

The  
Rockefeller Foundation

Annual Report

1944

THE ROCKEFELLER  
FOUNDATION

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## SELSKAR MICHAEL GUNN

On August 2, 1944, Selskar Michael Gunn, Vice-President of The Rockefeller Foundation since 1927, died at his home in Newtown, Connecticut, after an illness of several months. Surviving are his widow, the former Carroll McComas, and Barbara M. Gunn, daughter by a previous marriage.

Mr. Gunn had been associated with the Foundation's work since 1917. The first decade of his service was in connection with the work of the International Health Board and largely in Europe. He was associate director for the Commission for the Prevention of Tuberculosis in France from 1917 to 1920. In 1920 he was made advisor in public health to the Government of Czechoslovakia. In 1921 he became a member of the International Health Board staff, and in 1926 was appointed associate regional director. In 1927 Mr. Gunn was elected vice-president of the Foundation, serving until 1932 in the Paris office in charge of European program, and from 1932 until 1937 in China as director of the Foundation program in rural reconstruction. In 1941 the Foundation lent his services to the National Health Council to direct a three-year study of voluntary health agencies in the United States. From January 1943 to March 1944 he had been temporarily released by the Council to assist former Governor Herbert H. Lehman of New York, Director General of the United Nations Relief and Rehabilitation Administration.

Mr. Gunn was born in London, England, on May 25, 1883. Graduating from Kensington Park College, London, in 1900, he came to the United States and was graduated from Massachusetts Institute of Technology with the B.S. degree in 1905. In 1917 he received the certificate in public health from the Harvard-Technology School of Public Health. In 1906 he became a citizen of the United States. Beginning his career as a bacteriologist, he became health officer of Orange, New Jersey, in 1908. In 1910 he joined the faculty of Massachusetts Institute of Technology, resigning as associate professor of public health in 1919. He was assistant professor of biology at Simmons College from 1912 to 1914. He was executive secretary of the American Public Health Association and editor of its Journal from 1912 to 1918. In 1915 he became director



Photograph Excised Here

Selskar Michael Gunn

1..

of the Division of Hygiene of the State Health Department of Massachusetts, resigning to go into war work.

Mr. Gunn was Captain in the American Red Cross; Commander, Legion of Honor (France); Commander, Order Polonia Restituta (Poland); Grand Officer, Order St. Sava (Yugoslavia); Officer, Order White Lion (Czechoslovakia); "Meritul Sanitar" (Rumania); Commander, Royal Order St. Olav (Norway); Commander, Order of Dannebrog (Denmark). He was also a member of Nu Sigma Nu and Cercle Interalliée (Paris). He was the author of various papers on sanitation, and of a children's book, *The Doings of Dinky*, which he wrote for his daughter.

Mr. Gunn was an Irishman by ancestry, an Englishman by birth, an American by adoption, a European by principal residence, and a thorough cosmopolitan in training and outlook. These varied elements combined to make a man of broad sympathies, versatile ability, original approach, and great personal charm.

As a Foundation officer, he had the rare ability to find strategic opportunities in complicated situations, to plan actions which exerted leverage, not pressure. He preferred to deal with masses rather than selected groups of people; he had the capacity to view problems in their natural rather than their academic setting. His sympathies were always with simple folk. Projects which had to do with the Chinese farmer, the Balkan peasant, or the Irish folklorist gained his understanding and support. He had a talent for negotiation. He spoke English and French with equal ability; he was eloquent in both.

It is as a human being, however, that he will be best remembered by those who knew him. In spite of his cosmopolitan career he never, fortunately, recovered from his Irish inheritance. His name, Selskar was the name of a priory in the Irish village of Wexford which was his ancestral home. It is typical that Mr. Gunn visited that village only once. He was always a pilgrim, at home anywhere; sometimes, one suspects, nowhere. Restless, he loved new places and chance acquaintances. Because he sometimes knew lonesomeness and depression, he understood and was attracted by the poor and the forlorn. It was this background of Celtic melancholy which gave warmth to his affections, and sparkle to his wit. He had a most delightful talent for gaiety. No man was a better companion. No man, in truth, was a better friend.



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, 1944, to December 31, 1944, together with detailed reports of the Secretary and the Treasurer of the Foundation, the Director of the International Health Division, and the Directors of the Medical Sciences, the Natural Sciences, the Social Sciences, and the Humanities.

Respectfully yours,

RAYMOND B. FOSDICK  
*President*



THE  
PRESIDENT'S REVIEW  
FOR 1944



## PRESIDENT'S REVIEW

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## PRESIDENT'S REVIEW

### THE YEAR IN BRIEF

**D**URING 1944 the appropriations of The Rockefeller Foundation amounted to \$10,306,258. This represents a substantial increase over the \$7,760,186 appropriated in 1943. The income of the Foundation from investments during the year was \$8,209,807. This income was supplemented by a balance remaining from the preceding year.

The appropriations were distributed for the most part in five major fields, roughly as follows:

Public health	3,200,000
Medical sciences	1,253,000
Natural sciences	1,090,000
Social sciences	2,193,000
Humanities	1,548,000

A detailed statement of the appropriations made in 1944 appears at the conclusion of this report, beginning on page 268. Of the money appropriated during the year, 72 per cent was for work in the United States and 28 per cent for work in other countries.

As fast as possible, contacts are being re-established in Europe. An officer of the Foundation has been stationed in London throughout the war. In 1944 a staff member of the International Health Division was also assigned to the London office, and as soon as conditions permit, it is expected that he will establish headquarters in Paris. The director of the Division of Social Sciences of the Foundation spent two months in Great Britain, and

in the latter part of the year representatives of the Foundation were able to visit France.

The Far Eastern office of the Foundation, formerly in Manila and now in Delhi, has been manned throughout the war.

### THE SYMBOL OF HISTORY

The magnitude of contemporary developments is so great that their full meaning cannot be adequately appraised now and possibly not for a generation. But occasionally a corner of the veil is lifted and we get a glimpse of the significance of the vast interplay of forces. Among other things, the peoples of the occupied territories of three continents have proved to us in this protected hemisphere what, with cloudier perspective, seemed hard to believe in 1939, and that is that no prison can confine the human spirit. A freedom-thirsty world cannot be kept permanently in chains. Universities in exile, concentration camps, and bonfires for books are temporary phenomena. Men who have tasted liberty never forget the taste — nor their children after them. Ultimately for all tyranny comes the final death-knock on the door. Sooner or later the resurgent forces of the human spirit break through the barriers. In the last analysis, not injustice, not Napoleon, not Hitler, but reason and truth are the conquerors of the world.

We can say this now with assurance. It is the lesson of all history, and it is being confirmed by suffering and heroism in our generation.

As these pages are written the Germans have not yet evacuated Holland, and that gallant people and her schools and universities are still in chains. In such a time as this we think of the University of Leyden as a symbol of the human spirit. It was founded by William the

Silent in one of the darkest hours that Holland ever knew — founded as a bulwark of liberty, a citadel of ideas which no force could permanently overthrow. For 370 years it stood for political and scholastic freedom; it was a weapon against tyranny, the determined foe of absolutism in every form. It welcomed scholars like Grotius, Arminius, and Descartes — heretics in their day. It was a center of intellectual ferment. For over three centuries and a half, the cultural and political life, not only of Holland but of all Europe, bore witness to the influence of Leyden.

When the Nazis came, they closed it. The incalculable effects of freedom of thought are what totalitarianism fears most. But the chains which bind the University of Leyden will soon be broken, and her proud name will be added to the growing list that today contains the names of the universities of Paris and Strasbourg and Louvain and Warsaw and a dozen others whose flame could not be quenched.

The symbol of Leyden is the symbol of history. The future, and the past as well, belong not to the Caesars or the Hitlers or the Hirohitos, but to those who dare to be free — the Galileos, the Wycliffes, the Giordano Brunos and their spiritual descendants of today who in the agony of these recent years have stood for the truth. It is men like these who are the conquerors. Individually without power, and often without honor, they are in the end the masters of the world.

To those who in this last terrible decade have kept this faith alive, to the universities and laboratories where on hidden altars the fire has never gone out, we in the Western Hemisphere pay tribute of admiration and homage. What Pericles said of the Athenian dead can even more truly be said of these men and institutions in Europe and Asia: "Their glory survives in everlasting

remembrance. . . . Far away in alien lands their memory is set in the hearts of men.”

#### SCIENTIFIC RESEARCH IN EUROPE

Ever since 1939 The Rockefeller Foundation has tried to keep in touch with as many as possible of the scholars and institutions of war-torn nations. Contact with countries like Norway, Denmark, Holland, Czechoslovakia, and Poland has presented unsolvable difficulties, and only recently have relationships been re-established in France. But over all this period, assistance has been continued to research projects and institutions in Great Britain, Sweden, and Switzerland; and it is gratifying to report the extent to which fundamental work in science has been maintained. During 1944 continuing support was granted to eighteen projects in the natural sciences located in Europe. Of these, nine were in England, seven in Sweden, and two in Switzerland. These projects were for the most part related to the application of the techniques of physics, chemistry, and mathematics to biological problems.

No words can do justice to the devotion and gallantry with which much of this research has been carried on — sometimes in bombed-out laboratories, and generally under conditions of hardship which would discourage all but the stoutest hearts. Shortages of materials and scientific literature, interruption of communication with other institutions, overcrowded laboratories due to the influx of refugee scientists — these are only a sample of the difficulties which have confronted the few remaining research centers in Europe.

But the experience of these years has proved once again that scientists everywhere speak the same great language of ideas — an international language of tolerance and hospitality for those who choose to hear. The

letters which the Foundation has received during the last few years bear eloquent testimony on this point. Professor Manne Siegbahn of the Academy of Sciences in Stockholm has opened the doors of his laboratory to scientists driven out of Denmark, Finland, and Norway. At the University of Stockholm, Professor John Runnström has crowded into his institute refugee scientists who have come from nine different nations. In Zurich, Professor L. Ruzicka of the Technische Hochschule has welcomed to his laboratory refugees who represent most of the occupied countries of Europe. In all these laboratories, reports from hosts and guests alike speak with deep satisfaction of the opportunity to continue their basic research in a world of confusion and catastrophe.

