been demonstrated so successfully at Ting Hsien. Agricultural extension and the promotion and organization of cooperatives were the two principal features of economic rural reconstruction. The basis of the system of agricultural extension at Ting Hsien was the training of farmers through the Farmers' Institute, and the appointment of demonstration farmers from among the graduates of the Institute.

Toward the budget of the Mass Education Movement for the year beginning July 1, 1937, the Foundation contributed L.C.\$75,000, the third grant for this purpose. The total general budget was approximately L.C.\$271,000.

#### NANKAI UNIVERSITY: INSTITUTE OF ECONOMICS

Events in China forced the removal of the Institute of Economics of Nankai University from its plant at Tientsin, North China, to Changsha, Hunan. Up to July 1937, however, its work was carried on at Tientsin.

Two important aspects of the work of the Institute of Economics were its research in practical problems, and its provision for post-graduate training. Because of its membership in the North China Council for Rural Reconstruction, the Institute was able to provide its students with practical experience at the controlled community in Tsining, Shantung.

The members of the staff of the Institute were active in field investigations, which, because of the Institute's participation in the Rural Institute at Tsining, tended to emphasize such subjects as cooperative organization, land registration and taxation, local government and administration, and local finance. Among the contributions to documentary research was Professor Franklin L. Ho's brochure on *Rural Economic Reconstruction in China*, which was presented at the Sixth Conference of the Institute of Pacific Relations held at Yosemite in the fall of 1936. The Institute published the *Economic Weekly*, the *Quarterly Journal of Economics and Political Science*, and the *Nankai Social and Economic Quarterly*, in which most of the research of the staff was reported.

In 1937 the first class of 10 graduate students passed the examination for the master's degree given by the Ministry of Education. The course for this degree is two years, and instruction was first begun in the fall of 1935. In 1936 a second class of eight students began the two-year post-graduate course. One hundred sixty-five undergraduate students were in attendance during the year 1936-1937.

All of the 10 postgraduate and 23 senior students who completed their courses at the Institute in 1937 secured employment in important

private or governmental agencies. Almost every student had a choice of more than one position. As the demand for students who had specialized in accounting and statistics was especially large, the Institute was preparing to expand its undergraduate instruction in accounting, and to open an accounting section in its postgraduate division.

To Nankai University for the work of its Institute of Economics the Foundation appropriated in 1937 L.C.\$40,000 for the year beginning July 1, 1937. Aid had been given previously under the Social Science program of the Foundation for a period of five years beginning in 1932; and under the China Program two previous annual grants had been made.

#### YENCHING UNIVERSITY: COLLEGE OF PUBLIC AFFAIRS

The operation of Yenching University in Peiping, North China, was not, so far as is known, greatly disturbed by military events in 1937. The enrollment of 71 in the rural courses of the College of Public Affairs in the fall of 1937 was considerably less, however, than that reported for the previous year.

Nevertheless emphasis on social reconstruction had been increasing, and a plan of reorganization was worked out for the College of

Public Affairs and adopted in the fall of 1937 to stress a more practical viewpoint, and a correlation of courses according to "functional principles" rather than along the conventional departmental lines. The object of the new proposals was to direct the emphasis of instruction and research to the three fields of rural reconstruction, contemporary institutions, and international relations. To bring about this re-orientation, it was planned to integrate some of the activities of the departments of political science, economics, and sociology; to foster a spirit of cooperation in both instruction and research; and to pay increasing attention to research and publication in order to promote and sustain a high standard of academic work. Publication of a semiannual journal, the *Yenching Journal of Social Studies*, was set for May or June, 1938.

Yenching University was a charter member of the North China Council for Rural Reconstruction, and maintained in 1937 a field staff at the Rural Institute at Tsining. The College of Public Affairs secured opportunities, besides, for local field work through cooperation with five local agencies. In progress were field studies relating to rural economics and the family budget, and sociological studies of a one-clan and a two-clan village.

To the College of Public Affairs of Yenching University toward its budget for the year beginning July 1, 1937, the Foundation appropriated L.C.\$40,000 in 1937. The budget of the College of Public Affairs for the year 1937-1938 was estimated at L.C.\$70,000, exclusive of L.C.\$50,580 for general administrative overhead. This was the third grant under the China Program, besides other grants to Yenching University through the Foundation's division for the Social Sciences.

#### AGRICULTURAL PROGRAM

##### UNIVERSITY OF NANKING: DEPARTMENT OF AGRICULTURAL ECONOMICS

While the change from the silver standard to foreign exchange in China raised the general level of prices and brought about relative prosperity, price movements in China became dependent on an entirely new set of factors, which needed much study in order that a basis for sound advice and action might be laid to avoid the possibility of inflation. Studies, also, of agricultural prices, farm business, farm management, cooperatives, and other aspects of farm economics were important in relation to the program in rural reconstruction.

The Department of Agricultural Economics in the College of Agriculture and Forestry of the

University of Nanking, with an able Chinese staff directed by Professor J. Lossing Buck, made a specialty of these fields. The department co-operated with the Ministry of Industry and Agriculture in training personnel for the Agricultural Credit Bureau, and the government had recognized the value of the department's work by giving encouragement and aid. When hostilities made it impossible for work to be carried on in Nanking, the department moved to Chengtu where, according to the latest reports, work was proceeding satisfactorily.

Because of the importance of the currency policy, domestic price levels were the chief subjects for study in 1937. Much data on exchange rates, prices of precious metals, foreign and domestic commodity prices, silver movements, interest rates, bank note issues, exports and imports, were gathered, tabulated, and charted. Tabulations of prices in representative rural communities scattered throughout China were kept up to date systematically, and comparative studies made. The effect of cycles in constructional activity in Shanghai were studied. Detailed studies were made of the feasibility of breaking new land in two areas; of the distribution and use of farm implements on 480 farms in eight localities of North China; and of farm management in the same eight localities.

The studies, when complete, were reported in *Economic Facts*, the publication of the Department of Agricultural Economics.

Toward the general budget of this Department during the year beginning July 1, 1937, the Foundation appropriated in 1937 L.C.\$30,000 and U.S.\$9,000, to be used primarily for administration, studies of agricultural prices, and farm organization and business. Two previous annual grants had been made.

**NATIONAL CENTRAL UNIVERSITY. COLLEGE OF  
AGRICULTURE: DEPARTMENT OF ANIMAL  
HUSBANDRY AND VETERINARY  
MEDICINE**

Little work in animal husbandry has been done in China. To remedy the lack of information in this subject the National Central University, a government institution, was developing animal husbandry in its College of Agriculture. The first study was made in swine husbandry. About 130 acres of land adjacent to the new university site outside the city of Nanking were purchased for the experimental hog farm, and on it an office, barns and other shelters were erected.

Careful studies, during the year 1937, were made of the performance of native breeds as compared with imported purebreds and cross-breeds, including fertility, growth, and food con-

sumption. Detailed records, charts, and graphs were kept.

The importance with which this work is regarded, and the care taken of the livestock, is indicated by the fact that when hostilities approached Nanking, the swine were transported up the Yangtze River to Chungking, a distance of approximately 1,000 miles, with the loss of only a very few animals.

In 1937 the Foundation appropriated to the National Central University for the year beginning July 1, 1937, L.C.\$20,000 for the development of animal husbandry. Two previous grants served to help establish the Department.

**MINISTRY OF INDUSTRY AND AGRICULTURE:  
NATIONAL AGRICULTURAL RESEARCH BUREAU**

To the economic development of agriculture, and consequently of rural reconstruction, the protection of crops from destructive insect pests is an effective contribution. The Department of Plant Pathology and Entomology of the National Agricultural Research Bureau has undertaken a national program of insect control, which consists so far, in designing, manufacturing, and distributing spraying and dusting equipment; in experimenting with, making, and distributing insecticides, and in educating the people in, and extending their use. The National Agricultural Research Bureau was receiving an

increasing number of requests from agricultural institutions throughout the provinces of China to recommend personnel trained particularly in field organization and extension of the technique of using insecticides. The Bureau, therefore, extended education in insect control through short training courses in the field and instruction to students in training schools in Nanking.

Agricultural extension work in the control of cotton aphid in North China and tobacco aphid in Shantung Province was conducted during the year 1936 to 1937; and principally in the vicinity of Nanking, the control of vegetable insects was extended. A survey of insects which damage fruit was made in Shantung Province, and experiments were begun on measures for their control.

Besides its annual budget for the Bureau, and L.C.\$380,000 specifically for rice, wheat, and cotton improvement, the government had expected to provide L.C.\$53,000 for the expenses of insect control for the year 1937-1938. In order to encourage and expand this work, the Foundation appropriated in 1937 to the Ministry of Industry and Agriculture for insect control under the National Agricultural Research Bureau, L.C.\$30,000 for one year beginning July 1, 1937. This was the third appropriation for this purpose under the China Program.

## PROGRAM IN PUBLIC HEALTH AND MEDICAL EDUCATION

### NATIONAL HEALTH ADMINISTRATION OF CHINA: PUBLIC HEALTH TRAINING INSTITUTE

The Public Health Training Institute of the National Health Administration of China entered the year 1937 with a new building for offices, classrooms, and laboratories, and a new dormitory building to house and train the rapidly increasing number of candidates for its courses in public health. The year started auspiciously, but in the early fall when continuation of the Training Institute in Nanking became impossible, it moved to Hankow where efforts were directed mainly to formulating plans for reestablishment of the work in a spot comparatively remote from hostilities. Kweiyang, Province of Kweichow was chosen as a place where work could be reorganized and begun anew.

According to the plans drawn up, a headquarters was to be established in Kweiyang, and an urban health station was to be conducted in cooperation with the Kweiyang municipal government and the Kweiyang Medical College. In cooperation with the North China Council for Rural Reconstruction rural health work was to be undertaken, primarily as a department of social medicine under the Council, in a county to be selected.

The Public Health Training Institute can give a practical health training immediately and effectively useful in rural reconstruction. Health workers are keeping in mind the importance of this type of work to China in spite of the difficulties with which coordinated governmental programs for peacetime activities are faced today. The Institute is also of value in the present emergency for the training of relief workers. Included in the plans for 1938 are arrangements for the training of 100 doctors and 200 nurses in epidemiology and sanitation.

In 1937, for the year July 1, 1937 to June 30, 1938, the Foundation appropriated to the National Health Administration of China toward the expenses of the Public Health Training Institute L.C.\$140,000, the third appropriation toward the budget of the Central Government's public health training program.

#### COMMISSION ON MEDICAL EDUCATION

One of the principal tasks which had been set for the Commission on Medical Education was the standardization of curricula of government medical schools to give the type of training which would conform to the needs of a system of state medicine, adopted as best fitted for China's particular requirements. Another of its objectives was a teacher training program; and

it aided also in compilation and translation of medical books.

While the regular program was considerably disrupted in the latter part of 1937, the Commission formulated plans to conserve as far as possible the progress already made in medical education so that when peacetime needs should return, there would be an adequate supply of workers in the field of social medicine. The Commission planned to provide stipends for senior personnel to enable them to work in medical institutions in their chosen fields; to serve as a coordinating agency for training fellowships at the Peiping Union Medical College, now the only place where such training could be given; and to offer scholarships to medical students who might otherwise give up their medical careers, because of lack of funds. Compilation of medical books and literature was to be continued and even extended. Medical terminology and literature were to be translated as rapidly as possible in order that medical knowledge could be disseminated more widely, and the time be hastened when modern medicine should not be considered "foreign medicine" by the average Chinese citizen.

For the program of the Commission on Medical Education the Foundation appropriated in 1937 L.C.\$40,000 for the year beginning July 1,

1937, the third appropriation through the China Program for the work of this Commission.

### FELLOWSHIPS

In accord with the Foundation's program of aid to rural reconstruction in China, fellowships granted in 1937 were for study in subjects either directly connected with, or applicable to some phase of rural reconstruction.

A few fellowships were granted for study abroad to individuals who met the qualifications of training and experience required in general under the regular fellowship program in all divisions. In addition, funds were made available to individuals not of this grade for study in China so that they might receive special training in various aspects of rural reconstruction. Funds for these local fellowships were administered by institutions participating in the reconstruction program, after they had submitted their recommendations for fellowships to the Foundation's office in China.

Fifteen fellows pursued their study in a foreign country during the year 1937, of whom eight began work in 1937, and seven continued from the previous year. They worked in the following subjects: rural reconstruction, one; social sciences, including financial administration, rural sociology, social anthropology, and studies of

cooperation, five; public health, including child welfare work, hydraulic and sanitary engineering, public health education, prenatal anatomy and developmental physiology, six; and agricultural subjects, including economics and farm management, plant pathology, and wood technology, three. Ten studied in the United States, three in England, and of the two who studied cooperation, one worked in Java, British India, and Ceylon, and the other in Denmark and Russia besides the Far Eastern countries.

Because the work of the group which studied in China was in most cases disrupted before the end of 1937, no formal reports have been rendered for that year. For the first half of the year the work was carried out mainly as planned. Payments were made during the year to defray the cost of fellowships to the following institutions: the Commission on Medical Education, the Chinese National Association of the Mass Education Movement, the North China Council for Rural Reconstruction, the University of Nanking, the Cooperative Commission of the Ministry of Industries, the National Health Administration, and the National Agricultural Research Bureau. All but one of these institutions were receiving aid toward their general budgets for other activities.

For fellowships under the China Program in

1937 the Foundation appropriated \$95,000, of which \$65,000 was set aside for local fellowships, and \$30,000 for fellowships for study abroad.

### RESEARCH AND DEVELOPMENTAL AID

Under the classification of research and developmental aid, 16 grants, one of which was cancelled, were made in the general field of rural reconstruction for small amounts of which the highest was \$3,030, and the lowest \$224. Seven of these grants were made to the North China Council for Rural Reconstruction for the special research of individuals, or for other small special projects not contained within the regular budget for the Council. Three grants were made to Lingnan University in Canton, for its Economic Plant Receiving Station, for a small test kiln for researches in ceramics, and for renewal of subscriptions to scientific periodicals. Other grants were made to the National Agricultural Research Bureau for special aid to its insect control work; to the Shanghai National Medical College for the formulation of plans for graduate training in public health; to the First National Midwifery School to permit the making of new arrangements because of the crisis in its affairs brought on by hostilities; to the Oberlin Shansi Memorial Schools at Taiku, Shansi, for an experiment in improving wool produced in Shansi; and to the

National Institute of Compilation and Translation for its work in standardizing social science terms in Chinese.

The Foundation appropriated \$30,000 for small grants in aid under the China Program for the year 1937, and \$10,000 toward a reduced program in 1938.

### EMERGENCY FUND

In December a brief review of the China Program indicated that the unforeseen conditions in 1937 would probably necessitate changes in the budgets of many of the institutions and projects to which the Foundation had contributed. While in most cases probably less than the total of appropriations would be required, it seemed possible that instances might occur in which additional sums might be needed to meet a crisis. To provide for an emergency of this sort, \$25,000 was appropriated to be available until April 6, 1938.

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## **REPORT OF THE TREASURER**



## TREASURER'S REPORT

**I**N the following pages is submitted a report of the financial transactions of The Rockefeller Foundation for the year ended December 31, 1937.

A condensed summary of appropriations and funds available for appropriation follows:

Balance of appropriations, pledges,  
and authorizations, December  
31, 1936

Appropriations.....\$24,019,853.83

Pledges and authorizations... 3,678,183.11 \$27,698,036.94

Funds provided for appropriations, pledges, and  
authorizations during the year, as shown  
hereunder..... 9,576,211.28

\$37,274,248.22

### LESS

Payments during the year 1937.\$10,607,499.72

Sum of unused appropriations  
and authorizations allowed to  
lapse, becoming available for  
appropriation..... 1,088,894.54 11,696,394.26

Balance of appropriation, pledges, and authoriza-  
tions, December 31, 1937..... \$25,577,853.96

Balance available for appropriation, December 31,  
1936..... \$3,931,485.21

Income and refunds received dur-  
ing the year 1937..... \$9,949,775.29

Unused balance of appropriations  
and authorizations allowed to  
lapse, returned as above..... 1,088,894.54 11,038,669.83

\$14,970,155.04

382 THE ROCKEFELLER FOUNDATION

Less funds provided, as above, for Appropriations during the year not previously pledged or authorized .....	\$8,889,697.39
Pledges made during the year ...	686,513.89
	<hr/>
Balance available for appropriation, December 31, 1937.....	\$5,393,943.76
	<hr/>

The balance in Principal Fund, December 31, 1936, amounted to \$151,459,942.09. Transactions during the year resulted in a decrease of \$1,200,000, or a balance December 31, 1937, of \$150,259,942.09. The Reserve for Contingent Projects Account, amounting to \$2,000,000 at December 31, 1936, was increased by the sum of \$1,200,000, to \$3,200,000 at December 31, 1937. The detailed transactions affecting both of these accounts are shown in Exhibit B, page 386.

As of the close of the year the accounts of the Comptroller, the accounts of the Treasurer, and the securities owned by the corporation have been examined by Messrs. Squires and Company, Accountants and Auditors, who have rendered a report to the Committee on Audit.