The work of Dr. Georg von Hevesy illustrates this same undaunted spirit. He has been twice a refugee. Driven out of the University of Freiburg in the early days of the Hitler regime, he went to the University of Copenhagen. Driven out of Copenhagen by the Nazis in 1943, he went to the University of Stockholm. In November 1944, he was awarded the Nobel prize in chemistry.

Recently an English scientist wrote in a letter to the Foundation: "I wish I had a thousand hands and laboratories with which to get down to the problem of the proteins and the nucleic acids. Jointly these two hold the physicochemical secret of life; and quite apart from the war, we are living in an heroic age — if only more people could see it."

It is of such valiant stuff that the future will be made. "O brave new world, that has such people in it!"

#### OPEN THE DOORS AND WINDOWS

As the war draws to its inevitable conclusion — however distant final peace may be — it is possible to see the

startling effects of isolation on the minds of men. Behind closed frontiers, rigidly sealed off from contact with the ideas and opinions of other nations, all of us suffer from mental undernourishment and starvation. Intellectual malnutrition can be as stunting to human life and character as the absence of calories and vitamins. For four years the world did not know what books were being published in France, or what pictures were being painted, or what music was being written. Nor did France know what ideas were developing outside her borders. It is this kind of isolation that makes for mental and spiritual poverty — both for those who are shut in and those who are shut out.

Nations learned long ago that separatism is fatal to economic health, and the development of the modern world is toward economic integration. What is true of commerce and goods is equally true of ideas and knowledge. When nations are walled off from each other, isolated from news and opinion, and deprived of the experience, the literature, and the new patterns of thought that are shaping in other countries, something happens to their mental health. The influences that in normal times flow freely across boundary lines, the uninhibited stream of ideas coming from all corners of the world, are, in this modern society of ours, a corrective and stabilizing factor in the lives of men, bringing strength and fertility to soils that would otherwise become sterile and dry.

In their intellectual life as well as in their physical life, nations and groups are becoming part of a vast living body. They are cells in an organism in which lack of circulation or disease imperils not only the health of the other members but the health of the whole. This process of cellular conjugation, this fast-growing element of

interdependence, is shaping the intellectual life of our new world.

It is for this reason that the intellectual unity of the race is based on firmer foundations than is commonly supposed. This is true not only in relation to the physical and medical sciences; it is equally true of the humanities and the social sciences. All nations alike drink from the same springs. They all share their wealth with the rest of the world. There is not a field of thought in which this cannot be illustrated. Bacon was an Englishman, Descartes was a Frenchman, Spinoza was Dutch, and Leibnitz was German; together they laid the basis of modern philosophy. Moreover, men like these, and their associates in other fields, build their work on each other. Just as in the commercial realm one nation is dependent upon many other nations for its finished goods, so in the world of ideas — whether it is music or philosophy or literature or economics or art — every nation makes its special contribution to the total product.

Thought cannot be confined behind boundary lines without loss of vitality and ultimate decay. No permanent walls can be built against ideas. The Russian Tolstoi and the German Thomas Mann, the Englishman Clerk-Maxwell and the American Willard Gibbs, the Dutchman Van Gogh and the Spaniard Picasso, the Finn Sibelius and the Frenchman Debussy — these are the men from every country under the sun who have helped to break down the partitions that in earlier days permanently divided the world.

The war has re-erected many of these old partitions and has sealed the doors and windows of the nations. The great constructive task immediately ahead of us is to level these unnatural barriers against ideas and knowledge and experience — to open the doors and

windows of the world and "let the winds of freedom blow."

### THE ROLE OF BOOKS AND PERIODICALS

To expedite the development of free trade in thought and action, The Rockefeller Foundation, since the beginning of the war, has been cooperating with the American Library Association in trying to fill some of the gaps in the periodicals and books of libraries shut off from contact with the rest of the world. With funds provided by the Foundation the Association has been purchasing, and in some instances microfilming, scholarly journals of the United States. These journals are being stored until conditions make possible their distribution to the libraries of Europe and Asia.

Approximately 350 journals are included in this arrangement, covering the fields of the medical, natural, and social sciences and the humanities; and the plan involves the provision of enough journals in each category to match, as far as possible, the subscriptions canceled by the war.

Some idea of the complexity of the work and the scope of its contacts may be gained from the fact that in four years \$222,000 have been spent on subscriptions for many thousands of copies of these periodicals. They cover a wide range of interests, including such contrasting organs as the *American Journal of Surgery*, the *Annals of Mathematics*, the *Art Quarterly*, *Cancer Research*, the *American Historical Review*, the *American Economic Review*, the *Physical Review*, and the *Journal of the American Chemical Society*.

Another plan to open the doors between nations is involved in a further grant to the American Library Association, made in 1944, to facilitate the purchase of

reference books published since 1938 — books which a first-class library would normally buy, but which the foreign libraries missed because of the war. From twenty to fifty sets of 500 titles are being acquired and held in reserve for distribution to the starved libraries of Europe and Asia when shipping arrangements are available.

In line with this policy the Foundation has also made annual appropriations for a number of years to the Royal Society, London, to assist in the publication of British scientific journals. Grants were also made in 1944 for the support of scientific journals in India and for an interchange of material between American and Chinese libraries.

#### OPENING OUR OWN WINDOWS

We need, of course, to make sure that our own doors and windows here at home are open. For while the war did not seal us off as completely as France and Poland and Norway were sealed off, it nevertheless found us unprepared in terms of language and knowledge and understanding to live intelligently with our neighbors in the closely knit world of the twentieth century. There has been a parochialism about America and her attitude toward other nations which only now is beginning to break down.

The matter of language is a case in point. Although our thoughts and interests were turning to the East, there was no school in the United States for the adequate study of Oriental languages and cultures, and consequently no opportunity for the interpretation of ideas, traditions, and customs through the medium of tongues other than English. And this was at a time when Europe had developed a dozen such schools. In relation

to Russia the gaps in our knowledge were particularly conspicuous. Until ten years ago there were but few courses given in American universities in the Russian language, and no broad resources were developed for understanding the social and cultural life of a nation which in a single generation has become one of the most powerful forces in the world.

Even today our resources are pitifully meager. Only one university accepts Russian as a language with which undergraduates may satisfy the usual language requirements; and it is possible to thumb through the catalogues of courses in even large institutions without finding the words "Slavic" or "Russian." Nowhere, with the exception of a summer course at Cornell, has there been a systematic approach to the main problem — an approach in which language study would be combined with the study of Russian history, politics, economics, and culture to present an intelligible picture of Russian society. In a recent editorial the *New York Herald Tribune* summed up the situation as follows: "In the world of tomorrow it seems likely that 140,000,000 Americans will find themselves living with 200,000,000 Soviet citizens. Thrice armed is the man who understands his neighbor's past, his present way of life, and something about his hopes for the future."

Ten years ago, largely through the American Council of Learned Societies, The Rockefeller Foundation began to support courses in Russian, Chinese, and Japanese languages in a number of American institutions. Help has been given also to instruction in Turkish, Arabic, Persian, Hindustani, Malayan, Tibetan, and Siamese, and the development of dictionaries and grammars, together with translations and other contemporary materials, which will serve as an introduction to the

life and culture of all these countries. Altogether over this ten-year period the Foundation has appropriated approximately \$775,000 for these purposes.

In 1944, grants for this general objective totaling \$260,000 over a seven-year period were made to four institutions on the West Coast, i.e., Stanford University, the University of California, Pomona College, and the University of Washington. These institutions hold key positions in Russian and Far Eastern studies, and through common discussion they have developed plans for cooperative action. At the University of Washington, for example, there are large undergraduate enrollments in courses on the general history of the culture of the Pacific area and in its languages. The work at the University of California extends over more languages and dialects than at any other institution in the group, and it has particular facilities for advanced study. Stanford University has developed a varied and strong program of area studies, notably in relation to Russia, Japan, and China, and the Southwest Pacific as well. Pomona College offers the best example of basic courses for undergraduates; its specialists in Chinese and Japanese are producing texts and bibliographies that will serve the needs of other colleges.

The funds furnished by the Foundation to these four institutions will give to members of the faculties in the humanities and social sciences opportunity to travel and study in the countries of their specialties. Visiting professors from these countries will also be secured, and there will be cooperative book buying to enlarge the library resources for this joint undertaking.

Of course, language is only a tool — but an essential tool to open windows that have long been shut. During the war other countries have undergone experiences

that are vastly different, in quality and intensity, from those which we have lived through here in the United States. If we can pry our windows open, we shall have made a first move toward a better mutual understanding with quarters of the world which till now we have too little known.

### THREE DECADES IN CHINA

Historically, China is the oldest interest of The Rockefeller Foundation, and the Foundation has spent more money in that country than in any other country except the United States. Thirty-two years ago, at the first meeting of the trustees of the Foundation following its incorporation, a proposal was advanced for a commission to study the problem of medical care and training in China. That was the beginning of a series of actions which subsequently involved the creation of the Peiping Union Medical College and programs in public health, agriculture, mass education, and a number of other fields. Altogether the Foundation has appropriated approximately \$45,000,000 for work in China — not a large sum in comparison with needs to be met, but large in terms of the Foundation's total resources.

The war has necessarily curtailed much of the work. The Japanese seized the plant of the medical college in Peiping, and the dispersal of Chinese universities following the Japanese occupation of the coast interrupted many of the activities that were under way. The fellowship program, which over the years had helped in the training of scores of Chinese students in medicine, public health, the natural and social sciences, and the humanities as well, had to be practically abandoned, and today there are just eleven Chinese fellows under

appointment by the Foundation. A program of rural reconstruction, involving grants to a number of Chinese institutions, is still continuing, although with increasing difficulty. Appropriations for this purpose in 1943-44 approximated \$225,000.

In spite of the necessarily limited scale of the Foundation's present operations in China, no country has a greater claim on its interests and affections. The war is bringing China into the forefront among the nations. A long and distinguished civilization and a great people are at last about to take their place among the leading forces of the world. Their heroic services in this war have earned the gratitude and admiration of the world, and the contributions which their great native abilities and inherent friendliness are bound to make to an advancing civilization entitle them to every consideration in the difficult days ahead.

#### AMERICAN POLICY AND SCIENTIFIC RESEARCH

The policy of the American government in regard to the training of scientific men during wartime has been characterized in many responsible quarters as fundamentally short-sighted. Unfortunately, the accuracy of the characterization can scarcely be challenged. Where England and Russia have sought to protect their future by guarding the flow of new scientific personnel, our policy seems to have been largely dictated by expediency and the apparent necessities of the moment. In Russia, students of ability in science are not permitted in the armed forces, while Great Britain has succeeded in minimizing interruption in the training of the men who will be her scientific teachers and leaders in the next generation. With us, science professors and stu-

dents alike have largely left the universities. Except for a few 4-F's, we now have practically no male students over eighteen studying science. "Rightly or wrongly," says a recent report of the American Institute of Physics, "some of the seed-corn of American scientific progress for years has been ground up to make a day's feed for the war machines."

In our handling of scientific personnel during the war, we here in the United States have been spending our capital with reckless disregard of the future. As an officer of the National Research Council expressed it: "We are committed to a policy of getting along with our present stock pile of trained personnel in the technical branches, even though that stock pile comprises a very perishable commodity." In other words, we gambled on a short war. Dr. Arthur Compton has underscored the sobering possibility that when the war is won, we may find that we have gained a Pyrrhic victory, having lost so much of our technical strength that we shall be unable to meet the needs of the next generation.

What nonmilitary research work has been done in the United States during this last year has been done chiefly by the older men, and largely in the biological sciences. Genetics and studies of nutrition in particular have gone forward, and the Foundation in 1944 made grants for research in these fields to a number of institutions both here and in Canada, including Stanford University, Columbia University, the University of Rochester, the University of Illinois, and the University of Toronto.

Related to the general field of nutrition is a project for agricultural research which for the last two years the Foundation has been developing in Mexico in coopera-

tion with the Mexican Department of Agriculture. For this purpose in 1944 the Foundation appropriated roughly \$195,000. Already the demonstration has had important consequences and holds large promise for the future. It may be that the Mexican experiment will point the way to similar opportunities in other parts of the world, notably in Europe, where, in the words of Sir John Russell, head of the Rothamsted Experimental Station of England, the Continent after the war will be "mainly a vast worn-out farm."

#### SALVAGING BRAINS FOR POSTWAR LEADERSHIP

During the last twelve months The Rockefeller Foundation has provided a series of appropriations for a fellowship program in the United States that is without precedent in the history of this organization.

Heretofore fellowships have been available to gifted students, brilliant young scholars and research assistants, who have worked and studied in whatever institutions have been best fitted for their needs. To date, directly and indirectly, the Foundation has awarded, here and abroad, approximately 7,500 fellowships at a total cost of a little over \$20,000,000. This represents a large investment but, judged by its fruits, the fellowship system which has been carried on around the world for more than two decades has contributed, perhaps substantially, to the development of scientific and cultural leadership.

But that system was built for a time of peace. Today, under the weight of war, the problem is different and a new approach is required. The war has taken the cream of our human resources, not only the students but many of their teachers who are now mobilized by the thousands in war research laboratories and other emergency

posts of the Government. While the task of turning out warriors and weapons has monopolized most of our efforts, the responsibility for producing scholars, scientists, artists, and other creative minds has been largely suspended.

Remembering the unfortunate results of a similar situation in the First World War, the Foundation, over the last year or two, has conferred with research directors, educational executives, and others in an effort to appraise the need and develop measures which might be of some assistance in meeting it — measures which would supplement the provisions of the G. I. Bill of Rights. Out of these conferences has come a plan for future fellowships here at home, representing four fields of Foundation interest.

(1) The program was initiated in December of 1943, when the Foundation appropriated \$320,000 to assist the postwar training of medical graduates returning from the armed services. An additional sum of \$188,000 was appropriated in 1944, making a total of \$508,000 for medical training. These actions were based on a recognition of the incompleteness with which young medical men have been educated during the war.

It is not only that the usual four years of medical school have been telescoped into three, but the periods normally devoted to internships, assistant residencies, and residencies in hospitals have been sharply curtailed. In ordinary times, those medical students who survive the successive screening tests have been given a post-graduate period of about five years to gain experience, to mature in knowledge of medicine, and to prepare for specialization. It is this period that sifts out and identifies the best men, the men who will be the teachers of the next generation. Under the wartime emergency,

the possible five years has been cut to what may be as little as nine months. Men are being rushed into the Medical Corps of the Army and Navy before they have a chance to ripen into the well-rounded scientists who constitute our top group in medicine. Those who come back from the war will be older, many of them will have taken on family obligations, and their natural tendency will be to pass on to whatever professional opportunity seems most attractive. The purpose of the Foundation's new fellowship program is to make it possible for twenty-one leading medical schools to offer a limited number of residencies to the best of these men when their war work is done—residencies which will pay stipends adequate for the individual cases. The selection is now being made by the professors in the medical schools on the basis of their judgment of their own former students. To young doctors in military service such an offer coming at this time will enable them to plan their reading and direct their thoughts to a clearly definable goal, and thus prepare themselves as far as possible for their future posts.

(2) In the natural sciences most of the young men of exceptional promise are not in military service but have been deferred for work in war laboratories. This is especially true of physicists and mathematicians, and to a lesser extent of chemists, biologists, and engineers. But the men who come back from the wartime laboratories will have no standing under the G. I. Bill of Rights, and many of them have had their careers as seriously interrupted as the men in military service. Although they were assigned to work in the fields of science, their duties have in most instances been highly specialized, precluding any opportunity for broad basic training. Many of these young men had fulfilled most

of the requirements for the doctorate when they were called away to these emergency laboratory jobs. Some were just beginning their postgraduate studies and had two or more years of training ahead. Almost all the brilliant ones, even those only half trained, were pressed into the wartime research program.

Without some concrete encouragement it seems likely that many if not most of these young men will go on into the more lucrative fields of engineering and industrial work, and the universities will be left with scant material from which to select their future teachers of science and leaders of research. A study made by the National Research Council for the entire group of natural sciences shows that by the end of 1945 there will be a total of 2,700 men who under peacetime conditions would have taken their doctorates but who, on account of the war, were unable to continue their studies.

To help meet this situation, as far as limited funds can meet it, the Foundation made an appropriation in 1944 of \$335,000 to the National Research Council. This fund will provide between 125 and 200 fellowships, depending on the amount of help that the individual will require. The program will, therefore, care for less than 8 per cent of the 1942-45 manpower deficit, but that per cent will be the finest brains of the group, the men whose record in war research has confirmed the promise of their university days. A special office is being set up by the National Research Council to administer the program, and the various war laboratories will be canvassed for the most suitable appointees.

(3) In 1942 the Social Science Research Council, aided by the Foundation, established an office in Washington. It was created as a clearing house to facilitate the utilization of social scientists in the war effort.

During the last two years this office has been of direct service both to the government agencies seeking specially qualified men in anthropology, economics, government administration, sociology, statistics, and related fields, and to the individual social scientists themselves who were looking for opportunities.

Early this year it became apparent that the time had come to consider a movement in the opposite direction. With the ending of the war there will be a problem of reconversion, of bringing back into social science work the brilliant men who have been diverted into other fields. This need applies particularly to the younger men who were still in the stage of postgraduate training when the war interrupted their preparation.

A grant of \$100,000 which the Foundation made to the Social Science Research Council in 1944 represents a joint Foundation-Council effort to meet this problem. A committee of the Council is now combing social science departments of universities as well as government agencies. From the information thus secured the Council will award grants to those young men whose promise of future leadership seems most clearly demonstrated, the aid to be effective, of course, when the men in question have been demobilized.

(4) The same sort of wartime interruption of training and dispersion of personnel that has affected scientists, has affected linguists, historians, writers, and other workers in the humanities. An appropriation of \$100,000 to salvage some part of this loss was made in 1944.

Unlike the program in the other divisions, the fellowship program in the humanities will be operated by the Foundation. The secretary of the program is canvassing not only former fellows in the humanities who have been

shunted away from their regular studies by the demands of war, but also new talent, especially in the fields of Far Eastern, Slavic, Latin American, and American studies. On the basis of his reports fellowship appointments will be made.

The objective in all these four fields is to find the exceptional person whose failure to return to his chosen career will constitute a permanent loss in the generation ahead. It is the critical problem of salvaging brains. To discover the displaced young people whose talents mark them for scholarly leadership, and to assist them to get back into their careers, is a major responsibility of those whose concern is the maintenance of intellectual standards.

#### PUBLIC HEALTH ACTIVITIES

The International Health Division is the oldest division of The Rockefeller Foundation; it was established in 1913. While making appropriations to other institutions, it is primarily an operating agency; that is, it maintains its own laboratories and has a scientific staff spread around the world.

Operating on a budget of \$3,200,000, the International Health Division in 1944 continued its work in the control and investigation of specific diseases, aided state and local health administrations, and promoted public health education. A Health Commission, organized in 1940 as an emergency body, stood ready to render every possible service in the public health field to regions afflicted with refugee problems, disorganization of sanitary services, postwar epidemics, nutritional deficiencies, or other conditions arising from the war and constituting major health disasters. The chief activities of the Commission during the year were louse control

studies in Mexico, typhus and malaria control in Italy, malaria work in Egypt, the study of infective jaundice and other infectious diseases, nutrition studies in England, and the manufacture and distribution of yellow fever vaccine. In view of the fast-moving events in Europe, the Health Commission is looking forward to additional opportunities there for major service. Of the total International Health Division budget, \$1,000,000 was set aside for this emergency work in 1944.