The financial condition and operations are set forth in the appended exhibits as follows:

- |                                  |           |
|----------------------------------|-----------|
| Balance Sheet.....               | Exhibit A |
| Statement of Principal Fund..... | Exhibit B |

Statement of Reserve for Contingent Projects	Exhibit B
Statement of Funds Available for Appropriation and Disbursement.....	Exhibit C
Summary of Appropriations Account.....	Exhibit D
Statement of Building and Equipment Fund	Exhibit E
Statement of Foreign Currencies Held December 31, 1937.....	Exhibit F
Statement of Appropriations Made During the Year 1937.....	Exhibit G
Statement of Payments During 1937 on Appropriations Made in 1937 and Prior Years	Exhibit H
Statement of International Health Division Designations and Payments.....	Exhibit I
Schedule of Securities.....	Exhibit J

## EXHIBIT A

## BALANCE SHEET—DECEMBER 31, 1937

## ASSETS

## INVESTMENTS

Securities (ledger valuation) .....	\$172,073,541.24
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## CURRENT ASSETS

Cash on deposit.....	\$9,462,275.89
Foreign currencies purchased to meet specific ap- propriations payable in foreign exchange of at least the same dollar amount (Exhibit F).....	1,548,640.67
Advances and deferred charges under appropria- tions and sundry accounts receivable.....	1,351,058.13
	<hr/>
	12,361,974.69

## BUILDING AND EQUIPMENT

In New York.....	\$55,837.36
In Paris.....	63,889.29
	<hr/>
	119,726.65
	<hr/>
	\$184,555,242.58
	<hr/>

## EXHIBIT A

## BALANCE SHEET—DECEMBER 31, 1937

## FUNDS

PRINCIPAL FUND..... \$150,259,942.09

RESERVE FOR CONTINGENT PROJECTS..... 3,200,000.00

## APPROPRIATIONS FUNDS

Unpaid appropriations..... \$22,258,156.96

Unappropriated pledges and authorizations... 3,319,697.00

FUNDS AVAILABLE FOR APPROPRIATION..... 5,393,943.76

## CURRENT LIABILITIES

Accounts Payable..... 3,776.12

BUILDING AND EQUIPMENT FUND..... 119,726.65

\$184,555,242.58

## EXHIBIT B

### STATEMENT OF PRINCIPAL FUND

Unappropriated principal, December 31, 1936.....	\$151,459,942.09
Amount transferred to Contingent Projects Account in accordance with a trustees' authorization at meeting of December 1, 1937.....	1,200,000.00
Unappropriated principal, December 31, 1937.....	<u>\$150,259,942.09</u>

This fund is accounted for in securities.

### STATEMENT OF RESERVE FOR CONTINGENT PROJECTS

Balance, December 31, 1936.....	\$2,000,000.00
Amount transferred from Principal Fund during 1937, in accordance with trustees' authorization at meeting of December 1, 1937.....	1,200,000.00
Balance, December 31, 1937.....	<u>\$3,200,000.00</u>

This fund is accounted for in securities.

## EXHIBIT C

### STATEMENT OF FUNDS AVAILABLE FOR APPROPRIATION AND DISBURSEMENT

#### Receipts

Balance, December 31, 1936			
For unpaid appropriations.....	\$24,019,853.83		
For unappropriated pledges and authorizations.....	3,678,183.11		
Funds available for appropriation.....	3,931,485.21	\$31,629,522.15	
 Income received during the year 1937.....	 \$9,923,666.33		
Refunds received during the year 1937.....	26,108.96	9,949,775.29	
			<b>\$41,579,297.44</b>

#### Disbursements

Public health.....	\$2,648,159.54		
Medical sciences.....	1,801,602.71		
Natural sciences.....	1,131,421.74		
Social sciences.....	2,721,358.16		
Humanities.....	926,881.70		
China program.....	267,760.92		
Miscellaneous.....	299,281.48		
Administration.....	811,033.47	10,607,499.72	
 Balance, December 31, 1937.....	 \$30,971,797.72		

## EXHIBIT C—Continued

This balance is available as follows

For unpaid appropriations.....	\$22,258,156.96
For unappropriated pledges and authorizations.....	3,319,697.00

Probable schedule of payments

1938.....	\$14,670,492.96
1939.....	5,207,542.00
1940.....	3,112,015.00
1941.....	1,682,303.00
1942.....	626,334.00
1943.....	254,167.00
1944.....	25,000.00

\$25,577,853.96

Balance available for appropriation.....	5,393,943.76
	<u>\$30,971,797.72</u>

This sum is accounted for in securities and cash.

## EXHIBIT D

### SUMMARY OF APPROPRIATIONS ACCOUNT

**Unpaid appropriations and unappropriated pledges and authorizations, December 31, 1936**

Appropriations.....	\$24,019,853.83
Pledges and authorizations.....	3,678,183.11

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**Appropriations, pledges, and authorizations during the year ended December 31, 1937**

Appropriations.....	\$9,849,697.39
Less appropriations previously included as pledges and authorizations.....	960,000.00
	<hr/>
Pledges and authorizations.....	\$8,889,697.39
	686,513.89
	<hr/>
	9,576,211.28
	<hr/>
	\$37,274,248.22

**LESS**

Payments during the year 1937.....	\$10,607,499.72
Unused balances of appropriations and authorizations allowed to lapse.....	1,088,894.54
	<hr/>
Balance, December 31, 1937.....	\$25,577,853.96

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This balance consists of

Appropriations payable.....	\$22,258,156.96
Unappropriated pledges and authorizations.....	3,319,697.00
	<hr/>
	\$25,577,853.96

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**EXHIBIT E**  
**STATEMENT OF BUILDING AND EQUIPMENT FUND**

		TOTAL DEC. 31, 1936	EXPENDITURES 1937	TOTAL DEC. 31, 1937
New York Office				
Library.....		\$17,035.20	\$389.54	\$17,424.74
Equipment.....		\$38,343.51		
Less depreciation—1937.....		4,250.83	34,092.68	4,319.94
Paris Office				
Part interest in building occupied by Paris Office.....		63,889.29		63,889.29
		<u>\$115,017.17</u>	<u>\$4,709.48</u>	<u>\$119,726.65</u>

**EXHIBIT F**  
**STATEMENT OF FOREIGN CURRENCIES HELD DECEMBER 31, 1937**

		AMOUNT IN LOCAL CURRENCY	RATE	COST IN U. S. DOLLARS
Canada.....	Dollars.....	4,549.94	.919869273	\$4,185.35
England.....	Pounds sterling.....	294,187/12/10	3.58402808	1,054,376.77
France.....	Francs.....	1,029.15	.0341543992	35.15
Holland.....	Guilders.....	124,999.65	.6883019272	86,037.50
Japan.....	Yen.....	1,305,938.63	.3093570943	404,001.38
Rumania.....	Lei (blocked).....	85.00	.00531764705	4.52
				<u>\$1,548,640.67</u>

## EXHIBIT G

### APPROPRIATIONS MADE DURING THE YEAR 1937

#### PUBLIC HEALTH

International Health Division of The Rockefeller Foundation.....	\$2,200,000.00
Vanderbilt University School of Nursing, Nashville, Tennessee.....	6,500.00
	<hr/>
	\$2,206,500.00

#### MEDICAL SCIENCES

##### Psychiatry, Neurology, and Allied Subjects

Chicago Area Project, Chicago, Illinois.....	\$45,000.00
Cornell University Medical College, New York City.....	5,000.00
Harvard Medical School, Boston, Massachusetts.....	96,000.00
Harvard University, Cambridge, Massachusetts.....	412,500.00
Institute of the Pennsylvania Hospital, Philadelphia.....	36,000.00
Johns Hopkins University, Baltimore, Maryland.....	63,000.00
Massachusetts General Hospital, Boston.....	60,000.00
Medical Research Council, London, England.....	18,500.00
National Committee on Maternal Health, New York City.....	6,000.00
Northwestern University, Chicago, Illinois.....	25,000.00
Royal Medico-Psychological Association, London, England.....	9,050.00
University of Cambridge, England.....	97,600.00
University of Cincinnati, Ohio.....	37,500.00
University of Colorado, Denver.....	20,000.00

EXHIBIT G—*Continued***MEDICAL SCIENCES—*Continued*****Psychiatry, Neurology, and Allied Subjects—*Continued***

✓University of Freiburg, Germany.....	\$19,600.00
University of Helsinki, Finland.....	15,000.00
University of Oslo, Norway.....	8,850.00
University of Paris, France.....	60,000.00
Walter and Eliza Hall Institute of Research in Pathology and Medicine, Melbourne, Australia.....	8,000.00
Worcester State Hospital, Massachusetts.....	49,500.00
Yale University, New Haven, Connecticut.....	300,000.00
Fellowships	
Administered by the Foundation.....	120,000.00
Medical Research Council, London, England.....	45,000.00
National Research Council, Washington, D. C.....	75,000.00
General	
Grants in aid.....	90,000.00
Former Program	
China Medical Board, Inc., New York City.....	420,000.00
Yale University, New Haven, Connecticut.....	250,000.00
	<hr/>
	\$2,392,100.00

**NATURAL SCIENCES****Experimental Biology**

Brush Foundation, Cleveland, Ohio.....	\$18,000.00
Carlsberg Foundation, Copenhagen, Denmark.....	18,710.00
Carnegie Institution, Washington, D. C.....	5,000.00

Collège de France. Laboratory of Atomic Synthesis, Paris.....	\$15,000.00
Columbia University, New York City.....	64,000.00
Harvard University, Cambridge, Massachusetts.....	30,500.00
Leland Stanford, Jr., University, Palo Alto, California.....	27,000.00
Long Island Biological Association, Cold Spring Harbor, New York.....	20,000.00
National Research Council, Washington, D. C.....	275,000.00
Ohio State University, Columbus.....	15,000.00
Princeton University, New Jersey.....	33,000.00
Strangeways Research Laboratory, Cambridge, England.....	32,830.00
University of Berne, Switzerland.....	28,000.00
University of Copenhagen, Denmark.....	12,500.00
University of Manchester, England.....	25,000.00
University of Minnesota, Minneapolis.....	36,000.00
University of Pennsylvania, Philadelphia.....	12,000.00
University of Stockholm, Sweden.....	101,165.00
University of Utrecht, Netherlands.....	59,850.00
University of Virginia, Charlottesville.....	8,000.00
Fellowships	
Administered by the Foundation.....	140,000.00
General	
American Mathematical Society, New York City.....	7,500.00
Grants in aid.....	160,000.00
	<hr/>
	\$1,144,055.00
	<hr/>
	7,500
	<hr/>
	136,555

EXHIBIT G—*Continued***SOCIAL SCIENCES****Social Security**

Austrian Institute for Trade Cycle Research, Vienna.....	\$18,000.00
League of Nations, Geneva, Switzerland.....	98,000.00
London and Cambridge Economic Service, England.....	15,000.00
National Bureau of Economic Research, New York City.....	70,000.00
National Institute of Economic and Social Research of Great Britain, London.....	150,000.00
Ontario Medical Association, Welland, Canada.....	24,275.00
Social Science Research Council, New York City.....	102,000.00
State Charities Aid Association, New York City.....	80,000.00
University of Oxford, England.....	17,000.00
University of Sofia, Bulgaria.....	24,000.00

**Public Administration**

Harvard University, Cambridge, Massachusetts.....	65,000.00
Institute of Public Administration, New York City.....	18,000.00
National Institute of Public Affairs, Washington, D. C.....	64,000.00
Social Science Research Council, New York City.....	98,500.00

**International Relations**

Foreign Policy Association, New York City.....	75,000.00
Geneva Research Center, Switzerland.....	43,350.00
International Institute of Intellectual Cooperation, Paris.....	125,000.00
Norwegian Committee for International Studies, Oslo.....	25,000.00
Royal Institute of International Affairs, London, England.....	240,200.00

**General**

Grants in aid.....	60,000.00
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Purdue University, Lafayette, Indiana.....	\$90,000.00
Social Science Research Council, New York City.....	25,000.00
Fellowships	
Administered by the Foundation.....	125,000.00
Social Science Research Council, New York City.....	225,000.00
Former Program	
Leland Stanford, Jr., University, Palo Alto, California.....	45,000.00
University of Stockholm, Sweden.....	10,000.00
University of Texas, Austin.....	30,000.00
	\$1,962,325.00

**HUMANITIES**

## Drama

Leland Stanford, Jr., University, Palo Alto, California.....	\$22,500.00
University of North Carolina, Chapel Hill.....	22,000.00
Vassar College, Poughkeepsie, New York.....	10,500.00

## Libraries and Museums

American Library Association, Chicago, Illinois.....	16,000.00
Buffalo Museum of Science, New York.....	50,000.00
National Central Library, London, England.....	22,000.00

## Radio and Film

Museum of Modern Art, New York City.....	20,000.00
National Music League, New York City.....	14,000.00
Pan American Union, Washington, D. C.....	12,820.00
Princeton University, New Jersey.....	67,000.00
University Broadcasting Council, Chicago, Illinois.....	60,000.00

EXHIBIT G—*Continued***HUMANITIES—Continued**

Latin-American and Far Eastern Interests	
American Council of Learned Societies, Washington, D. C.	\$70,000.00
Columbia University, New York City	7,500.00
Orthological Institute, Peiping, China	29,000.00
Royal Ontario Museum of Archaeology, Toronto, Canada	25,000.00
Yale University, New Haven, Connecticut	35,800.00
Fellowships	85,000.00
General	
American National Committee on International Intellectual Cooperation, New York City	5,000.00
Grants in aid	65,000.00
International Committee of Historical Sciences, Paris, France	16,800.00
Former Program	
American Council of Learned Societies, Washington, D. C.	7,000.00
American School of Classical Studies, Athens, Greece	150,000.00
Johns Hopkins University, Baltimore, Maryland	4,000.00
	<hr/>
	\$816,920.00

**CHINA PROGRAM**

Chinese Mass Education Movement	\$22,750.00
Chinese Ministry of Education, Nanking	12,125.00
Emergency Fund	25,000.00
Fellowships	95,000.00
Ministry of Industries and Agriculture, Nanking	9,100.00

Nankai University, Tientsin.....	\$12,125.00
National Central University, Nanking.....	6,100.00
National Health Administration of China, Nanking.....	42,450.00
North China Council for Rural Reconstruction.....	100,000.00
Research and Developmental Aid.....	40,000.00
University of Nanking.....	18,100.00
Yenching University, Peiping.....	12,125.00
	<hr/>
	\$394,875.00

## MISCELLANEOUS

Institute of International Education, New York City.....	\$20,000.00
Special Research Aid Fund for European Scholars.....	50,000.00
	<hr/>
	\$70,000.00

## ADMINISTRATION

Maintenance of New York, Paris, and Shanghai offices.....	\$862,922.39
	<hr/>
	\$9,849,697.39

## EXHIBIT H

## PAYMENTS DURING 1937 ON APPROPRIATIONS MADE IN 1937 AND PRIOR YEARS

	APPROPRIATIONS	1937 PAYMENTS
<b>PUBLIC HEALTH</b>		
International Health Division of The Rockefeller Foundation		
Prior years (RF 34176, 35204).....	\$1,401,171.99*	
1937 (RF 36130).....	2,100,000.00	\$1,955,906.21
1938 (RF 37113).....	2,200,000.00	.....
Revolving fund. To provide working capital (RF 29093).....	200,000.00	.....
Fellowships in Nursing (RF 33018).....	18,478.34	1,160.70
League of Nations. Health Organization, Geneva, Switzerland		
Epidemiological intelligence, public health documentation, international interchange of public health personnel (RF 33100, 34178).....	130,470.50	82,967.34
Schools and Institutes of Hygiene and Public Health		
Bulgaria, Sofia. Land, building, and equipment (RF 30059).....	12,084.11	.....
Japan, Tokyo. Construction and equipment (RF 32116).....	709,665.23	305,663.85
Rumania, Bucharest		
Construction and equipment (RF 33078).....	72,878.60	32,268.43
Health center (RF 33079).....	15,000.00	.....
Schools of Nursing		
Emergency aid to schools of nursing in Europe to the development of which the Foundation has previously contributed (RF 31099).....	23,409.26	.....
School of Nursing, Bucharest, Rumania. Building (RF 35099).....	85,000.00	53,788.06

\* A complete financial statement of the work of the International Health Division for 1937 will be found in Exhibit I, pp. 437-460.