In its 31 years of work the International Health Division has learned that the advancement of knowledge is favored as a general rule by concentration of effort. It has never tried to combat too many diseases at one time. In 1944 attention was concentrated on twelve specific diseases, the most important of which were yellow fever, malaria, typhus, influenza, and the deficiencies related to nutrition. The Division realizes, too, that the control of diseases bears a direct relation to the state of knowledge concerning them. The inadequacy of knowledge about yellow fever before 1926 limited our understanding of that problem and hampered the development of competent protective measures. The work of the New York Laboratories of the International Health Division is, therefore, a basic and fundamental part of its program.

Another prime interest of the Division is assistance to state and local health services. There are still many localities in the United States and many countries beyond our borders equipped with public health machinery of an early vintage. The International Health Division endeavors to assist in the modernization of many of these state and local departments of health by preparing personnel, furnishing expert advice, and lending financial support for limited periods. Funds are given to

create or improve departments of sanitary engineering, epidemiology, statistics, and laboratories, to mention but a few. In the advanced countries the concern is with the new, the experimental; in backward countries, with the application of seasoned and well-established techniques.

Perhaps the most significant contribution of the International Health Division to public health has been in the field of public health education. In 1944 fairly substantial sums were appropriated for fellowships and travel grants and for the support of schools of hygiene and public health nursing. The policy with regard to fellowships is to train individuals who are well known to the Foundation field members in foreign countries and who will return after their training to guaranteed posts in their own governments. Travel grants are intended for public health officials who will benefit from the broadening influence of visits to other institutions. Among schools of public health now receiving support are those at Harvard University, the University of Michigan, the Johns Hopkins University, the University of Toronto, the School of Public Health in Santiago, Chile, and the National Institute of Health in Chungking, China.

What the Division has done in nursing stems from the concept that the development of public health work depends in no small measure upon the public health nurse. Demonstrations in health center practice succeed or fail in the proportion that public health nursing services are good or poor. Professional nursing in many countries is either nonexistent or in a primitive stage of development; under such circumstances public health nursing can be advanced only as the profession of nursing is improved, and this leads to the field of nursing

education with participation in the development of schools of nursing. In 1944 the International Health Division gave support to nursing schools in Canada, Colombia, Brazil, Ecuador, Argentina, Venezuela, and Portugal.

Altogether during the year the Division carried on its operations in twenty-three different countries.

#### TYPHUS IN NAPLES

In the last number of this *Review* mention was made of the typhus team, under Dr. Fred L. Soper, which the International Health Division of the Foundation sent to Algeria in the summer of 1943, and of the new technique which had been developed in two extensive demonstrations by which the application of insecticide was speeded up through the use of machine dusters or pumps. Typhus is a louse-borne disease which can be effectively controlled only as lice are exterminated. As Hans Zinsser remarked, it is second to none in its tragic relationship to mankind.

The application of insecticide to individuals had always been a cumbersome, awkward, and time-consuming process. People had to remove their clothes, the clothes were then dusted by hand with the insecticide, and after all seams had been thoroughly rubbed with powder the clothes were donned again. The new method developed by the Foundation's typhus team in Algeria, after elaborate trial in the New York laboratory and preliminary tests by the members of the United States of America Typhus Commission in Egypt, proved that it was possible by means of a blowing machine to apply the powder without removing the clothes. Where the former procedure took fifteen or twenty minutes, the new method requires only two or three minutes, and

careful tests showed that it is just as effective in exterminating insects as the slower hand-powdering. Moreover, the experiments in Algeria brought out the fact that while the natives were loath to remove their clothes for treatment, they eagerly responded to this new approach.

At the end of 1943, shortly after its capture by the Allied armies, Naples was threatened by a serious epidemic of typhus. Thousands of people had been living in bomb shelters with inadequate sanitary arrangements, and the situation was ripe for an explosive outburst of the disease. By December the number of cases was multiplying so rapidly that the United States of America Typhus Commission, at the invitation of the Army authorities, took charge of the situation. Under Brigadier General Leon A. Fox, field director of the Commission, an antityphus program was organized in four sections:

1. The finding and treatment of typhus cases and families
2. The delousing of persons exposed to typhus
3. Mass delousing of the entire population of Naples
4. Vaccination of key personnel exposed to typhus.

The members of the Foundation's typhus team, in their capacity as consultants to the Surgeon General of the Army, were asked to undertake responsibility for Part 3 of the program. As a result some forty delousing stations were established over the city. By proclamation through newspaper and poster the people were invited to come to these stations for treatment with insecticide, and they came by the thousands and tens of thousands. At each station there was a staff of men dusters to care for the boys and men, and a staff of women to care for the girls and women; and the white DDT powder was

applied directly by compressed air guns which swished it up trousers and skirts, down sleeves, into collars, seams, tucks and folds, wherever the insect or its eggs might cling. This system of rapid dusting without disrobing enabled the mass dusters to care for as many as 66,000 patrons a day. More than 1,300,000 were treated in January alone — and Naples has a population of less than 1,000,000, which shows that some people came for more than one treatment. If well dusted, DDT will protect a body against lice four to five weeks.

The epidemic in Naples which might have taken thousands of lives collapsed with astonishing rapidity. Many agencies are due credit for the victory: the Surgeon General of the Army, the Chief of the United States Army's Preventive Medicine Service, the Chief Surgeon of the North African Theater of Operations, the United States of America Typhus Commission, the Army Medical Corps doctors, the Allied Control Commission — and the Neapolitan physicians, public health officials, and civilian helpers who worked with the Americans. Altogether it was an admirable example of medical teamwork, and the Foundation is grateful for the part it was able to play in a demonstration which has wide implications in the future control of this disease.

### YELLOW FEVER

The International Health Division of the Foundation is now carrying on its research in yellow fever in seven localities outside the United States, four of them in South America and three in Africa. In South America the main research posts are at Rio de Janeiro and Bogotá, with substations at Ilhéus in Brazil and Villavicencio in Colombia. The African work centers around

Lagos in Nigeria, on the western coast, and Entebbe in Uganda, near the eastern side of the continent, with an additional field station maintained by the Entebbe laboratory in the Bwamba Forest in Western Uganda.

Mention has been made in previous issues of this *Review* of the extensive search for wild animals that might be yellow fever carriers. In Villavicencio alone, in an endemic yellow fever region, more than 2,000 animals have been trapped, ranging all the way from mice to wildcats and monkeys, and from birds to snakes and other reptiles. Each was tested to see whether it had acquired immunity to yellow fever, or, if not, whether it responded to inoculation with the virus. Two species only showed positive results — the monkey and the opossum. That is, antibodies against yellow fever were found in their bloodstreams, evidence that at some time past they had been infected with the virus.

In June 1944 the laboratory at Ilhéus trapped a sick monkey, a marmoset. In its bloodstream were discovered not antibodies, but the active virus of yellow fever. The animal was seriously ill and soon died, and exhaustive laboratory tests showed conclusively that it had died of yellow fever.

This episode is historically interesting, because it is the first time in any country that a wild animal has been picked up in its natural habitat suffering from yellow fever. It lends support to the thesis that yellow fever is primarily a disease of jungle animals transmitted by jungle mosquitoes. But there are many questions still to be answered. How is jungle yellow fever communicated to man? Where is the reservoir of the virus during the periods between epidemics? In brief, where does the sporadic infection come from and what keeps it going?

It is to these questions that the Foundation's seven

stations in South America and Africa are directing their attention.

### THE ADVANCE OF PSYCHIATRY

“It is not too much to assert,” said a leader of American medicine recently, “that in its actual and potential contribution to general medicine, to education, to sociology, indeed to the general business of living, psychiatry, without claiming omniscience in itself, is cast for a role of fundamental importance in helping to shape any world that may come out of the present one.”

While the war has, of course, emphatically underscored the validity and significance of this conviction, it is by no means a new idea. For many years the importance of psychiatry not only as a medical but as a social tool has been widely recognized. But psychiatry has been a backward field of science. In some particulars it has been an island rather than an integral part of the mainland of scientific medicine. Even today it has not developed a body of knowledge or trained personnel comparable to that achieved by the other disciplines.

But psychiatry is on its way; the needs growing out of the war have given it strategic importance. In 1932, when The Rockefeller Foundation began its work in this field, it can fairly be said that teaching was poor, research was fragmentary, and application was feeble. Some American medical schools had no departments at all in psychiatry, neurology, and allied specialties; some had primitive and inadequate departments; and a few had departments which, though fairly well organized, were incomplete or isolated from the other activities of the school. Traditionally psychiatry had dealt with major mental disease, and its practice frequently concerned itself only with the commitment and custodial

care of the incapacitated. Little attention was paid by either the professional psychiatrist or the practitioner in other branches of medicine to the interplay of body and mind in every illness.

Since 1932 the Foundation has spent approximately \$14,000,000 in this field. Indeed, three-quarters of the Foundation's allotment for work in the medical sciences has been devoted to psychiatry and related or contributory subjects. The purpose of this program can be stated in a single sentence: It has been to find, train, and encourage first-rate people who were eager to work at the problem of understanding and correcting mental behavior and nervous disorders. A clear-cut strategy in three steps was laid down in the early years. First, attention was to be given to the improvement of methods of teaching psychiatry in the medical schools. Whenever possible, encouragement was given to programs of teaching and investigation in the general hospital wards in order to stimulate interest in emotional difficulties as they occur in the ordinary care of every patient. The second phase was to aid in building up a few outstanding research centers and to develop special projects in psychiatric research where favorable opportunity was presented. The third step having to do with the field of application has had to await the development of more personnel and the advent of peace.

The results of this program to date can be outlined as follows:

(1) The University of Chicago and Yale University, which had no departments of psychiatry, were provided with them.

(2) McGill University in Montreal was given an institute for neurology and neurosurgery.

(3) The teaching of psychiatry at Tulane, Duke,

McGill, and Washington University in St. Louis, previously primitive or almost entirely lacking, has been put on a satisfactory basis with full-time teachers and adequate teaching material.

(4) The teaching of psychiatry at Harvard, formerly confined to the problems encountered in state hospitals, has been broadened by the establishment of a department devoted to mental disease as it appears in general hospital practice.

(5) Departments of psychiatry, previously incomplete, have been rounded out or extended at Johns Hopkins, the universities of Colorado, Michigan, and Tennessee, and the Institute of the Pennsylvania Hospital.

(6) Concurrently with the program for the development of university and hospital departments, the Foundation has maintained a steady program of fellowships for advanced training in psychiatry, neurology, neurosurgery, and related subjects. It has also supported a few enterprises not directly within the university fold; for example, the Institute of Psychoanalysis in Chicago.

(7) In the field of psychiatric research, grants have been made for mental case studies at the Worcester State Hospital in Massachusetts, for neuroanatomy at Northwestern University, for physiological optics at Dartmouth, for brain chemistry at Tufts, for epilepsy at Harvard, for constitutional medicine at Columbia, and for neurophysiology and studies of conditioned reflexes at Cornell.

The war has, of course, considerably interfered with the development of this program, but it is safe to say that today there are at least a dozen medical schools which every year graduate a group of students far better oriented toward nervous and mental disorders and their

role in human life than was the case in 1932. Moreover, research in psychiatry has become at least reputable, and in neurophysiology it occupies an advanced position.

The Rockefeller Foundation has been only one of many factors responsible for this progress; encouragement and financial support have come from numerous sources. It is a satisfaction, however, to record the part, necessarily modest in relation to total needs, which the Foundation has had in helping to promote the advance toward a better understanding of human behavior.

In continuance of this policy of support in the general field of psychiatry and its related subjects, the Foundation in 1944 made grants to the University of Edinburgh, the University of Chicago, Dalhousie University, the Catholic University of America, Washington University of St. Louis, and other institutions of teaching and research. The total of these grants was in excess of \$400,000.

#### THE NEED OF THE SOCIAL SCIENCES

In 1944 the Foundation appropriated larger sums for the social sciences than for any other field except public health. Indeed, the appropriations in this area were nearly twice the amounts given in recent years. Today more than ever before the world needs the help of the sciences that deal with human relations. Because man has to rebuild, on the wreckage of war, a new and better way of living, he must have the illumination which disinterested knowledge can provide. Because war tends to substitute fear for reason and propaganda for truth, imperative necessity requires the support of the agencies and the spirit which make for nonpartisan understanding in the field of human relations.

But solutions cannot be extemporized. No capacity exists in the social sciences for insuring quick results. Progress is part of the long, slow march which man is making toward a greater knowledge of himself and of his relations with his fellows. We can look forward to no mechanistic invention which will automatically solve the problems of human adjustment. The coming peace will not be won or lost at a conference here or by a treaty there. We shall be winning or losing it over the years ahead through many decisions taken by thousands of men in all the countries of the world. The peace is something we are ever winning or losing — today, tomorrow, next week, next year. We do not prepare for the decisions we have to make by putting on the blinders of intolerance and partisan advocacy. We shall be prepared only because, through education and study and research, we have developed leaders and citizens whose minds and integrity will be ready as the moments of decision arrive.

This is a slow process and it involves the long pull. It is a process that encounters impatience. Particularly after the war, there is likely to be strong pressure for the immediate and the practical; and emphasis upon vocationalism and technology may threaten to swamp all types of humanistic and cultural education and to brush aside long-term objectives in the interests of haste and urgency.

But the assumption has to be made that there is time for intelligence to take hold, and social scientists and humanists, too, have to presuppose the opportunity for long-maturing work. The hope that the stream of human decisions may rest on reason, wisdom, and justice is a bold, even a radical, dream. And such dreams do not come true overnight. Social science cannot escape its

obligations to the emergencies of the moment; but its main concern must inevitably be related to those results in terms of human welfare which are gained from patience, tenacity, research, and adequate and continuing support.

#### STUDIES IN POPULATION

The size and distribution of the population of the world is changing rapidly, and the spread of modern technology is giving these changes new political and social meaning. As a result, many of the terms in which both national and international problems are stated have altered in the last quarter of a century and will be altered radically in the years ahead.

It is the business of demography to plot the curves and interpret the significance of these past and coming changes. What does it mean that the population of the West is approaching the end of its period of expansion or is even facing decline? What does it mean that the populations of eastern Europe, the Soviet Union, and Asia seem destined to have periods of rapid expansion, ranging from a few decades to several generations, similar to those through which the West has been passing in the two centuries just concluded? It is estimated that with an orderly development of past population trends and no allowance for either war losses or boundary changes, by 1970 the population of the Soviet Union would increase by about seventy-seven million over that of 1940, whereas France and England in 1970 would each show a decrease of about four million. Russia's increase during this period would alone exceed the present or prospective population of Germany. In the case of the Soviet Union, it seems likely that population gains from boundary changes will go far toward

canceling the losses from war. In most of the other countries, however, war losses will either check growth or speed decline.

Estimates of the future population of the United States have been worked out on a variety of assumptions by the Scripps Foundation for Research in Population Problems. On their assumptions of medium fertility, medium mortality, no immigration, and no war losses, the total population would increase by about twenty-five million between 1940 and 1970.

What do these diverse trends mean in terms of international trade, international migration, international agreement, and the international frictions which lead to war? What obligations to future generations do they place on this country to find the means of peaceful cooperation in international affairs? What do they mean internally in the regional adjustment of population to resources, in ability to maintain standards of living, in cultural advance or degradation? In the United States, what does the shifting age composition of the population mean to such problems as full employment, social security, and political power?

To marshal the facts which throw light on such questions, the Foundation made two grants in 1944 for the study of population trends and their social effects. The chief of these was a grant of \$200,000 over ten years to the Office of Population Research of Princeton University, where Professor Frank W. Notestein and an able group of colleagues are measuring and interpreting comparative population trends in the countries of the world. The second grant was to the Scripps Foundation for Research in Population Problems of Miami University at Oxford, Ohio, which is undertaking a study of the effect of population changes — including the casualties

of war — on the composition of the groups seeking employment.

#### FURTHER WORK IN THE SOCIAL SCIENCES

The Foundation continued in 1944 its interest in international relations, and grants were made, among others, to the Institute of International Studies at Yale, the Canadian Institute of International Affairs, and the Economic, Financial, and Transit Department of the League of Nations, which, now located at Princeton, is studying many aspects of the world's transition from a war to a peace economy. Operative in 1944 were grants made by the Foundation within the last two or three years to such organizations as the Council on Foreign Relations and the Foreign Policy Association, and to their sister institutions in Great Britain, Switzerland, Sweden, and Australia.

A five-year grant was made to the National Bureau of Economic Research for the support of its basic studies of economic processes and their interrelations; and extension of support for another five-year term was voted to the organization in Great Britain which corresponds to the National Bureau, i.e., the National Institute of Economic and Social Research. Grants were also made to the University of Pennsylvania for studies of the economics of industry, of the labor market, and of distribution.

In the general area of group organization and behavior, support for a three-year period was voted to the Industrial Relations Section of Princeton University for its studies and conferences; the Johns Hopkins University received a three-year grant for a study of the internal government of American trade unions by

Dr. William M. Leiserson; Cornell University received a grant for a study of civil liberties in wartime.

In the field of economic history a grant was made to Professor Simon Kuznets of the University of Pennsylvania for a study of comparative economic development; the Canadian Social Science Research Council was assisted in a historical description and analysis of the "Social Credit" movement in Alberta; and the Colorado Historical Society received support in a study of the western range cattle industry.

Grants over five-year and two-year periods respectively were made for the support of the Social Science Research Council and its sister organization of the same name in Canada. The primary function of these two agencies is the stimulation and planning of research and the discovery and the development of research personnel.

It should be noted that as an expression of its faith in the importance of impartial studies in the field of the social sciences, the Foundation in 1944 made appropriations for a longer term than has been customary since the war started in 1939. This will enable the scholars and agencies that receive the grants to plan ahead in relation to the problems of the postwar world. At a time when propaganda obscures reality, and partisanship has a tendency to override the common interest, it is especially important for society to strengthen the efforts of those who can handle evidence with competence and integrity.

#### APPLICATIONS DECLINED DURING 1944

During 1944 the Foundation was obliged to decline a total of 877 applications for financial aid, as compared with 920 in 1943. Some of these applications represented

projects of interest to the Foundation but were declined because other opportunities seemed more promising. The great majority, however, were declined because they fell outside the areas of work in which the Foundation is attempting to be of service.

The Foundation does not make gifts or loans to individuals, or finance patents or altruistic movements involving private profit, or contribute to the building or maintenance of churches, hospitals, or other local organizations, 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 1944 may be classified under the following headings: conferences and meetings, 7; continued aid to projects, 21; cures, remedies, investigations of theories and inventions, 43; development of educational and cultural institutions and projects, 90; European refugees, 11; fellowships, travel, and training grants, 278; local institutions (including hospitals, theatres, libraries, museums, and churches), 85; personal and medical aid, 34; public health projects, 25; publication projects, 43; research projects, 189; miscellaneous, 51.

## REPORT OF THE SECRETARY



## SECRETARY'S REPORT

**T**HE members and trustees of The Rockefeller Foundation during the year 1944 were:

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David H. Stevens, *Director for the Humanities*

Wilbur A. Sawyer, M.D.,<sup>1</sup> *Director, International Health Division*

George K. Strode, M.D.,<sup>2</sup> *Director, International Health Division*

Norma S. Thompson, *Secretary*

Edward Robinson, *Treasurer*

George J. Beal, *Comptroller*

Thomas M. Debevoise, *Counsel*

Chauncey Belknap, *Associate Counsel*

Vanderbilt Webb, *Associate Counsel*

<sup>1</sup> Retired September 1, 1944.

<sup>2</sup> From September 1, 1944.

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

The President, *Chairman*

Chester I. Barnard  
John Foster Dulles  
Herbert S. Gasser, M.D.

Henry Allen Moe  
Thomas I. Parkinson  
Walter W. Stewart

The following served as scientific directors of the International Health Division of the Foundation during 1944:

Eugene L. Bishop, M.D.  
Ernest W. Goodpasture, M.D.  
Wilton L. Halverson, M.D.

Kenneth F. Maxcy, M.D.  
Harry S. Mustard, M.D.  
Thomas Parran, M.D.