State Institute of Public Health, Prague, Czechoslovakia			
School for Nurses in Public Health and Social Welfare			
Improvement of teaching services (RF 30082).....	\$24,700.00	\$10,000.00	
University of Toronto, Ontario. Maintenance (RF 32080).....	6,083.23	Cr. 6.01	
Vanderbilt University, Nashville, Tennessee			
Endowment (RF 36131).....	200,000.00	200,000.00	
Interest on RF 36131 (RF 37144).....	6,500.00	6,410.96	
MEDICAL SCIENCES			
Psychiatry, Neurology, and Allied Subjects			
Boston University, Massachusetts			
Researches on cerebral cortex (RF 36104).....	6,250.00	2,500.00	
Chicago Area Project, Chicago, Illinois			
General budget (RF 35128, 36024, 37035).....	60,720.61	21,095.61	
Columbia University, New York City			
Research in poliomyelitis (RF 36026).....	5,000.00	3,994.96	
Research in psychiatry (RF 35126).....	7,500.00	7,500.00	
Study of constitutional aspects of disease (RF 36103).....	35,000.00	14,000.00	
Cornell University, Ithaca, New York			
Study of reflex behavior in relation to neuroses (RF 36102).....	16,100.00	10,900.00	
Cornell University Medical College, New York City			
Research in physiological aspects of neurology and psychiatry (RF 36039)....	2,875.00	2,828.89	
Research in psychosomatic disorders (RF 37062) .....	5,000.00	2,500.00	
Harvard Medical School, and Massachusetts General Hospital, Boston, Massachusetts			
Teaching and research in psychiatry (RF 35002, 36010, 37017) .....	200,548.48	75,169.08	

**EXHIBIT H—Continued**

	APPROPRIATIONS	1937 PAYMENTS	400 THE ROCKEFELLER FOUNDATION
<b>MEDICAL SCIENCES—Continued</b>			
<b>Psychiatry, Neurology, and Allied Subjects—Continued</b>			
Harvard University, Cambridge, Massachusetts			
Research in epilepsy at Harvard Medical School and Boston City Hospital (RF 37060).....	\$52,500.00	\$8,750.00	
Research in industrial hazards (RF 37055).....	360,000.00	8,095.76	
Research in neurophysiology (RF 36125).....	75,000.00	7,500.00	
Institute for Psychiatric Research, Munich, Germany			
Research in neurohistology, serology, and biochemistry (RF 31045, 33082)....	8,018.25	.....	
Institute for Psychoanalysis, Chicago, Illinois			
Research and teaching (RF 35041).....	57,500.00	32,500.00	
Institute of the Pennsylvania Hospital, Philadelphia			
Development of research and teaching in psychiatry (RF 35001, 37009).....	45,405.54	18,000.00	
Johns Hopkins University, Baltimore, Maryland			
Development of neurology (RF 36022).....	28,000.00	7,771.23	
Neurological research (RF 37080).....	10,000.00	2,000.00	
Research in psychiatry (RF 33043, 37018).....	56,146.97	20,274.95	
Study of accessory factors of health (RF 36120, 37081).....	12,000.00	7,892.94	
Study and teaching in child psychiatry (RF 35010).....	34,694.03	13,800.00	
London County Council, England			
Research in psychiatry at Maudsley Hospital (RF 35108).....	22,651.87	14,820.01	
Massachusetts Department of Mental Diseases, Boston			
Publication of statistical data on mental disease in Massachusetts (RF 35003)...	20,153.44	3,423.80	
Research in psychiatry at Boston State Hospital (RF 34142).....	13,700.00	13,700.00	

Medical Research Council, London, England			
Research in field of hereditary mental diseases (RF 37056).....	\$18,500.00	\$3,519.25	
Studies in human genetics in relation to mental disease, Galton Laboratory, University of London (RF 35057, 36132).....	36,573.75	6,939.00	
National Committee on Maternal Health, New York City			
Toward budget (RF 37100).....	6,000.00	3,000.00	
National Committee for Mental Hygiene, New York City			
Support of activities (RF 36025).....	45,000.00	15,000.00	
Support of Division of Mental Hospital Service (RF 36055).....	40,000.00	15,976.31	
National Hospital, Queen Square, for the Relief and Cure of Diseases of the Nervous System, including Paralysis and Epilepsy, London, England			
Endowment of research (RF 35040).....	300,000.00	.....	
Building (RF 35040).....	300,000.00	157,451.12	
North Carolina. Commission for the Study of the Care of the Insane and Mentally Defective (RF 35110).....	2,300.00	1,835.63	
Northwestern University Medical School, Chicago, Illinois			
Research in neuroanatomy (RF 35011, 37010).....	27,000.00	4,500.00	
Royal Medico-Psychological Association, London, England			
Teaching and training in psychiatry (RF 37098).....	9,050.00	1,500.75	
Tulane University, New Orleans, Louisiana			
Development of subdepartment of psychiatry (RF 36086).....	20,000.00	8,000.00	
University of Alabama, University, Alabama			
Research in neurophysiology (RF 36105).....	6,000.00	2,249.87	
University of Amsterdam, Netherlands			
Research in dementia praecox (RF 35109).....	3,993.18	2,964.73	

**EXHIBIT H—Continued**

	APPROPRIATIONS	1937 PAYMENTS	402
<b>MEDICAL SCIENCES—Continued</b>			
<b>Psychiatry, Neurology, and Allied Subjects—Continued</b>			
University of California, Berkeley			
Support of child guidance program (RF 36012, 36133).....	\$34,500.00	\$13,500.00	
University of Cambridge, England			
Department of Psychology. Research and alterations (RF 37079).....	56,800.00	.....	
Department of Experimental Medicine. Research (RF 37137).....	40,800.00	.....	
University of Rochester, New York			
Virus research (RF 36027).....	10,000.00	5,819.08	
Walter and Eliza Hall Institute of Research in Pathology and Medicine, Melbourne, Australia			
Research on virus diseases, with special reference to neurotropic viruses (RF 34083, 37011).....	8,581.25	3,972.50	
Washington University, St. Louis, Missouri			
Research in neurophysiology (RF 33061).....	18,168.65	11,698.97	
Worcester State Hospital, Massachusetts			
Research on dementia praecox (RF 35012, 37034).....	57,958.38	15,403.29	
Yale University, New Haven, Connecticut			
Institute of Human Relations			
Development of psychiatry (RF 29002, 37114).....	582,741.03	97,610.99	
Experimental studies in neurophysiology (RF 36013).....	7,500.00	5,000.00	
Teaching of Public Health in Medical Schools			
Cornell University Medical College, New York City			
Maintenance of Department of Public Health and Preventive Medicine (RF 36057).....	112,000.00	2,639.17	

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Dalhousie University, Halifax, Nova Scotia			
Development of teaching in public health and preventive medicine (RF 33044) .....	\$15,296.24	\$8,140.79	
Study of the teaching of preventive medicine, public health, and hygiene in North American and Western European medical schools (RF 35171).....	19,116.48	16,959.98	
Visits by teachers of public health and deans of medical schools in the United States and Canada (RF 34124, 35154).....	2,446.49	.....	
University of Chicago, Illinois			
Development of subdepartment of psychiatry (RF 35055).....	89,250.00	39,227.38	
Investigation of physiology of sleep (RF 36023).....	6,750.00	4,500.00	
University of Cincinnati, Ohio			
Research in neurology in relation to nutrition (RF 37107).....	37,500.00	.....	
University of Colorado, School of Medicine, Denver			
Teaching in psychiatry (RF 35127, 37019).....	25,326.69	9,880.00	
University of Edinburgh, Scotland			
Research in neurology (RF 36054).....	34,458.75	9,262.50	
✓ University of Freiburg, Germany			
Neuropsychiatric research (RF 37138).....	19,600.00	.....	
University of Helsinki, Finland			
Research in neurophysiology (RF 37099).....	15,000.00	.....	
University of Illinois, Urbana			
Development of teaching and research in psychiatry (RF 36085).....	37,500.00	15,000.00	
University of Leiden, Netherlands			
Research in child psychiatry (RF 34145).....	13,854.78	2,485.76	
University of Michigan, Ann Arbor			
Development of teaching and research in psychiatry (RF 35009).....	9,000.00	3,850.55	

**EXHIBIT H—Continued**

	APPROPRIATIONS	1937 PAYMENTS	404
<b>MEDICAL SCIENCES—Continued</b>			
Teaching of Public Health in Medical Schools—Continued			
University of Oslo, Norway			
Research in neuroanatomy and neuropathology (RF 37057).....	\$8,850.00	\$2,247.19	
University of Paris, France			
Endowment of neurosurgery (RF 37115).....	60,000.00	.....	
University of Pennsylvania, Philadelphia			
Study of living tissues, with special reference to growth of nerve fibers (RF 35058)	3,125.00	3,075.84	
Fellowships			
Administered by The Rockefeller Foundation (RF 32110, 34162, 35172, 36144, 37129).....	479,655.17	80,490.55	
Medical Research Council, London, England (RF 35027, 37033) .....	46,486.63	176.50	
National Research Council, Washington, D.C. (RF 35036, 35169, 37061).....	119,307.95	24,184.17	
General			
Cornell University Medical College, New York City			
Studies of the role of the glands of internal secretion in relation to growth and inheritance (RF 30006).....	88,839.43	24,999.13	
Dartmouth College, Hanover, New Hampshire			
Research in physiological optics (RF 35125).....	39,000.00	27,000.00	
Grants in aid (RF 34166, 35173, 36148, 37125).....	288,012.74	96,992.71	
Harvard University, Cambridge, Massachusetts			
Research in physiology and physical chemistry (RF 30028).....	16,666.72	16,616.85	
Johns Hopkins University, Baltimore, Maryland			
Institute of the History of Medicine (RF 35056).....	18,750.00	12,500.00	

THE ROCKEFELLER FOUNDATION

Lister Institute of Preventive Medicine, London, England			
Purchase of ultracentrifuge for use in medical research, particularly on the biophysical aspects of body fluids (RF 34126).....	\$6,745.37	\$5,416.13	
Medical Research Council, London, England			
Research on puerperal fever (RF 31044).....	39,968.01	15,000.00	
National Research Council. Research aid fund (RF 34172).....	6,000.00	6,000.00	
Research aid fund, Europe (RF 29127, 34038).....	16,816.22	151.66	
Royal Caroline Institute, Stockholm, Sweden			
Research in biochemistry (RF 34144).....	12,186.49	5,126.99	
University of Copenhagen, Denmark. Institute of Human Genetics			
Building and equipment (RF 36053).....	62,500.00	.....	
Endowment (RF 36053).....	27,500.00	.....	
University of Paris, France. Radium Institute			
Division of Biophysics (RF 32076, 33082).....	68,147.56	10,573.04	
University of Turin, Italy. Institute of Anatomy			
Research in problems of growth (RF 31068).....	2,036.09	.....	
Former Program			
American University of Beirut, Lebanon			
Improvement of teaching facilities in the medical sciences, nursing, and the premedical subjects (RF 31124).....	204,166.74	50,000.00	
China Medical Board, Inc., New York City			
Peiping Union Medical College. Maintenance			
1936-37 (RF 36087, 36134).....	148,000.00	48,000.00	
1937-38 (RF 37063).....	420,000.00	210,000.00	
Institute of the Educational Sciences, Geneva, Switzerland			
General budget (RF 32002, 34121, 35152, 36106).....	20,672.45	6,880.74	

## EXHIBIT H—Continued

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## MEDICAL SCIENCES—Continued

## Former Program—Continued

	APPROPRIATIONS	1937 PAYMENTS	THE ROCKEFELLER FOUNDATION
Johns Hopkins University, Baltimore, Maryland Study of deafness (RF 32024).....	\$59,420.93	\$15,845.59	
National Research Council, Washington, D.C. Work of the Committee on Drug Addiction (RF 34127, 36011).....	164,416.18	48,843.67	
Peiping Union Medical College, China Allowance for a widow of staff member (RF 29034).....	8,402.37	1,526.67	
Soviet Ministry of Public Health, Russia Medical literature (RF 34125, 35166, 36121).....	7,675.24	5,003.83	
University of Copenhagen, Denmark Research on inheritance in relation to blood groupings (RF 34112).....	4,849.36	1,462.23	
✓ University of Leipzig, Germany. Institute of Physiological Chemistry Research assistants, fellows, and aid (RF 31016, 33082).....	12,384.42	9,760.18	
University of Paris, France. Department of Parasitology Support (RF 34119, 36056).....	19,700.00	10,173.46	
University of Szeged, Hungary. Department of Medicine Maintenance (RF 31026).....	2,108.99	.....	
Scientific equipment (RF 31025).....	1,897.77	400.73	
Vanderbilt University, Nashville, Tennessee. School of Medicine Fluid research fund (RF 31136).....	35,000.00	20,000.00	
Yale University, New Haven, Connecticut. School of Medicine Fluid research fund (RF 29147).....	6,250.00	6,250.00	
Endowment of fluid research fund (RF 37058).....	250,000.00	250,000.00	

## NATURAL SCIENCES

## Experimental Biology

Amherst College, Massachusetts

Research in genetics and experimental embryology (RF 34130).....	\$7,937.71	\$4,137.71
Brush Foundation, Cleveland, Ohio		
Researches on human ovulation (RF 37032).....	18,000.00	3,000.00
California Institute of Technology, Pasadena		
Research in biology (RF 33106).....	10,000.00	10,000.00
Research in chemistry (RF 34151).....	15,000.00	10,000.00
Research in general physiology (RF 35047).....	10,000.00	10,000.00
Carlsberg Foundation, Copenhagen, Denmark		
Special researches under direction of Professor Linderstrøm-Lang (RF 37024)...	18,710.00	2,494.51
Carnegie Institution of Washington, D.C.		
Researches in Department of Embryology (RF 37083).....	5,000.00	2,500.00
Clark University, Worcester, Massachusetts		
Research in neurophysiology (RF 35005).....	1,800.00	1,350.00
Collège de France, Laboratory of Atomic Synthesis, Paris		
Research on biological problems (RF 37093).....	15,000.00	.....
Columbia University, New York City		
Researches in nutrition (RF 37084).....	16,500.00	2,750.00
Researches in endocrinology (RF 37074).....	47,500.00	5,500.00
Research in physiology (RF 35160).....	4,500.00	3,000.00
Cornell University, Ithaca, New York		
Research in nutrition (RF 36029).....	37,500.00	7,490.03
Emma Pendleton Bradley Home, East Providence, Rhode Island		
Research in electroencephalography (RF 35096).....	23,958.82	15,284.80

## EXHIBIT H—Continued

	1937 APPROPRIATIONS	1937 PAYMENTS	408
<b>NATURAL SCIENCES—Continued</b>			
<b>Experimental Biology—Continued</b>			
George Washington University, Washington, D.C.			
Research in biochemistry (RF 35022).....	\$12,250.00	\$8,050.00	
Harvard University, Cambridge, Massachusetts			
Chemical research to determine the heats of organic reactions (RF 32098)....	11,000.00	8,000.00	
Researches in Department of Physical Chemistry (RF 37077).....	12,500.00	6,250.00	
Researches in endocrinology (RF 37078).....	18,000.00	3,000.00	
Research on physical and chemical properties of synovial fluid (RF 36082)....	10,500.00	4,199.88	
Johns Hopkins University, Baltimore, Maryland			
Research in Department of Biochemistry (RF 36099).....	29,250.00	6,500.00	
Research in photosynthesis and photo-oxidation (RF 36068).....	1,800.00	1,800.00	
Leland Stanford, Jr., University, Palo Alto, California			
Research in chemophysical biology (RF 35174).....	30,000.00	13,750.00	
Researches under direction of Professor Addis (RF 37030).....	27,000.00	5,000.00	
Long Island Biological Association, Cold Spring Harbor, New York			
Support of a symposium on quantitative biology (RF 35177).....	7,000.00	7,000.00	
Support of symposia in summers of 1938 and 1939 (RF 37076).....	20,000.00	.....	
Massachusetts General Hospital, Boston			
Research on the parathyroid hormone and calcium and phosphorus metabolism (RF 35024).....	4,500.00	2,696.18	
McGill University, Montreal, Quebec			
Research in the applications of spectroscopic methods to biological and medical problems (RF 35097).....	10,000.00	8,000.00	
Research in the Department of Genetics (RF 36097).....	12,103.28	5,500.69	

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National Research Council, Washington, D.C.			
Committee for Research in Problems of Sex (RF 35180, 36135, 37123).....	\$336,304.36	\$70,130.00	
Committee on Effects of Radiation on Living Organisms (RF 35095).....	46,165.02	22,958.31	
Researches in biophysics (RF 37020).....	75,000.00	1,625.36	
New York University, New York City. College of Medicine			
Research in cellular physiology (RF 35176).....	7,000.00	3,500.00	
Ohio State University, Columbus			
Research in endocrinology (RF 35175, 37082).....	21,000.00	9,750.00	
Oregon State Agricultural College, Corvallis			
Research in Department of Chemistry (RF 36069).....	16,500.00	6,750.00	
Philadelphia Institute for Medical Research, Pennsylvania			
Research in endocrinology (RF 36100).....	15,500.00	5,000.00	
Princeton University, New Jersey			
Researches in organic chemistry (RF 37052).....	33,000.00	18,500.00	
Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine			
Research in mammalian genetics (RF 35159).....	22,500.00	10,000.00	
Rothschild Foundation, Paris, France. Institute of Physicochemical Biology			
Researches in cellular physiology, chemical embryology, and genetics (RF 36067)	49,224.06	6,589.72	
State University of Iowa, Iowa City			
Investigations on the physiology of the normal cell (RF 35050).....	24,750.00	9,500.00	
Strangeways Research Laboratory, Cambridge, England			
Building and equipment of additional wing (RF 37109).....	32,830.00	.....	
Technical Institute, Graz, Austria			
Research in biophysical chemistry (RF 35141).....	3,084.59	2,676.06	409
University of Berne, Switzerland			
Researches in physiology (RF 37054).....	28,000.00	4,597.07	

## EXHIBIT H—Continued

	1937 APPROPRIATIONS	1937 PAYMENTS	410
<b>NATURAL SCIENCES—Continued</b>			
<b>Experimental Biology—Continued</b>			
University of California, Berkeley			THE ROCKEFELLER FOUNDATION
Researches in plant genetics (RF 35025).....	\$6,000.00	\$4,000.00	
Study of chemical aspects of vitamins and hormones (RF 36008).....	42,500.00	18,750.00	
University of Cambridge, England			
Research in cellular physiology (RF 35146).....	27,621.00	5,930.43	
University of Chicago, Illinois			
Research in application of spectroscopic methods to biological problems (RF 36081).....	37,450.00	10,700.00	
Research in the biological sciences (RF 35053).....	75,000.00	49,958.55	
Research in surface chemistry (RF 36080).....	13,125.00	7,500.00	
University of Copenhagen, Denmark			
Completion of design, development, construction, and testing of a cyclotron (RF 37029).....	12,500.00	.....	
Special research in application of methods of physics, chemistry, and mathematics to biological problems (RF 35043).....	35,679.07	6,881.76	
University of Illinois, Urbana			
Research in spectroscopic analysis of water (RF 36016).....	7,000.00	3,500.00	
Research in biochemistry of amino acids (RF 36030).....	7,500.00	5,000.00	
University of Leeds, England			
Research in the x-ray analysis of biological tissues (RF 35145).....	11,996.40	5,757.83	
University of Manchester, England			
Researches on vitamins, sterols, and related compounds (RF 37031).....	25,000.00	6,197.38	

University of Michigan, Ann Arbor			
Research in the applications of spectroscopic methods to biological and medical problems (RF 35046).....	\$2,900.00	\$2,900.00	
Research in the physiology of respiration (RF 35049).....	17,500.00	4,929.29	
University of Minnesota, Minneapolis			
Cost of high-pressure generator and for researches in biology and medicine (RF 37053).....	36,000.00	8,000.00	
University of Missouri, Columbia			
Research in cytology and genetics (RF 36098).....	12,250.00	5,000.00	
University of Oxford, England			
Research in the application of mathematical analyses to biological problems (RF 35144).....	7,798.75	2,487.50	
Research on the synthesis of proteins (RF 36083).....	36,579.75	7,895.57	
University of Paris, France			
Research in endocrinology and vitamins (RF 35147).....	6,082.25	1,585.52	
University of Pennsylvania, Philadelphia			
Research on influence of minerals and other elements in diet upon resistance to infection (RF 36031, 37075).....	16,000.00	6,769.07	
University of Rochester, New York, School of Medicine and Dentistry			
Research on physiology of reproduction (RF 35052).....	6,025.92	2,570.25	
University of Stockholm, Sweden			
Increased facilities for investigations in zoophysiology (RF 31149).....	379.50	126.58	
Institute of Experimental Biology. Construction and equipment (RF 37021) ..	65,000.00	.....	
Research in biophysics, chemical biology, and cell physiology (RF 35142).....	5,130.87	2,313.06	
Researches under direction of Professor Runnström (RF 37022).....	24,465.00	.....	
Scientific equipment and materials for researches under direction of Professor von Euler (RF 37023).....	11,700.00	.....	