The Director of the Division

### MEETINGS

Regular meetings of The Rockefeller Foundation were held on April 5 and December 6, 1944. Six meetings of the Executive Committee were held during the year to take actions within general policies approved by the trustees.

### FINANCIAL STATEMENT

A summary of the Appropriations Account of the Foundation for the year 1944 and a statement of its Principal Fund follow.

## SUMMARY OF APPROPRIATIONS ACCOUNT

FUNDS AVAILABLE		FUNDS APPROPRIATED	
Balance from 1943....	\$ 4,379,073	Appropriations	
Income for 1944.....	8,209,807	Public Health.....	\$ 3,200,000
Unexpended balances of appropriations allowed to lapse and refunds on prior year grants.....	1,065,381	Medical Sciences... ..	1,253,170
		Natural Sciences... ..	1,090,460
		Social Sciences.....	2,193,160
		Humanities.....	1,547,670
		China Program....	125,000
		Miscellaneous .....	81,800
		Administration	
		Scientific Divisions..	563,411
		General.....	244,287
			<u>\$10,298,958</u>
		Authorization for later appropriation by the Executive Com- mittee.....	7,300
			<u>\$10,306,258</u>
		Balance available for appropriation in 1945.....	\$ 3,348,003
	<u>\$13,654,261</u>		<u>\$13,654,261</u>

## PRINCIPAL FUND

Book value, December 31, 1943.....	\$145,160,334
Deduct	
Amount by which the proceeds of securities sold, re- deemed, or exchanged during the year failed to equal the ledger value.....	326,987
Book value, December 31, 1944.....	<u>\$144,833,347</u>



# INTERNATIONAL HEALTH DIVISION

# INTERNATIONAL HEALTH DIVISION

## SCIENTIFIC DIRECTORS

Eugene L. Bishop, M.D.	Harry S. Mustard, M.D.
Ernest W. Goodpasture, M.D.	Thomas Parran, M.D.
Wilton L. Halverson, M.D.	Wilbur A. Sawyer, M.D. <sup>1</sup>
Kenneth F. Maxcy, M.D.	George K. Strode, M.D. <sup>2</sup>

## STAFF DURING 1944

### *Director*

Wilbur A. Sawyer, M.D.<sup>1</sup>  
George K. Strode, M.D.<sup>2</sup>

### *Associate Directors*

John A. Ferrell, M.D.<sup>1</sup>                      Andrew J. Warren, M.D.<sup>2</sup>

### *Assistant Directors*

Lewis W. Hackett, M.D.                      Hugh H. Smith, M.D.<sup>2</sup>

### *Staff*

Charles R. Anderson, M.D.	Henry P. Carr, M.D.
Richmond K. Anderson, M.D.	Joseph C. Carter
Marshall C. Balfour, M.D.	Ottis R. Causey, Sc.D. <sup>3</sup>
Marston Bates, Ph.D.	Harold D. Chope, M.D. <sup>4</sup>
Johannes H. Bauer, M.D.	Janet D. Corwin <sup>5</sup>
George Bevier, M.D.	Porter J. Crawford, M.D.
Mark F. Boyd, M.D.	William A. Davis, M.D. <sup>6</sup>
Elizabeth W. Brackett	Wilbur G. Downs, M.D. <sup>6</sup>
John C. Bugher, M.D.	Brian R. Dyer

<sup>1</sup> Retirement effective September 1, 1944.

<sup>2</sup> Appointment effective September 1, 1944.

<sup>3</sup> On leave. With Institute of Inter-American Affairs.

<sup>4</sup> Resignation effective December 31, 1944.

<sup>5</sup> Appointment effective July 15, 1944.

<sup>6</sup> On leave for military service.

Monroe D. Eaton, M.D.	Alexander F. Mahaffy, M.D.
John E. Elmendorf, Jr., M.D. <sup>1</sup>	John Maier, M.D. <sup>1</sup>
John P. Fox, M.D.	D. F. Milam, M.D.
William F. Friedewald, M.D.	Hugo Muench, M.D.
Kenneth Goodner, Ph.D.	J. Harland Paul, M.D.
John B. Grant, M.D.	George C. Payne, M.D.
Richard G. Hahn, M.D.	Osler L. Peterson, M.D.
Guy S. Hayes, M.D.	Edward G. Pickels, Ph.D.
Rolla B. Hill, M.D.	Persis Putnam, Sc.D.
Esther M. Hirst <sup>2</sup>	Elsmere R. Rickard, M.D.
George K. Hirst, M.D. <sup>1</sup>	Paul F. Russell, M.D. <sup>1</sup>
Thomas P. Hughes, Ph.D.	Francis F. Schwentker, M.D. <sup>1</sup>
John L. Hydrick, M.D.	Raymond C. Shannon
John H. Janney, M.D.	Kenneth C. Smithburn, M.D.
Harald N. Johnson, M.D.	John C. Snyder, M.D. <sup>1</sup>
John F. Kendrick, M.D.	Fred L. Soper, M.D.
J. Austin Kerr, M.D.	Richard M. Taylor, M.D.
Stuart F. Kitchen, M.D.	Mary Elizabeth Tennant
Frederick W. Knipe	Max Theiler, M.D.
Henry W. Kumm, M.D.	John M. Weir, M.D. <sup>1</sup>
Charles N. Leach, M.D.	Clifford W. Wells, M.D.
Edwin H. Lennette, M.D.	Charles M. Wheeler, Ph.D. <sup>1</sup>
William A. McIntosh, M.D.	Loring Whitman, M.D. <sup>1</sup>
Estus H. Magoon	D. Bruce Wilson, M.D.
	Daniel E. Wright <sup>3</sup>

<sup>1</sup> On leave for military service.

<sup>2</sup> Appointment effective October 1, 1944.

<sup>3</sup> On leave with United Nations Relief and Rehabilitation Administration.



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# INTERNATIONAL HEALTH DIVISION

## INTRODUCTION

**A**LTHOUGH during the war all peacetime activities have been subject to curtailments and interruptions, in its public health program The Rockefeller Foundation has been able, by and large, to follow the pattern of its work in former years. The schedule of operations calls for attention, first of all, to the control of certain diseases of major public health importance; next, to the support and encouragement of practical procedures initiated by local and state health departments; and, finally, to the support of public health education, with emphasis on a fellowship program. A brief general account of work done in these three fields, with special mention of typhus and yellow fever campaigns, has already been given in the President's Review (see pages 24 to 31). The report that follows rounds out this story by a more complete description of all of the items engaging the attention of the Foundation's International Health Division in 1944. The stress is on the general and administrative aspects of the work. Later in the year there is to be published a more detailed version of the work for the year, emphasizing the research and technical aspects which are useful to health officers and other specialists.

Included in this report are accounts of the work of The Rockefeller Foundation Health Commission, an agency set up in 1940 for the purpose of aiding in the

re-establishment of normal public health routines in countries and areas ravaged by war. This agency has done a variety of special tasks, one of which has been the preparation of yellow fever vaccine for the armed forces. During 1944 the Commission continued the study of infectious hepatitis, engaged in louse control studies in Mexico, Egypt, and Italy, cooperated in anti-malarial work in Egypt, and took part in various types of nutrition surveys in England. The work of the Commission is described in connection with other work of the same nature done by the regular staff of the International Health Division.

### DISEASE CONTROL

#### YELLOW FEVER

Since 1916 yellow fever has occupied in the International Health Division program a position of dominance among specific diseases. Now, however, the state of knowledge concerning yellow fever is such that a gradual reduction of emphasis on this disease is foreseen. Achievements have been considerable. The etiological agent has been isolated and thoroughly studied, and reliable diagnostic tests have been perfected; an effective and safe vaccine has been developed, and a practical method for its manufacture on a commercial scale has been worked out and operated successfully; satisfactory procedures for wide-scale eradication of *Aedes aegypti* have been demonstrated; the epidemiology of jungle yellow fever has been studied in South America and in Africa, and we are well on the way to a reasonably full understanding of its vagaries; a program is well advanced in the establishment of permanent yellow fever institutes at strategic points in the yellow fever regions of the world.

*Work at the Division's New York Laboratories.* — Vaccine production in the International Health Division Laboratories in New York continued during 1944 but on a much smaller scale than in 1943. At the beginning of the year there were over five million doses of vaccine on hand. Only about two million doses of new vaccine were made during the first eight months of 1944, although nearly five million doses were distributed. This is in contrast with nine million doses prepared and five million distributed in 1943. The United States Navy will receive 250,000 doses monthly until June 30, 1945, and fairly large orders are expected from Africa early in 1945.

In addition to the preparation of vaccine, basic research on yellow fever was continued in the Laboratories. This included the study of the behavior of yellow fever virus in tissue cultures, chick embryos, etc., which has been in progress for the past twelve years. During this period of cultivation under artificial conditions certain changes affecting the virulence, tissue tropism, and antigenicity of the virus have been observed. The factors responsible for these changes are not well understood, as most of the changes have occurred suddenly and it has not been possible to reproduce them at will. A variant resulting from such a sudden change is at present used for human immunization. It is felt that unless the behavior of the virus under different conditions is better understood, it will be impossible to predict whether the present avirulent variant is liable under certain conditions suddenly to revert to its original virulent form.

Certain studies directly connected with the large-scale manufacture of vaccine and the immunization of the armed forces of the United States are also carried

out in the International Health Division Laboratories. One study relates to the duration of immunity following yellow fever vaccination. With a large number of the members of the armed services immunized there will be an excellent opportunity to determine their immunity by measurement of neutralizing antibodies in their blood as time progresses.

*Brazil.* — Since the beginning of 1944 the emphasis in yellow fever research in Brazil has been upon the study of the epidemiology of jungle yellow fever. For such study, a field laboratory has been established at Pontal, adjoining the town of Ilhéus in the southern part of the State of Baía, where it is presumed jungle yellow fever is endemic. In fact, information recently accumulated indicates that the virus is actively circulating in the area selected for intensive study. The study group is making a search for the virus by inoculating into susceptible animals suspensions of mosquitoes and ectoparasites and inoculating pooled specimens of sera from the most common rodents and marsupials into nonimmune marmosets. Neutralization tests are performed on blood specimens collected from human inhabitants of the region as well as from all captured animals. A botanist whose services have been loaned by the Museum of Natural History in Rio de Janeiro is conducting a complete botanical survey of the area, and vertebrates and possible insect vectors are captured and classified. Since marmosets are quite plentiful in this region and give a dependable and specific immune response to yellow fever virus, the testing of blood specimens from marmosets and persons living in the area serves to give rather accurate information on the past and recent existence of the infection within the area under study.

Investigations in the laboratory at Rio de Janeiro

are oriented to support the field study and to follow up such leads as may be developed. For example, work is now in progress on the cyclic transmission of the virus through vertebrate hosts and insect vectors. These studies will be pursued in accordance with evidence accumulated in the field. That is, if there is reason to suspect a vertebrate or insect of playing a role in the propagation of the virus in nature, efforts will be made to reproduce the cycle under experimental conditions. Also, studies are under way which may be helpful in interpreting the serological tests, such as the neutralization and complement-fixation reactions in humans and in wild-caught animals.

In addition to its research work, the yellow fever investigation group in Rio de Janeiro will continue to prepare yellow fever vaccine for Brazil and neighboring South American countries and to be of assistance to the National Yellow Fever Service in the identification of captured mosquitoes and to the Port Health Service of the National Health Department in identifying arthropods collected from international airplanes arriving at Brazilian airports.

*Colombia.* — Yellow fever control and investigative work in Colombia is carried out by the Section of Special Studies under the Ministry of Labor, Hygiene, and Social Welfare. Besides International Health Division staff members, the Section staff includes capable Colombian research workers who have received special training and experience through the assistance of the International Health Division and the Section. Prominent among these are Doctors Jorge Boshell-Manrique, Augusto Gast-Galvis, Manuel Roca-García, and Ernesto Osorno-Mesa, who have made noteworthy contributions to the study of yellow fever.

During 1944, as in previous years, liver specimens obtained through viscerotomy were collected for diagnostic purposes, and mass yellow fever vaccination campaigns were conducted in various parts of the country. Field studies were carried out in areas of discovered cases, especially in Volcanes. Considerable attention was given to the collection of entomological data concerned with the distribution of various species of *Haemagogus*, and to the trapping of animals, particularly *Didelphis marsupialis* and the *Caluromys* opossums, for susceptibility tests. In Villavicencio ecological studies of *Haemagogus capricornii* were continued, as well as transmission studies with this mosquito. The laboratory in Bogotá has given much time to the identification and classification of the *Haemagogus* of Colombia. The collection of *Haemagogus* from type areas in Brazil and Argentina has greatly aided these studies. Virus investigations have been largely devoted to the study of yellow fever in the animals caught in the field. Transmission experiments have also been performed on these animals.

In Colombia the main problem of an investigative nature is that of the epidemiology of sylvatic yellow fever. Field studies are concentrated at Volcanes, because it is in one of the endemic areas; it has at least three species of *Haemagogus* including *capricornii*; the virus was repeatedly isolated from *Haemagogus* captured there in 1943; it has both a marsupial and a monkey population; and it is accessible during the entire year. Much of the Bogotá laboratory research is in direct relation to the field study in Volcanes.

*British Guiana.* — The Yellow Fever Control Service of British Guiana has received orientation and direction from the International Health Division since 1939.

An anti-aegypti campaign patterned after the Yellow Fever Service in Brazil is being carried out in the coastal areas to protect the population against yellow fever which might be introduced from the highlands.

The problem in Georgetown and New Amsterdam has at times been complicated by a maze of gutters in poor condition attached to warped and rotting roofs. These gutters collect rain for drinking water. The storage of the rain water in huge wooden vats or a series of barrels and steel drums adds to the difficulties. The roof gutter problem has not become less acute by keeping ground level deposits free of breeding. Buildings are so constructed that blow torches cannot be used to free the gutters of aegypti eggs. During the past year much attention and expense have been devoted to keeping the roof gutters clean and free of mosquito breeding and to repairing the sagging gutters.

The results of premise inspections have been better the past year than during any previous period. Zero premise indices have been secured and maintained in all rural areas. In Georgetown the premise *Aedes aegypti* index is about 2 per cent, but indices are much lower in a section of the city where the roof gutter menace has been brought under control.

*Ecuador.* — In 1943, under the Department of Epidemiology of the National Institute of Hygiene in Guayaquil, toward which the Division is currently contributing, the Government of Ecuador established a yellow fever service. Dr. Egberto García of Ecuador, who studied the administration and field work of the National Yellow Fever Service of Peru under an International Health Division travel grant, organized a yellow fever investigation in Ecuador. An administrative office was established in Quito, and viscerotomy posts were set up

in the eastern tropical section of Ecuador. Specimens of liver and serum have been collected and sent to the Bogotá laboratory for examination. It is expected that other viscerotomy posts will soon be organized in the coastal area. A vaccination campaign is also under way.

Routine surveys show high *Aedes aegypti* indices in Guayaquil and other coastal towns. Guayaquil is an important international sea- and airport, situated on the Guayas River. Many branches of the Guayas serve as the main means of communication between the city and the towns and communities of the interior, and the river traffic is increasing yearly. Air-freight lines have also been established between Guayaquil and the tropical section of Ecuador, where it is possible that jungle yellow fever may exist.

Since plans are being made by the Peruvian Yellow Fever Service to extend its anti-*aegypti* work northward to the border of Ecuador, it is advisable that a service be organized in the latter country to begin the eradication of *Aedes aegypti*. The office already established in Quito and the viscerotomy posts in the eastern tropical area will be under the direction of Dr. Luis A. Leon; Dr. Egberto García will organize an anti-*aegypti* service on the west coast and direct the entire National Yellow Fever Service. The service in Guayaquil will encounter many difficulties in the beginning, for the buildings there are of a type of native construction which will require a large number of well-trained inspectors for the first stages of the work. As control is accomplished, however, many of these can be sent to other towns on the coast, especially southward to the Peruvian border, to carry out anti-*aegypti* measures.

*Peru.* — The National Yellow Fever Service of Peru, organized several years ago, was reorganized in 1941 and

is now receiving financial support from the International Health Division under a five-year agreement for the period 1943-47. The activities include serum tests, viscerotomy, vaccination, and antilarval work. *Aedes aegypti* indices have been considerably reduced. In 1944 plans were completed for cooperation with the Institute of Inter-American Affairs.

*Panama.* — In order that a service might be provided for detecting the presence of yellow fever cases in the Republic of Panama, a Division representative assisted the Republic in the preparation of a law authorizing the practice of viscerotomy. Later a cooperative arrangement was made with the government whereby viscerotomy posts could be established in Darien and that part of the Province of Panama east of the Canal Zone and be supervised by a full-time trained viscerotomy inspector. Liver specimens are sent to the Bogotá laboratory for pathological examination. The project has been in active operation for over three years, and as yet none of the liver specimens obtained have shown yellow fever lesions. Blood specimens collected early in the investigation in Darien and the San Blas Islands and examined by mouse protection tests, indicated that there had been cases of jungle yellow fever in these localities during the past decade. A later, more extensive and systematic immunity survey by the International Health Division in jungle and remote areas confirmed the earlier results and conclusions. To protect populations concerned, the Division, in 1942-43, in cooperation with the Republic, vaccinated 23,204 persons living in ninety-six towns or settlements east of the Canal Zone; and during the same period the Canal Zone health authorities initiated an anti-*aegypti* campaign in Panama City. The same service is being extended to Colon.

*Africa.*— In Africa, field investigations of yellow fever, with particular emphasis on the epidemiology of the disease in East Africa, and the laboratory research centering at Entebbe have become increasingly important from the military standpoint. Until late in 1940 the main problem of the Yellow Fever Research Institute in Entebbe was the isolation of a yellow fever virus. This was accomplished during a study of a yellow fever epidemic in the Nuba Mountains, Anglo-Egyptian Sudan, when two strains were isolated. Strains were also isolated in the Bwamba Forest, one from a human and two from wild-caught *Aedes simpsoni*. These events provided convincing proof that the yellow fever occurring in Central Africa is clinically, pathologically, and serologically in no way different from yellow fever in West Africa or South America.

The intensive epidemiological study begun in the Bwamba Forest early in 1942 to determine what factors are responsible for the transmission of the yellow fever virus was continued during 1944. With the cooperation and assistance of the Forestry Department a survey of the uninhabited forest was completed. A detailed large-scale map of the forest is in preparation. With the knowledge at hand it is now possible to select suitable places in which to undertake mosquito and animal studies. The work on mosquito larvae in plant axils was continued, as well as large-scale catches of adult mosquitoes.

The protection-test survey of Central and East Africa was continued. Of particular interest was the finding of immune children on the Red Sea coast of Eritrea.

Postvaccination surveys were carried out in Bwamba, the Kenya Coastal area, and among army personnel. Of 103 sera collected from army personnel whose rec-

ords indicated they had received yellow fever vaccine, ninety-four (91.3 per cent) were protective. In another lot of forty-seven sera from individuals concerning whom there was no record of vaccination against yellow fever, twenty-one (44.7 per cent) were protective. Of 300 sera from the Bwamba area, taken two years after vaccination, 278 (92.7 per cent) were protective.

Viruses are being isolated from mosquitoes in an effort to ascertain what mosquitoes are involved in the transmission of yellow fever in Central Africa. Studies are also being made of the results of yellow fever vaccination in humans and monkeys.

Financial assistance to the yellow fever section of the government laboratory in Stanleyville is being continued. This assistance is used mainly to support and extend the viscerotomy service in Stanleyville Province and to provide an adequate number of white mice for a protection-test survey.

The growing knowledge of the epidemiology of yellow fever, combined with the increased importance of the disease due to accelerated military and civil movement in Africa, led to the reopening in 1943 of the laboratory at Lagos, Nigeria, formerly used by the West African Yellow Fever Commission. At the request of the Colonial Medical Service, the International Health Division agreed to participate in a cooperative program concerned with the study and control of yellow fever in the four British colonies of West Africa. The buildings at Lagos were made available for the laboratory and for staff residence.