EXHIBIT H—*Continued*

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**NATURAL SCIENCES—Continued****Experimental Biology—Continued**

	APPROPRIATIONS	1937 PAYMENTS	THE ROCKEFELLER FOUNDATION
University of Uppsala, Sweden. Institute of Physical Chemistry Research on the physicochemical properties of proteins and other heavy molecules (RF 35044).....	\$49,393.17	\$10,067.91	
University of Utrecht, Netherlands Research in spectroscopic biology and addition to laboratory (RF 35143, 37094).....	68,480.85	6,604.94	
University of Virginia, Charlottesville Development of ultracentrifuges (RF 37008).....	8,000.00	4,000.00	
Research in endocrinology (RF 35161).....	10,000.00	5,000.00	
University of Wisconsin, Madison Purchase and installation of ultracentrifuges (RF 36101).....	23,500.00	23,500.00	
Research in immunogenetics (RF 36032).....	6,909.32	4,650.00	
Washington University, St. Louis, Missouri Research in the Department of Anatomy (RF 36118).....	4,750.00	3,000.00	
Research in nerve physiology (RF 35048).....	7,750.00	5,250.00	
Yale University, New Haven, Connecticut Experimental embryology (RF 36015).....	15,000.00	5,000.00	
Fellowships Administered by The Rockefeller Foundation (RF 31142, 32111, 34168, 35019, 35178, 36145, 37130).....	507,204.15	112,184.82	
National Research Council, Washington, D.C. Physical and biological sciences (RF 34169, 35037, 36070).....	229,097.83	68,463.08	

## General

American Mathematical Society, New York City			
Expenses of 1940 International Congress of Mathematicians (RF 37108) . . . . .	\$7,500.00	\$ . . .	.
China Medical Board, Inc., New York City			
Peiping Union Medical College, China			
Human paleontological research in Asia (RF 32100, 36119, 36137) . . . . .	98,655.84	19,704.82	
Grants in aid			
(RF 34170-71, 35179, 36079, 36149, 37126) . . . . .	382,937.51	146,186.77	
Massachusetts Institute of Technology, Cambridge			
Construction of differential analyzer (RF 36071) . . . . .	85,000.00	37,961.76	
National Research Council, Washington, D.C.			
Conferences (RF 32010) . . . . .	2,808.74	. . .	
Support of central purposes (RF 36136) . . . . .	75,000.00	36,956.54	
Research aid fund (RF 34172) . . . . .	10,000.00	10,000.00	
Research Aid Fund, Europe (RF 32107, 34039) . . . . .	2,074.51	491.44	
University of Alaska, College, Alaska (Formerly Alaska Agricultural College and School of Mines)			
Study of the aurora (RF 29118) . . . . .	1,573.16	. . . . .	
Yale University, New Haven, Connecticut			
Research in oceanography (RF 36084) . . . . .	7,500.00	5,000.00	
Former Program			
American Institute of Physics, New York City			
Scientific publications (RF 35122) . . . . .	5,135.67	1,663.81	
American Psychological Association, Princeton, New Jersey			
<i>Psychological Abstracts</i> (LS 694) . . . . .	2,347.31	1,673.53	

## EXHIBIT H—Continued

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THE ROCKEFELLER FOUNDATION

	APPROPRIATIONS	1937 PAYMENTS
<b>NATURAL SCIENCES—Continued</b>		
Former Program—Continued		
California Institute of Technology, Pasadena		
Development of natural sciences, including buildings and equipment (RF 30080).	\$500,000.00	\$.....
Harvard University, Cambridge, Massachusetts		
Geophysical research (RF 35194).....	40,000.00	12,500.00
Hungarian Biological Research Institute, Tihany		
Maintenance (RF 31061).....	1,881.59	.....
International Commission for the Polar Year 1932-33, Copenhagen, Denmark		
Equipment and expenses (RF 34132).....	12,000.00	.....
Johns Hopkins University, Baltimore, Maryland		
Biological research (RF 30005).....	107,500.00	33,750.00
Long Island Biological Association, Cold Spring Harbor, New York		
Biological laboratory (RF 34149).....	5,000.00	5,000.00
National Research Council, Washington, D.C.		
<i>Biological Abstracts</i> . Editing and indexing (RF 34152, 35123).....	25,022.65	16,138.17
University of Leiden, Netherlands		
Purchase and endowment of a photographic telescope for the Union Observatory, Johannesburg, Union of South Africa (RF 30021, 34100).....	112,673.02	.....
University of Oslo, Norway. Institute of Theoretical Astrophysics		
Construction and equipment (RF 31035, 34033).....	2,071.64	1,894.44
University of Szeged, Hungary. Department of Science		
Maintenance (RF 31026).....	2,108.98	.....
Scientific equipment (RF 31025).....	1,897.76	400.72

University of Utrecht, Netherlands. Institute of Comparative Physiology Construction of building (RF 33038, 33081).....	\$3,030.92	\$141.76
University of Virginia, Charlottesville Graduate research in the natural sciences (RF 34153).....	25,000.00	17,500.00
Yale University, New Haven, Connecticut Maintenance of an anthropoid experiment station, Orange Park, Florida (RF 29090).....	117,106.84	39,154.12
<b>SOCIAL SCIENCES</b>		
Social Security		
Austrian Institute for Trade Cycle Research, Vienna Research program (RF 35164, 37104).....	26,471.83	5,627.02
Dutch Economic Institute, Rotterdam, Netherlands Research program (RF 36076).....	16,800.00	4,383.56
Harvard University, Cambridge, Massachusetts Research on problems of the business cycle (RF 35083).....	12,500.00	10,000.00
Industrial Relations Counselors, New York City Study of railroad retirement systems (RF 36094).....	4,000.00	.....
League of Nations, Geneva, Switzerland Analytical research work of the Financial Section and Economic Intelligence Service (RF 33023, 37116).....	174,550.03	28,290.01
London and Cambridge Economic Service, England Research on business cycle (RF 37067).....	15,000.00	1,241.25
National Bureau of Economic Research, New York City Planning and research in field of finance (RF 37139).....	70,000.00	.....
National Institute of Economic and Social Research of Great Britain, London Toward general budget (RF 37049).....	150,000.00	.....

**EXHIBIT H—Continued**

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**SOCIAL SCIENCES—Continued**

**Social Security—Continued**

Ontario Medical Association, Welland, Ontario

Development of Medical Relief Records (RF 37016)..... \$24,275.00 \$8,448.51

Social Science Research Council, New York City

Committee on Social Security

General budget (RF 35115)..... 130,000.00 95,000.00

Study of unemployment relief policies in New Jersey (RF 36114)..... 15,000.00 11,760.07

Regional studies of labor market in relation to unemployment compensation  
(RF 36077)..... 769.16 Cr. 11.03

Work in the field of social security (RF 37070)..... 60,000.00 .....

Study of state unemployment compensation administration (RF 37086)..... 30,000.00 10,000.00

Study of mobility of labor and unemployment (RF 37105)..... 12,000.00 4,000.00

State Charities Aid Association, New York City

Establishing local citizens public welfare committees in New York State  
(RF 37111)..... 80,000.00 .....

University of Louvain, Belgium. Institute of Economics

Business cycle research (RF 33010, 36115)..... 5,514.17 1,895.61

University of Oxford, England

Business cycle research (RF 37015)..... 17,000.00 6,195.38

University of Sofia, Bulgaria. Statistical Institute of Economic Research

General budget (RF 35077, 37110)..... 31,505.66 5,092.43

Public Administration

American University, Washington, D.C.

Training program in public administration (RF 35082)..... 8,000.00 6,000.00

APPROPRIATIONS	1937 PAYMENTS
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THE ROCKEFELLER FOUNDATION

<b>Brookings Institution, Washington, D.C.</b>			
Concurrent study of National Industrial Recovery Administration (RF 33067, 34078).....	\$2,623.42	\$.....	
<b>Dalhousie University, Halifax, Nova Scotia</b>			
Program of training and research in public administration (RF 36093).....	53,693.55	15,014.07	
<b>Harvard University, Cambridge, Massachusetts</b>			
Training in public service (RF 35078).....	52,943.72	11,857.21	
Development of organization and program of Graduate School of Public Administration (RF 37002).....	65,000.00	7,933.45	
<b>Institute of Public Administration, New York City</b>			
Study of administrative aspects in independent regulatory commissions (RF 37005).....	18,000.00	18,000.00	
<b>National Association of Housing Officials, Chicago, Illinois</b>			
Emergency training course in management of housing developments (RF 34139).....	10,709.48	10,706.35	
<b>National Institute of Public Affairs, Washington, D.C.</b>			
Training of personnel attached to federal services (RF 35138, 37085).....	40,000.00	20,000.00	
Training of administrative personnel for the Indian Service (RF 37106).....	54,000.00	4,500.00	
<b>New Hampshire Foundation, Concord</b>			
Research program (RF 35084).....	6,000.00	.....	
<b>Social Science Research Council, New York City</b>			
Public Administration Committee			
General expenses, exploratory studies, conferences, and small projects (RF 35114, 36140).....	141,833.52	29,731.98	
Study of the administrative organization of the Tennessee Valley Authority (RF 36040).....	20,000.00	7,000.00	

## EXHIBIT H—Continued

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### SOCIAL SCIENCES—Continued

#### Public Administration—Continued

##### Social Science Research Council, New York City—Continued

###### Public Administration Committee—Continued

Study of work of agencies engaged in municipal or government research (RF 37064).....	\$18,000.00	\$10,800.00
Survey of programs of training in public administration (RF 37065).....	17,500.00	8,750.00
Survey and appraisal of council-manager form of local government (RF 37066)	28,000.00	13,999.98
Study of administrative methods of Department of Agriculture (RF 37140)....	35,000.00	.....

##### Spelman Fund of New York, New York City

Support of work in public administration (RF 35199).....	700,000.00	300,000.00
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##### Syracuse University, New York. School of Citizenship and Public Affairs

Research and training (RF 32037, 35139).....	41,500.00	18,000.00
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##### University of Chicago, Illinois

Training and research in public administration (RF 32035).....	18,750.00	6,250.00
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##### University of Cincinnati, Ohio

Training in public administration (RF 32036).....	10,000.00	7,500.00
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##### University of Minnesota, Minneapolis

Program of training for the public service (RF 36065).....	75,000.00	20,000.00
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##### University of Virginia, Charlottesville. Bureau of Public Administration

Program of service and research (RF 36066).....	35,000.00	10,000.00
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##### International Relations

Agricultural economics. World-wide study (RF 35081).....	9,505.87	6,500.00
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APPROPRIATIONS	1937 PAYMENTS
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THE ROCKEFELLER FOUNDATION

American Geographical Society, New York City			
Preparation and publication of Millionth Map of Hispanic America (RF 35028)..	\$5,000.00	\$.....	
Canadian Institute of International Affairs, Toronto, Ontario			
Research and educational activities (RF 36075).....	11,552.34	5,001.17	
Canton of Geneva, Switzerland. Department of Public Instruction			
Graduate Institute of International Studies. Maintenance (RF 29136).....	441,229.92	89,356.14	
Center for the Study of Foreign Relations, Paris, France			
Research in international relations (RF 35136).....	45,000.00	25,000.00	
Council on Foreign Relations, New York City			
Work of American Coordinating Committee of the International Studies Conference (RF 36036).....	15,000.00	15,000.00	
Research program (RF 35189).....	30,000.00	15,000.00	
Foreign Policy Association, New York City			
Support of experimental educational program (RF 35080, 36138).....	32,317.86	28,037.80	
Support of Research Department (RF 35188).....	50,000.00	25,000.00	
Support of Department of Popular Education (RF 37119).....	75,000.00	.....	
Geneva Research Center, Switzerland			
General research budget (RF 36113, 37068).....	55,350.00	10,500.00	
Harvard University and Radcliffe College, Cambridge, Massachusetts			
Research in the field of international relations (LS 993).....	167,822.61	23,020.60	
Institute of Economics and History, Copenhagen, Denmark			
Budget of International Relations Section (RF 36111).....	8,500.00	3,744.49	
Institute of Pacific Relations			
American Council, New York City. General expenses (RF 35187).....	30,000.00	15,000.00	
Pacific Council, Honolulu, Hawaii. General expenses and research program (RF 35186).....	85,000.00	45,000.00	

## EXHIBIT H—Continued

	APPROPRIATIONS	1937 PAYMENTS
<b>SOCIAL SCIENCES—Continued</b>		
<b>International Relations—Continued</b>		
International Institute of Intellectual Cooperation, Paris, France		
Maintenance and conferences (RF 35137, 37117).....	\$115,000.00	\$15,000.00
Danubian Economic Study (RF 37118).....	25,000.00	.....
International Studies Conference		
Special grants in aid (RF 36017).....	22,817.95	19,835.88
John Casimir University, Lwow, Poland. Institute of Constitutional and International Law		
Research on problems of international relations (RF 35190).....	12,000.00	5,000.00
League of Nations. Fiscal Committee		
Study of international double taxation problems (RF 33004).....	50,000.00	22,170.35
Library of International Relations, Chicago, Illinois		
General budget (RF 36095).....	35,000.00	6,250.00
Norwegian Committee for International Studies, Oslo		
Development of program of research and popular education in international problems in Norway (RF 37102).....	25,000.00	1,886.79
Royal Institute of International Affairs, London, England		
Research program (RF 32038, 33082, 34031, 34129, 36091, 37004).....	201,217.50	19,855.00
Survey of refugee problem (RF 37087).....	30,000.00	7,515.00
Study of workings of Geneva Convention in Upper Silesia (RF 37103).....	10,200.00	.....
Yale University, New Haven, Connecticut		
Research in international relations (RF 35079).....	72,500.00	27,500.00

**General**

Brookings Institution, Washington, D.C.		
General research program (RF 36062).....	\$187,500.00	\$75,000.00
<b>Grants in aid</b>		
In the fields of social security, international relations, and public administration (RF 35089, 35192, 36150, 37127).....	192,965.79	31,524.92
Institute of Economic and Social Research, Paris, France		
Establishment and support (RF 33072).....	214,440.35	36,483.10
National Bureau of Economic Research, New York City		
General budget (RF 33063, 36063).....	3,131.80	3,131.80
General research program and expense of office of Executive Director (RF 36064)	238,750.00	82,779.22
Purdue University, Lafayette, Indiana		
Research in field of housing (RF 37001).....	90,000.00	26,104.36
Social Science Research Council, New York City		
General budget (LS 875).....	106,250.04	40,000.04
Conferences and planning (RF 31127).....	115,972.17	42,946.20
General research projects (RF 31126).....	135,868.61	29,452.15
Grants in aid of research (RF 31128, 36038, 37050).....	58,500.00	27,416.72
Yenching University, Peiping, China. College of Public Affairs		
Developmental aid (LS 946, RF 34081)*.....	7,500.00	5,561.84
<b>Fellowships</b>		
Administered by The Rockefeller Foundation		
Social sciences (RF 34044, 34173, 35195).....	127,847.83	55,114.50
In fields of social security, international relations, and public administration (RF 35088, 35191, 36146, 37131).....	393,667.52	53,301.82
Social Science Research Council, New York City (RF 35039, 36037, 37051).....	300,000.00	58,289.96

\* Current appropriations will be found under China Program.

**EXHIBIT H—Continued**

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THE ROCKEFELLER FOUNDATION

**SOCIAL SCIENCES—Continued**

Former Program

	APPROPRIATIONS	1937 PAYMENTS
American Statistical Association, Washington, D.C.		
General budget (RF 35197).....	\$15,000.00	\$6,000.00
American University of Beirut, Lebanon		
Work in the social sciences (RF 35070).....	24,000.00	10,500.00
Australian National Research Council, Sydney		
Anthropological studies (RF 35013).....	5,000.00	5,000.00
Canadian National Committee for Mental Hygiene, Toronto, Canada		
Development of training centers for advanced students (RF 30088).....	5,784.94	.....
Program of mental hygiene and social research in Canadian universities (RF 33049).....	16,811.07	13,797.95
Columbia University, New York City		
Research in the social sciences (RF 30036-37).....	209,571.06	65,000.04
Community Council of Philadelphia, Pennsylvania		
Support of the Department of Research (RF 35165).....	5,000.00	5,000.00
Grants in aid		
Europe (RF 33009, 34040, 34174, 35196).....	15,833.93	7,597.04
Harvard University, Cambridge, Massachusetts		
Research in industrial hazards* (RF 30031).....	248,231.09	103,379.22
Research in anthropology (RF 36035).....	22,500.00	12,500.00
Research in the social sciences (RF 32032, 35086).....	247,553.51	30,052.62
Institute of Economics and History, Copenhagen, Denmark		
General budget (RF 33071, 36110).....	15,397.50	5,506.61

\* Current grant will be found under Medical Sciences.

International Institute of African Languages and Cultures, London, England		
General budget (RF 31041, 35085).....	\$142,311.93	\$25,000.00
Leland Stanford, Jr., University, Palo Alto, California		
Research in the social sciences (RF 32031, 37069).....	74,700.00	40,000.00
London School of Economics and Political Science, University of London, England		
Research fund (RF 35067).....	30,000.00	12,000.00
Library development (RF 31030).....	33,633.31	3,190.69
Improving facilities for research and postgraduate teaching (RF 31031, 33082)...	60,000.00	30,000.00
Purchase of land for expansion of school plant (RF 31028).....	58,127.66	.....
McGill University, Montreal, Canada		
Research in the social sciences (RF 30107, 36078).....	39,412.46	6,252.12
Nankai University, Tientsin, China. Institute of Economics		
Support (RF 31123, 34080)*.....	11,502.30	7,500.00
National Bureau of Economic Research, New York City		
International study of the history of prices (RF 29138, 33113).....	56,212.76	44,447.28
National Institute of Industrial Psychology, London, England		
Research program (RF 32085, 33054, 33082).....	613.44	613.44
New York School of Social Work, New York City		
General budget (RF 32043).....	40,000.00	17,500.00
Polish Academy of Sciences, Cracow. Economic Institute		
Research program (RF 35076).....	7,000.00	3,370.00
Rumanian Institute of Social Sciences, Bucharest		
General administration and research program (RF 35071).....	1,000.00	.....
Social Science Research Council, New York City		
Instruction in agricultural economics (RF 30104).....	4,140.83	.....
Study of population redistribution (RF 34001).....	4,390.02	.....

\* Current appropriation will be found under China Program.

**EXHIBIT H—Continued**

	APPROPRIATIONS	1937 PAYMENTS	424
<b>SOCIAL SCIENCES—Continued</b>			
Former Program—Continued			
Tulane University, New Orleans, Louisiana			
Department of Middle American Research. Support (RF 34030).....	\$2,500.00	\$2,500.00	THE ROCKEFELLER FOUNDATION
School of Social Work			
General budget (RF 32044).....	16,000.00	7,000.00	
University of California, Berkeley, Institute of Social Sciences			
Research (RF 35068).....	40,000.00	17,500.00	
University of Chicago, Illinois			
Aid to social science facilities (RF 31133, 35087).....	225,978.16	75,978.16	
Local community research (RF 31131).....	66,522.50	35,000.00	
Research in anthropology (RF 34029).....	2,500.00	2,500.00	
School of Social Service Administration			
General endowment (RF 34057) .....	500,000.00	.....	
Current expenses (RF 34058-59).....	85,000.00	38,705.25	
University of Hawaii, Honolulu			
Racial research (RF 33050).....	2,000.00	2,000.00	
University of Manchester, England			
Economic Research Department (RF 35075).....	15,000.00	10,000.00	
University of North Carolina, Chapel Hill			
Program in the social sciences (RF 35069).....	40,000.00	17,500.00	
University of Oslo, Norway. Institute of Economics			
Research program (RF 31122, 36112).....	36,158.26	15,218.83	
University of Oxford, England			
Development of program in the social sciences (RF 34154).....	98,826.56	24,684.39	

University of Paris, France			
Research in the social sciences (RF 35072).....	\$100,000.00	\$27,818.82	
University of Pennsylvania, Philadelphia. Wharton School of Finance and Commerce. Industrial Research Department			
Support (RF 35074).....	40,000.00	17,500.00	
University of Stockholm, Sweden			
Development of social science library (RF 33025, 33082).....	4,000.00	4,000.00	
General research program in the social sciences (RF 36092).....	16,000.00	7,000.00	
Special faculty appointment in the social sciences (RF 35073).....	3,750.00	1,000.00	
Translation and publication of recent studies in Social Science Institute (RF 37101).....	10,000.00	.....	
University of Texas, Austin			
Research in the social sciences (RF 32030, 37003).....	75,833.33	17,500.00	
University of Virginia, Charlottesville			
Research in the social sciences (RF 34175).....	20,000.00	8,750.00	
Welfare Council of New York City. Research Bureau			
Support (RF 36139).....	150,000.00	60,000.00	
Western Reserve University, Cleveland, Ohio. School of Applied Social Sciences			
Support (RF 32042, 33064, 34087).....	20,000.00	8,750.00	
Yale University, New Haven, Connecticut. Institute of Human Relations			
Research in psychology, child development, and social sciences (RF 29008)....	375,000.00	150,000.00	
<b>HUMANITIES</b>			
Drama			
Cornell University, Ithaca, New York			
Work in drama (RF 36002).....	12,500.00	5,000.00	

## EXHIBIT H—Continued

	APPROPRIATIONS	1937 PAYMENTS	426
<b>HUMANITIES—Continued</b>			
Drama—Continued			
Leland Stanford, Jr., University, Palo Alto, California			
Development of program of School of Drama (RF 37006).....	\$22,500.00	\$5,000.00	THE ROCKEFELLER FOUNDATION
Northwestern University, Evanston, Illinois			
Development of School of Drama (RF 36073).....	12,500.00	5,000.00	
State University of Iowa, Iowa City			
Development of work in dramatic art (RF 35149).....	3,750.00	3,750.00	
University of North Carolina, Chapel Hill			
Development of drama as a college and regional activity (RF 35061, 37028)...	24,000.00	5,200.63	
Vassar College, Poughkeepsie, New York			
Summer Institute for leaders in Federal Theatre Project (RF 37027).....	10,500.00	10,500.00	
Washington State Theatre, Seattle			
Touring of dramatic productions (RF 36052).....	15,000.00	7,000.00	
Western Reserve University, Cleveland, Ohio			
Development of Department of Drama and Theatre (RF 35062).....	7,500.00	5,000.00	
Yale University, New Haven, Connecticut			
Development of library in Department of Drama (RF 35092).....	6,649.51	2,894.82	
Aid in acquiring and operation of a motion picture camera for use of Department of Drama (RF 36096).....	6,500.00	1,500.00	
Libraries and Museums			
American Library Association, Chicago, Illinois			
Aid in connection with the General Catalogue of the Bibliothèque Nationale (RF 36020).....	30,000.00	.....	

Project in microphotography at Paris Exposition and in Great Britain (RF 37013).....	\$16,000.00	\$10,000.00
Bibliothèque Nationale, Paris, France		
For classifying a collection of Library of Congress index cards (RF 35119)....	2,711.03	1,169.86
British Museum, London, England		
To enable the Museum to offer to American libraries, at a discount, subscriptions to the new edition of its Catalogue of Printed Books (RF 29086, 30076)....	89,748.66	1,682.61
Additional service in connection with the new edition of the Catalogue of Printed Books (RF 29087).....	3,881.63	880.95
Brooklyn Museum, Brooklyn, New York		
Training of museum personnel (RF 35116).....	11,460.02	11,000.00
Buffalo Museum of Science, New York		
Training museum personnel (RF 37071).....	50,000.00	6,250.00
Library Association, London, England		
For establishing a service of information on library practice (RF 35060)....	3,476.04	1,242.00
National Central Library, London, England		
Establishment of Bureau of American bibliography (RF 37059).....	22,000.00	11,016.00
National Library of Peiping, China		
Support of <i>Quarterly Bulletin of Chinese Bibliography</i> (RF 35150).....	3,000.00	1,125.00
Development of library services (RF 36072).....	22,000.00	6,500.00
New York Museum of Science and Industry, New York City		
Development of new methods of museum exhibition (RF 35151).....	30,000.00	20,000.00
✓ Prussian State Library, Berlin, Germany		
Preparation of material for the Union Catalogue of Prussian Libraries (RF 32102).....	10,000.00	10,000.00
Society of the Friends of the Bibliothèque Nationale, Paris, France		
Expenses of printing the General Catalogue (RF 29089, 34094, 35134).....	5,824.90	1,000.00

## EXHIBIT H—Continued

	APPROPRIATIONS	1937 PAYMENTS	42 8
<b>HUMANITIES—Continued</b>			
<b>Libraries and Museums—Continued</b>			
University of Chicago, Illinois			
Laboratory for library microphotography (RF 36143).....	\$23,000.00	\$23,000.00	THE ROCKEFELLER FOUNDATION
University of Oxford, England			
Bodleian and other libraries. Development (RF 31121).....	1,627,994.09	139,336.04	
<b>Radio and Film</b>			
Museum of Modern Art, New York City			
Establishment of a motion picture department (RF 35090).....	40,000.00	29,025.00	
Replacing films destroyed by fire (RF 37095).....	20,000.00	20,000.00	
National Music League, New York City			
Study of radio's public service in field of music (RF 37014).....	14,000.00	14,000.00	
Pan American Union, Washington, D.C.			
Latin-American radio broadcasts (RF 37088).....	12,820.00	8,820.00	
Princeton University, New Jersey. School of Public and International Affairs			
Study of value of radio to listeners (RF 37072).....	67,000.00	16,750.00	
University Broadcasting Council, Chicago, Illinois			
Developing radio programs of educational and cultural value (RF 35117, 37073).....	75,750.00	23,250.00	
World Wide Broadcasting Foundation, Boston, Massachusetts			
Development of radio programs of educational and cultural value (RF 36051)...	27,000.00	22,000.00	
<b>Studies of American Culture</b>			
Authors' League of America, New York City			
Preparation of a series of American plays (RF 36124).....	8,800.00	3,777.31	
University of Alaska, College, Alaska			
Aid in the production of a history of the Territory of Alaska (RF 36074).....	12,750.00	8,500.00	

## Latin-American and Far Eastern Interests

American Council of Learned Societies, Washington, D.C.

Development of a training center for Far Eastern studies at the Library of Congress, Washington, D.C. (RF 33094).....	\$1,235.71	\$1,235.71
Chinese and Japanese studies (RF 37096).....	10,000.00	.....
Cataloguing American collections of Chinese and Japanese books (RF 37120)....	60,000.00	.....
Claremont Colleges, Claremont, California		
Materials for courses in Far Eastern subjects (RF 36001).....	2,500.00	1,500.00
Columbia University, New York City		
Studies of English usage at the Institute of Educational Research, Teachers College (RF 35063).....	15,000.00	10,606.48
Japanese studies (RF 37112).....	7,500.00	.....
Harvard University, Cambridge, Massachusetts		
Translating, abstracting, and indexing works on oriental art (RF 35120).....	5,156.61	2,348.00
Harvard-Yenching Institute, Cambridge, Massachusetts		
Expenses of card catalogue (RF 36123).....	8,600.00	8,600.00
Institute of Pacific Relations, American Council, New York City		
Experiments in intensive teaching of Chinese language (RF 35182).....	13,000.00	6,305.00
International Committee of Historical Sciences, Zurich, Switzerland		
General expenses (RF 34135).....	2,500.00	2,500.00
Library of Congress, Washington, D.C.		
Development of Far Eastern Center in the Division of Orientalia (RF 35091).	14,000.00	9,500.00
Orthological Institute, London, England		
Research in the Chinese and Japanese languages in relation to Basic English (RF 35181).....	16,891.25	.....

## EXHIBIT H—Continued

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## HUMANITIES—Continued

## Latin-American and Far Eastern Interests—Continued

	APPROPRIATIONS	1937 PAYMENTS	THE ROCKEFELLER FOUNDATION
Orthological Institute, Peiping, China General expenses (RF 36019, 37012).....	\$34,000.00	\$14,500.00	
Pomona College, Claremont, California Development of Far Eastern studies (RF 36033).....	4,750.00	2,250.00	
Princeton University, New Jersey Development of Far Eastern studies (RF 36034).....	8,500.00	3,250.00	
Royal Ontario Museum of Archaeology, Toronto, Canada Teaching and research in Far Eastern subjects (RF 37121).....	25,000.00	.....	
Tulane University, New Orleans, Louisiana. Department of Middle American Research Survey of archives and libraries in Central America and the West Indies (RF 36142).....	17,000.00	8,500.00	
University of California, Berkeley Expenses of two summer seminars for teaching Russian (RF 36004).....	5,930.00	5,930.00	
University of Chicago, Illinois Development of new materials for teaching Chinese language and literature (RF 36122).....	25,000.00	6,000.00	
University of Colorado, Boulder Development of Far Eastern studies (RF 36117).....	8,000.00	4,000.00	
Yale University, New Haven, Connecticut Development of Chinese studies (RF 37026).....	35,800.00	10,000.00	

<b>Fellowships</b>			
Administered by The Rockefeller Foundation (RF 35065, 35184, 36147, 37132)..	\$200,102.96		\$45,590.35
American Council of Learned Societies, Washington, D.C.			
Fellowships and research aid grants in the field of humanistic studies (RF 35038, 36141).....	42,714.38		20,214.38
<b>General</b>			
American Council of Learned Societies, Washington, D.C.			
Expenses of planning committees (RF 36141).....	30,000.00		7,500.00
General activities (RF 34157, 35168).....	93,777.81		36,235.75
American National Committee on International Intellectual Cooperation, New York City			
Work in advancing the protection of literary and artistic works by means of international copyright conventions (RF 37122).....	5,000.00		5,000.00
Grants in aid			
(RF 35064, 35185, 36109, 36151, 37128).....	167,860.17		67,032.17
International Committee of Historical Sciences, Paris, France			
Toward general budget, increasing distribution of publications, and expenses of next Congress (RF 37141).....	16,800.00		.....
<b>Former Program</b>			
American Council of Learned Societies, Washington, D.C.			
Completion of Linguistic Atlas of New England (RF 37097).....	7,000.00		2,000.00
American School of Classical Studies, Athens, Greece			
Fellowships in archaeology in connection with the excavation of the Athenian Agora (RF 36021).....	25,000.00		25,000.00
Museum to house objects excavated at the Agora (RF 37089).....	150,000.00		.....

## EXHIBIT H—Continued

	1937 APPROPRIATIONS	1937 PAYMENTS	432
<b>HUMANITIES—Continued</b>			
Former Program—Continued			
American Schools of Oriental Research, Baghdad, Iraq, and Jerusalem, Palestine			
Current expenses (RF 36061).....	\$22,500.00	\$10,000.00	
Endowment (RF 36061).....	150,000.00	29,423.50	
Columbia University, New York City			
General research fund for development of advanced humanistic work (RF 35030).....	10,000.00	10,000.00	
Harvard University, Cambridge, Massachusetts			
Research in the humanities (RF 35031).....	10,000.00	10,000.00	
Johns Hopkins University, Baltimore, Maryland			
General research fund in the humanities (RF 35032).....	6,274.91	6,242.09	
Completion of Spenser project (RF 37007).....	4,000.00	2,000.00	
✓ <i>Thesaurus Linguae Latinae</i> , Munich, Germany			
General budget (RF 32104).....	4,000.00	4,000.00	
University of Chicago, Illinois			
Research in the humanities (RF 35029).....	40,000.00	17,500.00	
Studies in comparative philology (RF 29135).....	7,817.63	7,817.63	
University of London, England, School of Oriental Studies			
Research in African linguistics (RF 35017, 36003).....	25,231.25	13,130.42	
University of Michigan, Ann Arbor			
Research in the humanities (RF 35033).....	15,000.00	11,250.00	
University of Virginia, Charlottesville			
General research fund in the humanities (RF 35035).....	1,250.00	1,250.00	

THE ROCKEFELLER FOUNDATION

Yale University, New Haven, Connecticut		
Excavations at Dura-Europos, Syria (RF 35018).....	\$7,500.00	\$7,500.00
Research in the humanities (RF 32033).....	50,000.00	50,000.00
<b>CHINA PROGRAM</b>		
Chinese Mass Education Movement		
General budget (RF 36041, 37041).....	54,972.45	33,152.76
Chinese Ministry of Education, Nanking		
Expenses of a Commission on Medical Education (RF 36045, 37046).....	18,806.15	11,452.50
Emergency Fund (RF 37124).....	25,000.00	.....
Fellowships administered by The Rockefeller Foundation		
Foreign and local (RF 35101, 36050, 37047).....	174,700.17	74,326.08
Nankai University, Tientsin, China. Institute of Economics		
General budget (RF 36042, 37039).....	20,294.10	12,663.83
Ministry of Industry and Agriculture, Nanking, China. National Agricultural Research Bureau		
Insect control work (RF 36048, 37044).....	16,394.62	10,450.65
National Central University, Nanking, China. College of Agriculture		
Development of work in animal husbandry and veterinary preventive medicine (RF 36047, 37043).....	12,476.53	8,211.92
National Economic Council, Nanking, China		
Expenses of Institute for Central Information and Coordination (RF 36049) ..	13,350.00	.....
National Health Administration of China, Nanking		
Training of health personnel (RF 36044, 37045).....	63,477.66	29,231.38
North China Council for Rural Reconstruction		
Toward expenses (RF 37038).....	100,000.00	33,474.80
Research and Developmental Aid (RF 36014, 36089, 37048, 37142).....	49,808.59	24,344.14

**EXHIBIT H—Continued**

	APPROPRIATIONS	1937 PAYMENTS	434
<b>CHINA PROGRAM—Continued</b>			
University of Nanking, China, Departments of Agricultural Economics and Science			
General budget (RF 36046, 37042).....	\$33,607.60	\$13,474.93	
Yenching University, Peiping, China			
College of Natural Sciences			
General budget (RF 36043).....	2,683.08	2,201.37	
College of Public Affairs			
General budget (RF 36043, 37040).....	22,857.33	14,776.56	
<b>MISCELLANEOUS</b>			
Commission on Interracial Cooperation, Atlanta, Georgia			
General budget (LS 999).....	95,170.67	44,700.90	
Exchange Fund (RF 33082, 35100).....	53,219.24	.....	
Institute of International Education, New York City			
General budget (RF 37025, LS 911).....	26,900.00	26,900.00	
Playground and Recreation Association of America, New York City			
General budget (LS 1000).....	100,000.00	40,000.00	
Research Aid, Europe			
Grants to returned fellows of the Rockefeller boards (RF 35006).....	3,666.95	.....	
Special fund for European scholars (RF 33055, 33077, 34018, 34028, 35020, 35135, 35153, 36090, 37090).....	213,147.27	83,697.09	
State University of Iowa, Iowa City			
Work in child study and parent education (LS 931-32).....	88,266.01	53,364.00	
Travel funds in aid of selection of personnel for teaching and research (RF 36088)....	9,678.35	297.15	
University of Minnesota, Minneapolis			
Child study and parent education (LS 933-34).....	71,413.57	27,778.00	
General research fund (RF 31007).....	7,500.00	7,500.00	

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<b>University of Toronto, Ontario</b>			
Development of child research and parent education (RF 30054).....	\$34,958.04	\$14,995.82	
Visits by individuals and commissions (RF 30101).....	13,319.26	48.52	
<b>ADMINISTRATION</b>			
Executive offices			
1936 (RF 35200).....	51,061.12	17,089.39	
1937 (RF 2824, 34007, 35007, 35133, 35167, 36126, 37036, 37091).....	718,309.99	658,371.54	
1938 (RF 37133).....	695,140.00	.....	
<i>History of The Rockefeller Foundation</i> (RF 37037).....	15,000.00	.....	
Treasurer's office			
1936 (RF 35201, 36108).....	9,277.83	8,321.39	
1937 (RF 36127, 37092).....	36,823.18	26,100.63	
1938 (RF 37134).....	40,364.21	.....	
Paris office			
1936 (RF 35202).....	45,582.54	17,742.82	
1937 (RF 36128).....	95,110.00	65,961.55	
1938 (RF 37135).....	81,820.00	.....	
Shanghai office			
1936 (RF 35203).....	4,305.26	1,549.53	
1937 (RF 36129, 37143).....	12,270.00	8,010.89	
1938 (RF 37136).....	11,760.00	.....	
Surveys by others than officers			
(RF 29096, 31003).....	18,534.81	7,885.73	
<b>Total appropriations.....</b>	<b>\$33,869,551.22</b>		

## EXHIBIT H—Continued

	1937	APPROPRIATIONS	PAYMENTS
Unused balances of appropriations allowed to lapse			
The Rockefeller Foundation.....		\$836,146.67	
International Health Division.....		167,747.87	\$1,003,894.54
<b>TOTAL NET APPROPRIATIONS AND EXPENDITURES.....</b>		<b>\$32,865,656.68</b>	<b>\$10,607,499.72</b>
REFUNDS ON PRIOR YEAR APPROPRIATIONS			
American School of Classical Studies (RF 35163).....		\$574.72	
Bibliographical Society of America (RF 33084).....		953.69	
Cornell University (RF 36058).....		136.55	
Egypt. Hookworm studies, 1929 (IH 29086).....		21.80	
Harvard University (RF 33030).....		1,566.45	
Laboratory of Anthropology, Santa Fe (RF 35014).....		357.64	
League of Nations Fiscal Committee (RF 30030).....		7,468.68	
National Central University (RF 35156).....		2,252.01	
National Research Council (RF 36007).....		11,956.54	
University of Liverpool (RF 32014).....		217.93	
University of Michigan (RF 34046).....		260.55	
University of Michigan (RF 34049).....		8.26	
University of Michigan (RF 34050).....		334.14	\$26,108.96

## EXHIBIT I

## INTERNATIONAL HEALTH DIVISION DESIGNATIONS AND PAYMENTS

	PRIOR DESIGNATIONS	1937 DESIGNATIONS	1937 PAYMENTS
<b>CONTROL AND INVESTIGATIONS OF SPECIFIC DISEASES</b>			
Anemia			
Studies			
Puerto Rico			
1936 (IH 35146).....	\$2,657.36	\$.....	\$648.89
1937 (IH 36102).....	.....	3,000.00	1,523.57
Diphtheria			
Europe			
Austria			
1934-35 (IH 34001).....	67.77	.....	.....
1936 (IH 34145, 36006).....	850.00	.....	848.29
The East			
China. Peiping			
1935-37 (IH 35059).....	795.01	.....	251.71
Hookworm Disease			
Control			
Africa			
Egypt			
1936 (IH 35119).....	2,676.23	.....	1,391.64
1937 (IH 36077).....	.....	3,060.00	2,095.20
Europe			
Cyprus			
1937 (IH 36108).....	.....	750.00	108.30

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## EXHIBIT I—Continued

	PRIOR DESIGNATIONS	1937 DESIGNATIONS	1937 PAYMENTS
<b>CONTROL AND INVESTIGATIONS OF SPECIFIC DISEASES—Continued</b>			
<b>Hookworm Disease—Continued</b>			
Investigations and surveys			
Africa			
Egypt			
1936 (IH 35120).....	\$647.61	\$.....	\$315.84
1937-38 (IH 36080, 37036).....	.....	7,065.00	1,437.44
Helminth studies			
1936-37 (IH 36018).....	1,099.81	.....	735.46
United States			
Florida			
1937-38 (IH 36078).....	.....	4,500.00	1,881.56
Johns Hopkins University, School of Hygiene and Public Health, Baltimore, Maryland			
1936-37 (IH 35149).....	939.25	.....	937.66
1937-38 (IH 36079).....	.....	1,500.00	256.24
North Carolina			
1935-37 (IH 35052).....	889.68	.....	889.68
Malaria			
Control			
Caribbean Area			
Central America			
Costa Rica			
1936-37 (IH 36046).....	500.00	.....	233.12
1937-38 (IH 37027).....	.....	1,000.00	.....

<b>Guatemala</b>				
1936-37 (IH 34006, 36038).....	.....	\$1,400.00	\$.....	\$.....
<b>Panama</b>				
1936 (IH 35122) .....	.....	585.16	.....	241.62
1937 (IH 36081).....	.....	.....	3,000.00	1,969.38
<b>Salvador</b>				
1937-38 (IH 37010-11).....	.....	.....	1,200.00	.....
<b>West Indies</b>				
<b>Cuba</b>				
1936 (IH 35121)	..	2,860.21	.....	2,822.42
<b>Europe</b>				
<b>Albania</b>				
1935 (IH 34105). . . . .	.....	743.12	.....	.....
1936 (IH 35123) . . . . .	.....	3,146.72	.....	2,832.65
1937 (IH 36083) . . . . .	.....	.....	16,500.00	13,400.86
<b>South America</b>				
<b>Brazil</b>				
1929-30 (IH 28183, 29217).....	.....	15,174.19	.....	1,297.00
<b>Colombia</b>				
1936 (IH 35153).....	.....	1,418.04	.....	534.21
1937 (IH 36082).....	.....	.....	5,400.00	4,114.32
<b>The East</b>				
<b>India, Madras</b>				
1937-38 (IH 37014).....	.....	.....	6,300.00	.....

## EXHIBIT I—Continued

	PRIOR DESIGNATIONS	1937 DESIGNATIONS	1937 PAYMENTS	440
<b>CONTROL AND INVESTIGATIONS OF SPECIFIC DISEASES—Continued</b>				
Malaria—Continued				
Control—Continued				
United States				
Florida				
1937-38 (IH 37016) . . . . .	\$.....	\$5,000.00	\$455.49	
Investigations and surveys				
Caribbean Area				
West Indies				
Cuba				
1936 (IH 35126) . . . . .	1,100.54	.....	1,077.18	
1937 (IH 36086) . . . . .	.....	8,350.00	4,973.30	
Puerto Rico				
1936-38 (IH 35127) . . . . .	1,996.41	.....	1,197.95	
Mexico				
1937-38 (IH 37003) . . . . .	.....	10,000.00	2,685.54	
Europe				
Albania				
1935 (IH 34109) . . . . .	312.08	....	.....	
Albania, Italy, and Northern Europe				
1936 (IH 35128) . . . . .	3,410.94	.....	3,410.94	
1937 (IH 36087) . . . . .	.....	13,000.00	10,526.13	
Bulgaria				
1935 (IH 34110) . . . . .	6,650.61	.....	.....	

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1936 (IH 35129).....	\$4,458.43	\$.....	\$3,248.97
1937-38 (IH 36088).....	.....	9,000.00	4,235.12
Cyprus			
1936 (IH 35155).....	3,334.30	.....	3,166.92
1937 (IH 36089).....	.....	10,500.00	8,533.90
England			
University of Cambridge. Molteno Institute of Parasitology			
1936-39 (IH 36051).....	2,375.00	.....	714.13
Greece			
1935 (IH 34111).....	15,884.72	.....	.....
1936 (IH 35130).....	5,722.41	.....	4,681.81
1937 (IH 36090).....	.....	20,000.00	13,622.85
Italy			
Institute of Public Health, Rome. Laboratory			
1936 (IH 35131).....	9,164.02	.....	7,194.04
1937 (IH 36091).....	.....	18,000.00	120.00
Special studies in therapeutic malaria			
1935 (IH 34113).....	512.62	.....	.....
Portugal			
1935 (IH 34114).....	3,534.52	.....	.....
1936 (IH 35132).....	3,064.14	.....	1,593.10
1937 (IH 36092).....	.....	9,000.00	3,592.37
Spain			
1935 (IH 34115).....	1,097.87	.....	.....
1936 (IH 35133).....	2,454.06	.....	.....

## EXHIBIT I—Continued

	PRIOR DESIGNATIONS	1937 DESIGNATIONS	1937 PAYMENTS
<b>CONTROL AND INVESTIGATIONS OF SPECIFIC DISEASES—Continued</b>			
<b>Malaria—Continued</b>			
Investigations and surveys—Continued			
The East			
India			
Madras			
1936 (IH 35134).....	\$2,902.67	\$.....	\$2,650.63
1937 (IH 36093).....	.....	11,590.00	8,256.84
Mysore			
1936-37 (IH 36031).....	767.52	.....	576.47
United States			
Florida			
1936 (IH 35124).....	2,376.48	.....	2,355.99
1937 (IH 36084).....	.....	13,614.00	10,354.26
University of Chicago, Illinois			
1936 (IH 35125).....	881.16	.....	881.16
1937 (IH 36085).....	.....	2,000.00	739.99
Miscellaneous			
Special investigations			
1937 (IH 36017, 37001).....	10,000.00	2,000.00	10,121.32
1938 (IH 37031).....	.....	10,000.00	.....
Surveys of the anophelines of the Eastern Mediterranean			
1936-37 (IH 36009).....	554.97	.....	348.32

<b>Mental Hygiene</b>				
<b>Europe</b>				
Poland. National Department of Health				
Development of a division of mental hygiene in the Warsaw				
School of Hygiene				
1935-36 (IH 35012).....	\$9,875.82	\$.....	\$9,081.27	
1936-37 (IH 36007).....	5,000.00	.....	4,762.18	
<b>United States</b>				
Johns Hopkins University. School of Hygiene and Public Health,				
Baltimore, Maryland				
Study				
1935-36 (IH 35037).....	423.24	.....	Cr. 4.50	
1936-37 (IH 36019).....	10,700.00	.....	10,380.64	
1937-38 (IH 37025).....	.....	10,700.00	.....	
Tennessee. State Department of Health. Research				
1936-38 (IH 36005, 36047).....	26,801.90	.....	15,201.97	
<b>Rabies</b>				
Alabama				
1936-37 (IH 36010, 36034, 36048, 37024).....	19,560.00	2,514.00	15,547.13	
<b>Respiratory Diseases</b>				
Influenza studies				
Europe				
Hungary				
1936-37 (IH 35063).....	10,000.00	.....	7,007.67	443

## EXHIBIT I—Continued

	PRIOR DESIGNATIONS	1937 DESIGNATIONS	1937 PAYMENTS	444
<b>CONTROL AND INVESTIGATIONS OF SPECIFIC DISEASES—Continued</b>				
Respiratory Diseases—Continued				
Influenza studies—Continued				
United States				
Minnesota				
Remodeling laboratory				
1937 (IH 36049).....	\$5,892.00	\$.....	\$305.03	
Studies				
1937-39 (IH 37021).....	.....	22,600.00	919.36	
New York				
1937-39 (IH 36049, 37084).....	6,608.00	3,161.00	.....	
University of Pennsylvania, Philadelphia				
1937-38 (IH 36050).....	12,000.00	.....	4,517.11	
Studies of the common cold				
Columbia University, New York City				
1936-37 (IH 36002).....	11,000.00	.....	9,765.40	
1937-38 (IH 36103).....	.....	11,000.00	.....	
Scarlet Fever				
Rumania				
1934-36 (IH 34057, 36042).....	7,484.29	.....	5,212.84	
1937-38 (IH 36043).....	20,000.00	.....	9,420.40	
Smallpox				
Europe				
Spain				
Study of vaccine virus				
1935 (IH 34126, 35014).....	408.63	.....	.....	
1936 (IH 35144).....	1,950.08	.....	.....	

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United States				
Tennessee				
Study of vaccine virus				
1936-37 (IH 35150).....	\$1,500.00	\$.....	\$1,500.00	
Syphilis				
United States				
Johns Hopkins University, School of Hygiene and Public Health				
1937-38 (IH 37017).....		1,000.00		
Tuberculosis				
Caribbean Area				
Jamaica				
Mental Hospital and Stony Hill Industrial School Studies				
1936 (IH 35139).....	394.91	.....	169.14	
Special studies				
1936 (IH 35138).....	932.86	.....	691.74	
Tuberculosis work and rural isolation studies				
1936 (IH 35137).....	998.10	.....	302.58	
1937 (IH 36098).....		15,000.00	9,301.80	
Europe				
Austria				
1936 (IH 35140).....	7,253.00	.....	7,251.78	
1937 (IH 36099).....		7,075.00		

## EXHIBIT I—Continued

	PRIOR DESIGNATIONS	1937 DESIGNATIONS	1937 PAYMENTS
<b>CONTROL AND INVESTIGATIONS OF SPECIFIC DISEASES—Continued</b>			
<b>Tuberculosis—Continued</b>			
United States			
Alabama			
1936 (IH 35136).....	\$13,341.23	\$.....	\$11,700.81
1937 (IH 36096).....	.....	22,440.00	14,335.98
Cornell University Medical College, New York City			
1935-37 (IH 35003, 35064).....	10,384.53	.....	9,846.52
1936-37 (IH 36001).....	3,742.08	.....	3,645.17
1937-38 (IH 37019-20).....	.....	18,500.00	4,629.17
Tennessee			
1935-37 (IH 35004, 36003).....	2,500.00	.....	2,500.00
1936-37 (IH 36004).....	7,536.48	.....	5,461.48
1937-38 (IH 36097, 37002).....	.....	12,100.00	2,877.50
Yaws			
Jamaica			
Central office and laboratory			
1936 (IH 35141).....	1,421.09	.....	773.08
1937 (IH 36100).....	.....	1,250.00	1,130.21
Field units			
1936 (IH 35142-43).....	3,078.29	.....	1,438.27
1937 (IH 36101).....	.....	1,185.00	1,009.02

Yellow Fever Control				
Brazil				
1936 (IH 35135).....	\$92,090.33	\$.....	\$91,579.54	
1937 (IH 36094).....	.....	200,000.00	162,450.61	
Investigations				
Africa				
1937 (IH 36109).....	.....	11,000.00	2,705.75	
Europe				
France, Pasteur Institute, Paris				
1936 (IH 35135).....	1,300.46	.....	\$24.52	
1937 (IH 36095).....	.....	2,500.00	1,129.53	
South America				
Brazil	.			
Laboratories				
1934-37 (IH 34116, 36014).....	7,518.66	.....	6,626.28	
Colombia				
1936 (IH 35135).....	9,635.11	.....	6,842.28	
1937 (IH 36094).....	.....	30,000.00	19,582.71	
Laboratory building (IH 37030).....	.....	15,000.00	.....	
Other countries of South America, including international ad- ministration	.			
1936 (IH 35135).....	3,765.76	.....	2,090.96	
1937 (IH 36094, 37012).....	.....	28,500.00	6,060.76	
Surveys and investigations in any region				
1936 (IH 35135).....	2,188.56	.....	.....	
Statistical Analyses of the Records of Certain Specific Diseases				
1936-38 (IH 36033).....	481.42	.....	218.40	

## EXHIBIT I—Continued

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	PRIOR DESIGNATIONS	1937 DESIGNATIONS	1937 PAYMENTS
LABORATORIES OF THE INTERNATIONAL HEALTH DIVISION AT THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH, NEW YORK CITY			
1936 (IH 35147).....	\$11,175.53	\$.....	\$9,669.17
1937 (IH 35063, 36104).....	5,000.00	90,000.00	90,076.16
<b>STATE AND LOCAL HEALTH SERVICES</b>			
Public Health Administration			
Canada			
Nova Scotia			
1937-41 (IH 36022).....	33,400.00	.....	.....
Caribbean Area			
Central America			
Costa Rica, Office in San José			
1936 (IH 35092).....	1,141.57	.....	1,141.57
1937 (IH 36057).....	.....	2,200.00	1,628.52
Panama			
1936 (IH 35093).....	376.85	.....	176.08
1937 (IH 36058).....	.....	2,500.00	1,812.76
West Indies			
Puerto Rico			
1936 (IH 35091).....	994.90	.....	134.57
1937-38 (IH 36056).....	.....	900.00	477.47
West Indies and Central America			
1936 (IH 35090).....	801.79	.....	276.47
1937 (IH 36055).....	.....	3,000.00	2,067.90

Mexico				
Central administration and training station				
1936 (IH 35088-89).....	\$780.41	\$.....	\$446.30	
1937 (IH 36053-54).....		4,500.00	3,033.29	
The East				
Fiji Islands				
1936 (IH 35097).....	509.97	.....	280.19	
1937 (IH 36062).....		1,500.00	1,104.77	
India				
1936 (IH 35094-95).....	1,996.55	.....	561.06	
1937 (IH 36059-60).....		3,686.00	1,766.46	
Netherlands Indies				
1936 (IH 35096).....	1,063.55	.....	586.54	
1937 (IH 36061).....		4,410.00	3,069.13	
United States				
West Virginia				
1935-36 (IH 35035, 35051).....	2,475.00	.....	2,235.26	
State health surveys				
1935-37 (IH 35065).....	4,441.63	.....	308.76	
Divisions of Vital Statistics				
Canada				
Nova Scotia				
1938-42 (IH 37026).....		8,160.00	.....	
Europe				
Rumania				
1930-35 (IH 30051, 30171, 32016, 34002).....	3,726.77	.....	.....	

## EXHIBIT I—Continued

	PRIOR DESIGNATIONS	1937 DESIGNATIONS	1937 PAYMENTS	450
<b>STATE AND LOCAL HEALTH SERVICES—Continued</b>				
Divisions of Vital Statistics—Continued				
Europe—Continued				
Spain				
1930-35 (IH 29094).....	\$16,856.08	\$.....	\$.....	
United States				
New York				
1936-37 (IH 36020).....	2,200.00	.....	549.98	
Divisions of Epidemiology				
Europe				
Denmark				
1936 (IH 35098).....	2,750.00	.....	2,669.30	
United States				
Arizona				
1935-36 (IH 35021, 35051).....	539.07	.....	.....	
Public Health Laboratories				
Caribbean Area				
Central America				
Costa Rica				
1936 (IH 36023).....	500.00	.....	500.00	
1937-38 (IH 37009).....	.....	575.00	26.69	
Nicaragua				
Training center				
1936 (IH 35099).....	285.00	.....	285.00	
1937 (IH 36111).....	.....	1,000.00	749.47	

Panama				
1937 (IH 36063).....	\$.....	\$5,000.00	\$3,946.44	
South America				
Colombia				
1936 (IH 35100).....	1,020.80	.....	Cr. 34.95	
Divisions of Public Health Nursing				
Hungary				
1936 (IH 35101).....	2,930.00	.....	2,696.90	
Poland				
1935-36 (IH 34079).....	965.00	.....	872.94	
Divisions of Sanitary Engineering				
Canada				
Nova Scotia				
1934-39 (IH 34064).....	6,957.03	.....	1,839.38	
Caribbean Area				
Studies				
1937 (IH 36064).....	.....	500.00	34.60	
West Indies and Central America				
1936 (IH 35102).....	232.25	.....	18.50	
Africa				
Egypt				
1936-37 (IH 35104).....	1,000.00	.....	369.31	
Europe				
Greece				
1935 (IH 34081).....	2,296.14	.....	.....	
1936 (IH 35103).....	3,014.96	.....	2,929.95	

## EXHIBIT I—Continued

	PRIOR DESIGNATIONS	1937 DESIGNATIONS	1937 PAYMENTS
<b>STATE AND LOCAL HEALTH SERVICES—Continued</b>			
<b>Divisions of Sanitary Engineering—Continued</b>			
United States			
Arizona			
1935-36 (IH 35022, 35051).....	\$320.83	\$.....	\$.....
South Dakota			
1935-36 (IH 35029, 35051).....	833.24	.....	317.88
Other State Health Services			
Canada			
Quebec			
Division of Industrial Hygiene			
1936-38 (IH 35042).....	8,000.00	.....	5,001.42
Division of Hygiene and Nutrition			
1936-38 (IH 35043).....	8,000.00	.....	4,401.31
Europe			
Hungary. Survey of public health machinery			
1936-37 (IH 35105, 36041).....	4,175.00	.....	1,816.63
Poland. Bureau of District Health Work, Warsaw			
1935-36 (IH 34084).....	1,075.00	.....	967.81
Local (County) Health Departments			
Canada			
Alberta			
1934-37 (IH 34025-26).....	1,265.08	.....	999.87

British Columbia						
1935-39 (IH 35083)	..	..	..	\$5,733.68	\$	\$2,476.79
1936-41 (IH 36021)	..	..	..	71,475.00	..	13,359.09
Manitoba						
1935-36 (IH 35151)	..	..	..	24.06	.....	....
Ontario						
1935-39 (IH 34065)	..	..	..	19,855.55	.	9,444.05
Caribbean Area						
Central America						
Costa Rica						
1936-37 (IH 36024)	..	..	..	1,000.00	..	..
Guatemala						
1936-37 (IH 36037)	..	..	..	500.00	..	..
Nicaragua						
1935-36 (IH 35047, 35056)	..	..	..	867.05		376.29
1936-37 (IH 36026, 36039)	..	..	..	1,000.00	..	877.04
1937-38 (IH 37032)...	..	..	..	..	1,200.00	.
Panama						
1936 (IH 35111)	..	..	..	98.56	..	53.25
1937 (IH 36066, 36107)	..	..	..	..	4,000.00	589.56
Salvador						
1937-38 (IH 37033)	..	..	..	..	800.00	..
West Indies						
Cuba						
1937 (IH 36106)	..	..	..	..	10,150.00	7,820.75
Puerto Rico						
1932-36 (IH 32072)	..	..	..	61.97	..	11.18

## EXHIBIT I—Continued

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STATE AND LOCAL HEALTH SERVICES—Continued  
Local (County) Health Departments—Continued

## Europe

## Albania

1936-40 (IH 36028).....	\$27,025.00	\$.....	\$10,978.71
Tirana Health Center			
Construction and equipment			
(IH 36052, 37028).....	5,000.00	3,000.00	.....

## Austria

1936-39 (IH 35154).....	7,080.00	.....	1,923.25
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## Greece

1936-40 (IH 36029).....	10,000.00	.....	2,049.12
1938-42 (IH 37034).....	.....	10,000.00	.....

## Hungary

1936 (IH 35112).....	11,381.00	.....	10,632.82
1937 (IH 36067-71).....	.....	9,415.00	.....

## Italy

1931-35 (IH 31170, 33082).....	444.54	.....	.....
1938-42 (IH 37035).....	.....	18,000.00	.....

## Rumania

Gilau District			
1931-36 (IH 30170).....	716.64	.....	.....
Institute of Hygiene, Bucharest			
Development of health center			
1935-40 (IH 35058).....	11,058.01	.....	2,471.46

Spain				
1936 (IH 36008).....	\$3,000.00	\$.....	\$.....	
Turkey				
Health Center, Istanbul				
1935-36 (IH 35049).....	264.69	.....	.....	
1936-39 (IH 36016).....	6,000.00	.....	2,857.04	
Health Center, Ankara				
1938-42 (IH 37093).....	.....	56,700.00	.....	
Mexico				
1935-40 (IH 35084, 35106-10, 36065) .....	31,622.72	4,000.00	10,356.95	
The East				
Ceylon				
1934-35 (IH 33177, 34053)....	2,211.54	.....	1,060.42	
India				
Delhi				
1937-42 (IH 36110)....	.....	31,350.00	4,202.26	
Madras				
1935-37 (IH 35060)....	3,876.32	.....	1,917.88	
1937-40 (IH 36044)....	14,820.00	.....	1,025.81	
Mysore				
1936-40 (IH 35156)....	22,476.77	.....	6,526.45	
Travancore				
1935-37 (IH 35061, 35086, 36032)....	2,748.56	.....	2,176.94	
United Provinces				
1932-38 (IH 31163)....	8,435.69	.....	2,806.21	

## EXHIBIT I—Continued

	PRIOR DESIGNATIONS	1937 DESIGNATIONS	1937 PAYMENTS
<b>STATE AND LOCAL HEALTH SERVICES—Continued</b>			
Local (County) Health Departments—Continued			
The East—Continued			
Java			
1933-40 (IH 32189, 33077, 34143)..... . . . . .	\$23,123.97	\$.... . . . .	\$9,119.17
1938-40 (IH 36045). . . . .	11,260.00	.....	.....
United States			
New York			
1935-39 (IH 34047, 34132). . . . .	25,564.48	.... . . .	8,740.62
<b>PUBLIC HEALTH EDUCATION</b>			
Schools of Hygiene and Public Health			
Europe			
Greece. National Institute of Hygiene, Athens			
Maintenance			
1935-36 (IH 35009, 35048)..... . . . . .	3,438.91	.....	550.92
1936-37 (IH 36015). . . . .	6,000.00	.....	1,049.53
Hungary. State Hygienic Institute, Budapest			
1936-37 (IH 35116, 36040). . . . .	3,437.00	.... . . . .	2,526.58
Turkey. School of Hygiene, Ankara			
1936-37 (IH 36030). . . . .	5,000.00	.....	.....
Yugoslavia. School of Public Health, Zagreb			
Maintenance			
1935-36 (IH 35050)..... . . . . .	15,000.00	.....	11,537.78

**The East**

Japan. Institute of Public Health, Tokyo  
 Field training area  
 1935-40 (IH 32188, 37037)..... \$90,165.00      \$8,400.00      \$68,365.42

**Schools of Nursing****Canada**

University of British Columbia, Victoria  
 1936-39 (IH 36035)..... 7,650.00      .....      .....

University of Toronto  
 1937-39 (IH 37006)..... ..... 20,400.00      9,990.63

**Caribbean Area**

Panama. Santo Tomas Hospital. School of Nursing  
 1937-42 (IH 37015)..... ..... 34,000.00      620.02

**Europe**

Denmark  
 1937-41 (IH 37029)..... ..... 20,430.00      .....

Rumania. School of Nursing, Bucharest  
 Developmental aid  
 1936-39 (IH 35085)..... 12,000.00      ..... 111.66

**South America**

Brazil. School of Nursing, Rio de Janeiro  
 Salary and travel of acting directress  
 1934-40 (IH 33171, 36027, 36036)..... 8,681.34      ..... 2,775.26

**United States**

Skidmore College, Saratoga Springs, New York  
 1936-37 (IH 36011)..... 5,000.00      ..... 5,000.00  
 1937-39 (IH 37004)..... ..... 20,000.00      5,000.00

## EXHIBIT I—Continued

	PRIOR DESIGNATIONS	1937 DESIGNATIONS	1937 PAYMENTS	458
<b>PUBLIC HEALTH EDUCATION—Continued</b>				
<b>Schools of Nursing—Continued</b>				
<b>United States—Continued</b>				
University of California, Berkeley 1937-40 (IH 37005).....	\$.....	\$7,200.00	\$1,200.00	
University of Washington, Seattle 1935-39 (IH 35005).....	15,000.00	.....	7,205.00	
Vanderbilt University, Nashville, Tennessee 1935-36 (IH 35006).....	3,333.33	.....	3,333.33	
1936-40 (IH 36012).....	10,500.00	.....	3,000.00	
Western Reserve University, Cleveland, Ohio University district for public health nurse training 1936-37 (IH 36013).....	5,000.00	.....	5,000.00	
1937-39 (IH 37007).....	.....	15,000.00	5,000.00	
<b>Other Schools</b>				
Fiji. Central Medical School for Native Medical Students, Suva 1937 laboratory equipment (IH 36075).....	.....	2,500.00	2,228.07	
<b>Training Stations</b>				
<b>Caribbean Area</b>				
Panama 1937-38 (IH 36074).....	.....	1,000.00	18.85	
Puerto Rico 1936 (IH 35114).....	1,547.50	.....	1,431.44	
1937-38 (IH 36073).....	.....	6,520.00	4,743.65	

THE ROCKEFELLER FOUNDATION

South America				
Colombia				
1936 (IH 35115).....	\$700.00	\$.....	\$.....	
United States				
Harvard University. School of Public Health				
Field training and study area				
1935-39 (IH 34068).....	20,893.89	.....	4,546.63	
Johns Hopkins University. School of Hygiene and Public Health				
Field training and study area				
1937 (IH 32196, 34050).....	23,627.94	.....	22,927.67	
1937-42 (III 37018) .....	... ..	87,500 00	1,041.91	
Fellowships, Travel of Government Health Officials, and Training of				
Health Workers				
1935 (IH 34095-96, 35018) .....	16,049.41	.....	1,142.13	
1936 (IH 35113, 35118).....	123,990.40	.....	95,238.99	
1937 (IH 36072, 36076, 37022-23) .....	... ..	227,500.00	101,378.17	
FIELD SERVICE				
Salaries and Expenses of Staff				
1936-37 (IH 35148, 36105)				
Salaries.....	20,737.09	486,000.00	471,518.34	
Commutation.....	15,772.51	50,000.00	43,339.29	
Travel.....	22,573.74	145,000.00	124,337.92	
Medical examinations.....	386.35	1,000.00	462.57	
Field equipment and supplies.....	2,183.62	5,000.00	3,421.45	
Pamphlets and charts...	1,520.00	6,000.00	4,918.79	
Express, freight, and exchange.....	872.21	1,000.00	500.69	

## EXHIBIT I—Continued

	PRIOR DESIGNATIONS	1937 DESIGNATIONS	1937 PAYMENTS
<b>FIELD SERVICE—Continued</b>			
<b>Salaries and Expenses of Staff—Continued</b>			
<b>1936-37 (IH 35148, 36105)—Continued</b>			
Insurance and retirement allowances.....	\$28,839.37	\$56,000.00	\$47,748.47
Bonding.....	1,137.80	3,000.00	1,555.99
Automobiles.....	1,000.00	1,000.00	.....
Field office expenses.....	3,881.84	6,000.00	2,751.22
<b>Director's Fund for Budget Revision</b>			
(IH 34006, 36047).....	6,519.00	.....	.....
<b>Distribution of publication on dietetics</b>			
(IH 37008).....	.....	150.00	150.00
<b>Exchange Fund</b>			
(IH 33052, 33077).....	20,135.48	.....	.....
<b>Exhibit of Virus Diseases</b>			
1937 (IH 37013).....	.....	2,000.00	.....
	<hr/> <b>\$1,401,171.99</b>	<hr/> <b>\$2,100,000.00</b>	<hr/> <b>\$1,955,906.21</b>

**EXHIBIT J**  
**SCHEDULE OF SECURITIES ON DECEMBER 31, 1937**  
**BONDS**

TREASURER'S REPORT

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NAME	INTEREST RATE PER CENT	DATE OF MATURITY	AMOUNT	FOUNDATION'S LEDGER VALUE PER CENT	FOUNDATION'S TOTAL LEDGER VALUE
Atchison, Topeka & Santa Fe Ry. One Hundred Year Adjustment Mortgage Gold (Stamped).....	4	July 1995	\$420,000.00	75.	\$315,000.00
Baltimore & Ohio R.R. Refunding & General Mortgage Gold Series "A".....	5	Dec 1995	1,750,000.00	80.	1,400,000.00
Baltimore & Ohio R.R. Refunding & General Mortgage Series "F".....	5	March 1996	495,500.00	101.8848	504,839.38
Bethlehem Steel Corporation Consolidated Sinking Fund Series "E".....	3½	Oct. 1966	726,000.00	92.3825757	670,697.50
Burlington, Cedar Rapids & Northern Ry. Consolidated First Mortgage Gold.....	5	Apr. 1934 Serially	64,000.00	101.5625	65,000.00
Calgary Protestant Public School District No. 19, Province of Alberta.....	5	June 2, 1938-48	98,500.00	85.	83,725.00
Carolina, Clinchfield & Ohio Ry. First Mortgage Thirty-year Gold.....	5	June 1938	1,488,000.00	75.	1,116,000.00

## EXHIBIT J—Continued

NAME	INTEREST RATE PER CENT	DATE OF MATURITY	AMOUNT	FOUNDATION'S LEDGER VALUE PER CENT	FOUNDATION'S TOTAL LEDGER VALUE
Chicago & Alton R.R. Refunding Mortgage Gold.....	3	Oct. 1949	\$551,000.00	65.	\$358,150.00
Chicago City & Connecting Rys. Collateral Trust (Certificates of Deposit).....	5	Jan. 1927	1,305,000.00	52.	678,600.00
Chicago & Erie R.R. First Mortgage Gold....	5	May 1982	156,000.00	93.	145,080.00
Chicago, Junction Rys. & Union Stockyards Co. Forty Year Mortgage and Collateral Refunding.....	5	Apr. 1940	500,000.00	93.	465,000.00
Chicago, Milwaukee & St. Paul Ry. Receivers' Equipment Gold Series "D" (60% paid).....	5	Aug. 1935	133 bonds @ \$400 each or 53,200.00	95.625	50,872.50
Chicago, Milwaukee & St. Paul Ry. Receivers' Equipment Gold Series "D" (40% paid).....	5	Aug. 1936	133 bonds @ \$600 each or 79,800.00	97.0833	77,472.50
Chicago, Milwaukee & St. Paul Ry. Receivers' Equipment Gold Series "D" (20% paid).....	5	Aug. 1937 \$133,000 due Aug. 1 each year 1938-40	133 bonds @ \$800 each or 106,400.00	97.8125	104,072.50
Chicago, Milwaukee & St. Paul Ry. Receivers' Equipment Gold Series "D".....	5		399,000.00	98.25	392,017.50

Chicago, Milwaukee & St. Paul Ry. General Mortgage Gold Series "C". . . . .	4½	May 1989	\$500,000.00	103.	\$515,000.00
Chicago, Milwaukee, St. Paul & Pacific R.R. Fifty Year Mortgage Series "A" . . . . .	5	Feb. 1975	446,300.00	95.	423,985.00
Chicago, Milwaukee, St. Paul & Pacific R.R. Convertible Adjustment Mortgage Series "A" . . . . .	5	Jan. 2000	1,785,200.00	62.50	1,115,750.00
Chicago & North Western Ry. General Mortgage . . . . .	5	Nov. 1987	201,000.00 500 bonds @ \$750 each or 375,000.00	98.097	197,175.00
Chicago Rys. Co. First Mortgage Gold (25% paid) (Certificates of Deposit) . . . . .	5	Feb. 1927			360,000.00
The Chicago, Rock Island & Pacific Ry. Co. First and Refunding Mortgage Gold . . . . .	4	Apr. 1934	3,345,000.00	81.458204	2,724,776.93
The Chicago, Rock Island & Pacific Ry. Co. Ten Year Certificates of Indebtedness of the Trustees . . . . .	3½	July 1947	609,300.00	100.9740702	615,235.01
Chicago, St. Louis & New Orleans R.R. Consolidated Mortgage Gold . . . . .	3½	June 15, 1951	200,000.00	66.	132,000.00
Cleveland, Cincinnati, Chicago & St. Louis Ry. General Mortgage . . . . .	4	June 1993	700,000.00	83.89285	587,250.00
Cleveland Short Line Ry. First Mortgage Gold . . . . .	4½	Apr. 1961	500,000.00	95.	475,000.00

## EXHIBIT J—Continued

NAME	INTEREST RATE PER CENT	DATE OF MATURITY	AMOUNT	FOUNDATION'S LEDGER VALUE PER CENT	FOUNDATION'S TOTAL LEDGER VALUE
Consolidation Coal Co. Secured Notes.....	5	July 1950	\$500,000.00	100.	\$500,000.00
Denver & Rio Grande R.R. First Consolidated Mortgage Gold.....	4	Jan. 1936	810,000.00	96.4238456	781,033.15
Denver & Rio Grande Western R.R. General Mortgage (Assented subject to plan).....	5	Aug. 1955	574,000.00	59.	338,660.00
Edmonton Public School District No. 7 of the Province of Alberta. Debenture (Assented)	5	Apr. 15, 1953	350,000.00	81.	283,500.00
Erie R.R. General Mortgage Convertible Gold Series "B".....	4	Apr. 1953 \$80,000 due May 1 each year 1938-41	1,065,000.00	74.717586	795,742.30
Illinois Central R.R. Equipment Series "M".	4½		320,000.00	98.5	315,200.00
Illinois Central R.R. Refunding Mortgage Gold.....	4	Nov. 1955	1,233,000.00	82.45985	1,016,730.00
Illinois Central R.R. & Chicago, St. Louis, New Orleans R.R. Joint First Refunding Gold Series "A".....	5	Dec. 1963	1,000,000.00	90.	900,000.00
Imperial Chinese Government Hu Kuang Rys. Sinking Fund Loan of 1911.....	5	June 15, 1951	£189,000.00	34.	321,300.00

Interborough Rapid Transit Co. First & Refunding Mortgage Gold (Stamped).....	5	Jan. 1966	\$1,750,000.00	96.85713	\$1,695,000.00
Kansas City, Fort Scott & Memphis Ry. Refunding Mortgage Gold.....	4	Oct. 1936	274,000.00	95.755708	262,370.64
Kansas City Southern Ry. Refunding & Improvement Mortgage Gold.....	5	Apr. 1950	550,000.00	84.	462,000.00
Kansas City Terminal Ry. First Mortgage Gold.....	4	Jan. 1960	500,000.00	75.	375,000.00
The Laclede Gas Light Co. Refunding & Extension Mortgage Gold.....	5	Apr. 1939	200,000.00	102.3797	204,759.41
Lake Erie & Western R.R. Second Mortgage Gold.....	5	July 1941	100,000.00	100.	100,000.00
Lake Shore & Michigan Southern Ry. First Mortgage Gold.....	3½	June 1997	926,000.00	87.	805,620.00
Louisville & Nashville-Southern Ry. Monon Collateral Joint Fifty Year Gold.....	4	July 1952	775,000.00	72.	558,000.00
Mexico, Republic of. Consolidated External Loan, Series "C" (Assenting Bonds).....	5	June 1945	354,000.00 150,228.75	34. 6.	120,360.00 9,013.73
Missouri-Kansas-Texas R.R. Prior Lien Gold Series "A".....	5	Jan. 1962	331,250.00	78.5	260,031.25
Missouri-Kansas-Texas R.R. Prior Lien Gold Series "B".....	4	Jan. 1962	331,250.00	64.5	213,656.25

## EXHIBIT J—Continued

NAME	INTEREST RATE PER CENT	DATE OF MATURITY	AMOUNT	FOUNDATION'S LEDGER VALUE PER CENT	FOUNDATION'S TOTAL LEDGER VALUE
Morris & Essex R.R. First Refunding Mortgage Gold.....	3½	Dec. 2000	\$175,000.00	82.75	\$144,812.50
Mutual Fuel Gas Co. First Mortgage Gold...	5	Nov. 1947	250,000.00	100.	250,000.00
National Rys. of Mexico Prior Lien Fifty Year Sinking Fund (Assenting Bonds)....	4½	July 1957	350,000.00	13.	45,500.00
Secured 6% Notes for coupon due January 1, 1914.....		Jan. 1933	1,125.00	.59.	663.75
National Rys. of Mexico Certificates Series "A" Interest in arrears.....			47,857.50	5.50	2,632.16
National Rys. of Mexico Certificates Series "B" Interest in arrears.....			94,500.00	.50	472.50
New Orleans, Texas & Mexico Ry. Non-Cumulative Income Gold Series "A" (Certificates of Deposit).....	5	Oct. 1935	75,000.00	99.05	74,287.52
New York Central R.R. Ten Year Secured Sinking Fund.....	3½	Apr. 1946	979,000.00	97.948125	958,912.15
New York Connecting R.R. First Mortgage Gold Series "A".....	4½	Aug. 1953	500,000.00	95.69073	478,453.65

New York, Lake Erie & Western Docks & Improvement Co. First Extended Gold....	5	July 1943	\$400,000.00	90.	\$360,000.00
Northern Pacific Ry. Refunding & Improvement Mortgage Gold Series "A".....	4½	July 2047	1,390,000.00	85.04676	1,182,150.00
Northwestern Elevated R.R. First Mortgage Gold.....	5	Sept. 1941 \$30,000 due May 15 each year 1938-41	500,000.00	70.	350,000.00
Pennsylvania R.R. General Equipment Trust Certificates Series "D".....	4½		120,000.00	98.5	118,200.00
Pennsylvania R.R. General Mortgage Gold Series "A".....	4½	June 1965	1,500,000.00	98.25	1,473,750.00
Phelps Dodge Corporation Convertible Debenture.....	3½	June 15, 1952	150,400.00	108.59375	163,325.00
Philadelphia & Reading Coal & Iron Co. Refunding Mortgage Sinking Fund Gold....	5	Jan. 1973	167,000.00	94.252347	157,401.42
Pittsburg, Cincinnati, Chicago & St. Louis Ry. Consolidated Mortgage Gold Series "I".....	4½	Aug. 1963	500,000.00	103.	515,000.00
Public Service Corporation of New Jersey Perpetual Interest Bearing Certificates...	6		550,000.00	84.	462,000.00
Raleigh & Gaston R.R. First Mortgage Gold Fifty Year (Certificates of Deposit).....	5	Jan. 1947	250,000.00	95.	237,500.00

## EXHIBIT J—Continued

NAME	INTEREST RATE PER CENT	DATE OF MATURITY	AMOUNT	FOUNDATION'S LEDGER VALUE PER CENT	FOUNDATION'S TOTAL LEDGER VALUE
Reading Co. General & Refunding Mortgage Gold Series "A".....	4½	Jan. 1997 \$50,000 due May 15 each year 1938-43	\$333,000.00	94.25	\$313,852.50
St. Louis-San Francisco Ry. Equipment Gold Series "CC".....	4	year 1938-43	300,000.00	90.96306	272,889.18
St. Louis-San Francisco Ry. Prior Lien Gold Series "A".....	4	July 1950	1,500,000.00	72.75	1,091,250.00
St. Louis-San Francisco Ry. Consolidated Mortgage Gold Series "A".....	4½	March 1978	2,500,000.00	14.	350,000.00
St. Louis Southwestern Ry. General & Refunding Mortgage Gold Series "A".....	5	July 1990 \$100,000 due June 1 each year 1938-41	1,918,500.00	66.792744	1,281,418.80
Southern Pacific Co. Equipment Gold Series "I".....	4½		400,000.00	98.5	394,000.00
Southern Pacific Co. Central Pacific Stock Collateral Gold.....	4	Aug. 1949	100,000.00	76.	76,000.00
Southern Pacific R.R. First Refunding Mortgage Gold.....	4	Jan. 1955	100,000.00	86.	86,000.00

Standard Oil Co. (New Jersey) Twenty-Five Year Debentures.....	3	June 1961	\$15,000,000.00	98.	\$14,700,000.00
Tennessee Coal, Iron & R.R. Co. General Mortgage.....	5	July 1951	400,000.00	92.	368,000.00
United Electric Co. of New Jersey First Mort- gage Gold.....	4	June 1949	500,000.00	72.	360,000.00
United States of America Treasury Notes, Series "B" dated June 15, 1933.....	2 $\frac{1}{2}$	June 15, 1938	7,000,000.00	100.986272	7,069,039.06
United States of America Treasury Notes, Series "D" dated Sept. 15, 1934.....	2 $\frac{1}{2}$	Sept. 15, 1938	1,305,000.00	100.	1,305,000.00
United States of America Treasury Notes, Series "A" dated June 15, 1937.....	1 $\frac{1}{2}$	March 15, 1942	5,000,000.00	100.2065626	5,010,328.13
United States Rubber Co. First & Refunding Mortgage Gold Series "A".....	5	Jan. 1947	3,820,000.00	85.	3,247,000.00
Wabash R.R. Second Mortgage Gold.....	5	Feb. 1939	120,000.00	97.8	117,360.00
Washington Ry. & Electric Co. Consolidated Mortgage Gold.....	4	Dec. 1951	450,000.00	83.5	375,750.00
Western Pacific R.R. First Mortgage Gold Series "A" (Assenting).....	5	March 1946	200,800.00	83.	166,664.00
<b>TOTAL BONDS.....</b>					<b>\$67,450,287.87</b>

## EXHIBIT J—Continued

## STOCKS

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THE ROCKEFELLER FOUNDATION

NAME	NUMBER OF SHARES	FOUNDATION'S LEDGER VALUE PER SHARE	FOUNDATION'S TOTAL LEDGER VALUE
American Telephone & Telegraph Co. Capital.....	5,400	\$182.917129	\$987,752.50
Atchison, Topeka & Santa Fe Ry. 5% Non-Cumulative Preferred..	5,000	98.25	491,250.00
Atlanta, Birmingham & Coast R.R. 5% Guaranteed Cumulative Preferred.....	4,062	94.	381,828.00
Bethlehem Steel Corporation (Delaware) 7% Cumulative Preferred..	400	129.07367	51,629.47
The Buckeye Pipe Line Co. Capital (Par value \$50).....	49,693	62.7675873	3,119,109.72
Central National Bank of Cleveland Common (Par value \$20).....	8,482	32.114764	272,397.43
Chehalis & Pacific Land Co. Capital.....	220		1.00
Chicago City & Connecting Rys. Participation Certificates Preferred (Certificates of Deposit) (No par value).....	17,530		1.00
Chicago City & Connecting Rys. Participation Certificates, Common (No par value).....	10,518		1.00
Chicago & Eastern Illinois Ry. 6% Cumulative Preferred.....	3,000	5.	15,000.00
Cleveland Arcade Co. Capital.....	2,500	98.62222	246,555.56
Cleveland Trust Co. Capital.....	638	192.22824	122,641.62
Colorado & Southern Ry. 4% First Non-Cumulative Preferred.....	4,800	54.	259,200.00
Consolidated Edison Co. of New York, Inc. \$5 Cumulative Preferred (No par value).....	13,333	91.75	1,223,302.76
Consolidated Edison Co. of New York, Inc. Common.....	22,200	45.260923	1,004,792.50
Consolidation Coal Co. Rights to purchase Common Stock.....	5,875		

Continental Oil Co. (Delaware) Capital (Par value \$5).....	60,627	\$11.46601	\$695,149.77
Denver & Rio Grande Western R.R. 6% Cumulative Preferred.....	3,280	5.	16,400.00
Eureka Pipe Line Co. Capital (Par value \$50).....	12,357	45.	556,065.00
Illinois Central R.R. 6% Non-Cumulative Preferred "A".....	2,857	15.50	44,283.50
Illinois Central R.R. Common.....	4,070	9.625	39,173.75
Indiana Pipe Line Co. Capital (Par value \$10).....	74,535	11.7	872,059.50
International Harvester Co. 7% Cumulative Preferred.....	45,721	115.	5,257,915.00
International Nickel Co. of Canada, Ltd. Common.....	30,600	65.139	1,993,253.40
Interstate Natural Gas Co. Inc. Capital (No par value).....	33,763	14.958453	505,042.25
Kanawha & Hocking Coal & Coke Co. 7% Cumulative Preferred.....	202	20.	4,040.00
Kanawha & Hocking Coal & Coke Co. Common.....	668	4.	2,672.00
Kennecott Copper Corporation Capital (No par value).....	33,100	59.780393	1,978,731.03
Manhattan Ry. Capital (Modified Guarantee).....	10,000	60.	600,000.00
Middle West Corporation Capital (Par value \$5).....	68,351.92	9.75	666,431.22
Missouri-Kansas-Texas R.R. 7% Cumulative Preferred "A".....	10,499	41.982284	440,772.00
National Fuel Gas Co. Capital (No par value).....	847,060	7.75	6,564,715.00
National Transit Co. Capital (Par value \$12.50).....	126,481	12.7	1,606,308.70
New York Transit Co. Capital (Par value \$5).....	24,784	6.5	161,096.00
Northern Pipe Line Co. Capital (Par value \$10).....	27,000	8.3333	225,000.00
The Ohio Oil Co. Non-Voting Cumulative 6% Preferred.....	15,000	103.5	1,552,500.00
The Ohio Oil Co. Common (No par value).....	94,684	35.375	3,349,446.50
Pere Marquette Ry. Cumulative 5% Preferred.....	5,740	49.6600627	285,048.76
Phelps Dodge Corporation Capital (Par value \$25).....	37,600	52.7167925	1,982,151.40
Provident Loan Society of New York 6% Certificates.....	\$266,000	100%	266,000.00
Southern Pipe Line Co. Capital (Par value \$10).....	24,845	\$6.25	155,281.25
South West Pennsylvania Pipe Lines, Capital (Par value \$50).....	8,000	37.5	300,000.00

## EXHIBIT J—Continued

NAME	NUMBER OF SHARES	FOUNDATION'S LEDGER VALUE PER SHARE	FOUNDATION'S TOTAL LEDGER VALUE
Standard Oil Co. (California) Capital (No par value).....	60,967	\$17.25	\$1,051,680.75
Standard Oil Co. of Indiana, Capital (Par value \$25).....	691,140	28.90	19,973,946.00
Standard Oil Co. (N.J.) Capital (Par value \$25).....	1,077,005	34.319735	36,962,526.27
The Standard Oil Co. (Ohio) Cumulative 5% Preferred .....	15,000	101.	1,515,000.00
The Standard Oil Co. (Ohio) Common (Par value \$25).....	135,648	25.50	3,459,024.00
Tilden Iron Mining Co. Capital.....	667½	27.350258	18,256.29
Union Tank Car Co. Capital (No par value).....	240,000	6.692033	1,606,087.97
United States Steel Corporation 7% Cumulative Preferred .....	6,600	133.85795	883,462.50
Western Pacific R.R. Corporation 6% Preferred.....	28,609	30.	858,270.00
Wilson Realty Co. Capital.....	591		1.00
<b>TOTAL Stocks .....</b>			<b>\$104,623,253.37</b>

## SUMMARY

Bonds.....	\$67,450,287.87
Stocks .....	104,623,253.37
<b>TOTAL.....</b>	<b>\$172,073,541.24</b>

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