The West Africa Yellow Fever Service was reopened to insure distribution of vaccine of known potency to various parts of West Africa and to carry out research into the epidemiology of yellow fever, particularly with

reference to the jungle form. It is planned also to establish a viscerotomy service. Protection-test surveys will be employed to round out the knowledge of the distribution of the disease among both man and animals. A further function of the Service is to provide consultation on yellow fever control problems. Although the yellow fever research laboratory is not responsible for control measures, it is of considerable assistance in making available to the officials information and advice on methods for vaccination and mosquito control.

#### MALARIA

Malaria has been proclaimed the disease enemy number one by the Army and Navy of the United States. Certainly it has been responsible for more illness and incapacity than almost any other. Even in peacetime it is considered by many the most important disease in the world, "the greatest enemy of merchant, soldier, administrator, and farmer in all the warmer countries." It has been estimated that there are not less than three million malaria deaths and at least three hundred million cases of malaria fever each year throughout the world. Yet in spite of the immense amount of knowledge that has been accumulated concerning malaria, there are still many gaps in the picture to be filled in.

The malaria program of the International Health Division began in 1915, when an outline was made for the demonstration of malaria control. At that time the plan was to determine the effectiveness in our temperate climate of a specific quinine treatment, and in at least one untreated community to concentrate on mosquito reduction by removing breeding places, draining, filling in, etc., and on protection of the individual from mosquitoes by screening, clearing brush, using mosquito



Photograph Excised Here

Mosquito catcher collecting specimens for distribution studies,  
Uganda.

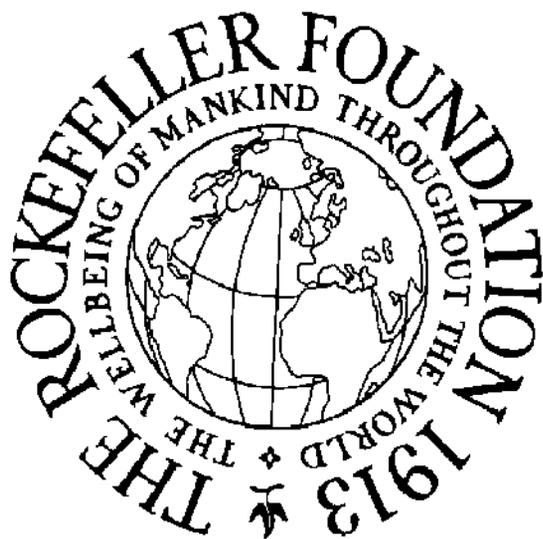
bait, and by education. Since this outline was drawn up great advances have been made in the knowledge of insect vectors and in ability to control them; yet, by and large, the same general pattern of attack is being followed. At present the Division is continuing its interest in malaria control projects in the field under the aegis of that well-established triumvirate — malariologist, engineer, and entomologist. At the same time it is increasing attention to basic laboratory studies, which now offer a large measure of hope for advancing knowledge which is essential to further progress.

### *Laboratory Studies*

Efforts of the laboratory are now concentrated on testing new chemical compounds for their efficacy against malaria parasites. Compounds tested are synthesized by the Department of Chemistry at Harvard University. Recently some of the compounds synthesized there by Professor Louis F. Fieser and his associates have appeared promising both in preventing and in curing experimental malaria in birds. A complete study of the action of one or two of these drugs is planned.

Besides the research in its own laboratories and at Harvard University the Division continued in 1944 to support malaria research at the University of Chicago and in the Florida Station for Malaria Research.

Important and interesting developments in the knowledge of the exoerythrocytic stages of malarial parasites were reported by Dr. W. H. Taliaferro of the University of Chicago. There are at least two types of such stages: the *gallinaceum* type which occurs chiefly in the macrophages and true endothelial cells; and the *elongatum* type which occurs in all the cells of the blood and



Photograph Excised Here

Mosquito control near Naples. Airplane spraying Navy fuel oil containing 5 per cent DDT.



Photograph Excised Here

*Wide World Photo*  
A dusting team in North Africa applying DDT for louse control.

blood-forming tissues. Work on reptilian malaria promises some extremely interesting results in this field and is of direct importance to general problems in the life history of the malarial organisms and the cellular relationships in other kinds of malaria. One species (*Plasmodium mexicanum*) occurring in the lizard has both *elongatum* and *gallinaceum* types of exoerythrocytic stages. The purpose of the work is to learn, if possible, the relationship of these stages to the life-cycle of the parasite and to immunity, and their behavior after passage through the invertebrate hosts; and also to determine to what extent, if any, this infection may be used in chemotherapeutic studies. A similar study involving *Plasmodium elongatum* of birds is under way, as well as investigation of the parasitocidal and reproduction-inhibiting effects of natural and acquired immunity to *Plasmodium brasilianum* in monkeys.

A wide variety of species and strains of avian malaria having peculiar characteristics in relation to life-history and to immunological and histopathological studies are maintained in the Chicago laboratory and are supplied to other laboratories.

The Tallahassee Station for Malaria Research, a Division of the Florida State Board of Health, was established in 1931. It has been intimately connected with the Florida State Hospital, having provided many of the facilities for the malaria therapy service in that institution. Medical members of the Station staff have been appointed to the visiting staff of the hospital and are in charge of the malaria therapy service. An effective cooperation with the hospital authorities has been continuous from the initiation of this relationship, so that opportunities for the study of human malaria infections are exceptional.

The Station has made significant contributions to the war effort by furnishing to the Army Medical School thousands of infected anophelines and blood films containing plasmodium, and by providing laboratory instruction to groups of military personnel, giving consultations and lectures, and undertaking experiments at the request of the Surgeon General's Office.

Investigational opportunities at the Station have resulted in the colonization of several species of anophelines, one of which, *A. quadrimaculatus*, is permanently maintained and used in the inoculation of patients. A file of some 1,200 case histories of induced malaria infections has been accumulated. Analyses of these case histories have thrown light on obscure aspects of the natural history of the disease. Parasites and their relation to their human hosts, and the characteristics of immunity in malaria have received intensive investigation. Published papers number more than one hundred.

The routine maintenance of the malaria therapy service is the fundamental responsibility of the Station, since from it spring the research opportunities. In so far as the war effort demands on the Station permit, studies are either currently in progress or projected for the near future on suppressive treatment of infections induced with vivax strains from the South Pacific, strain identity of vivax parasites, the use of fluorescent dyes for the staining of parasites, inoculations from isolated single cells, susceptibility of different kinds of *quadrimaculatus*, extraction of nucleoproteins of parasites, and biochemical and cytological changes during the paroxysm.

### *Control*

*Brazil.* — The introduction of *Anopheles gambiae* into Brazil in 1930 and the subsequent disastrous malaria

epidemics made it clear that no effort to exclude this mosquito from the Western Hemisphere in the future is too arduous. Fortunately the species was eradicated from Brazil, but the danger of its reintroduction and the introduction of other harmful vectors will remain until the African airports and seaports in constant communication with Brazil are freed of these arthropods. During 1943 alone, a total of 15,092 arthropods were found in aircraft arriving in Brazil from Africa. Important anophelines found in the planes were 282 *gambiae*, thirty-two *funestus*, and two *pharoensis*.

The discovery of five *A. gambiae* in the city of Natal on September 14 and 16, 1943, resulted in the appointment of a Brazilian-American committee to study the situation. At the invitation of the Brazilian Government The Rockefeller Foundation sent a staff member to look over the protective measures in operation to prevent the reintroduction of *A. gambiae* and the introduction of other harmful arthropods. The investigation was extended to include a resurvey of the whole area formerly infested by *A. gambiae*. The work was started in November 1943 and concluded in March 1944. The same Foundation representative, on invitation of the British Colonial Office, then made a similar survey in the British colonies and ports in West Africa. He studied malaria conditions and opportunities for the reduction of malaria incidence from Dakar to Lagos on the West Coast. The intentions were to see at first hand West African coastal malaria conditions, observe methods in operation, appraise results, and make recommendations for the protection of the armed forces and civilians and the prevention of aircraft infestation. These recommendations are embodied in a confidential report.

Pending the eradication of anophelines from the

African airports and the adjoining areas within flight range, the following precautionary measures are in effect. The aircraft are disinsecticized prior to departure from Africa and immediately following arrival in Brazil. In addition competent antianopheline services are maintained by the Brazilian Government in and around the airports where planes are scheduled to arrive. Two potential hazards are the landing of aircraft at emergency landing fields along the coast where antianopheline measures are not so well organized as at the airports and the possibility that one or more fecundated anophelines may escape before a plane has been completely disinsecticized. This latter contingency would be of relatively minor importance at the regular airports where the anti-anopheline field programs are well organized.

*The Mediterranean War Zone.* — The International Health Division and The Rockefeller Foundation Health Commission are actively engaged in antimalaria work in two areas of the Mediterranean war zone — Italy and Egypt. In both regions the fight is directed primarily against the mosquito vector.

The Foundation Health Commission group went into Italy in December 1943, at the invitation of the Allied Control Commission, to assist in combating an outbreak of typhus in Naples. By February the typhus epidemic had been mastered, but the Army medical officers were apprehensive of malaria. Our soldiers were still embattled on the Anzio beachhead adjoining the Pontine marshes and in other marshy areas farther south, and with the advent of warm weather the return of mosquitoes and malaria was inevitable. The Germans had systematically destroyed the extensive drainage system in this region, large areas were already flooded, and these inundated lands were so thickly mined that repairs nec-

essarily would be slow. The United States military authorities asked the Foundation group to develop methods for the use of DDT insecticide to control swamp mosquitoes in these areas. Studies were carried out under the auspices of the Allied Control Commission. The first problem was to work out a method of using standard Army equipment for spraying an oil solution of DDT from an airplane. By May 15 this emergency technique was ready for use, but fortunately the front had moved far to the north of the principal malaria regions before the onset of the malaria season. The method, however, was further developed and the upshot of the experiment was a very efficient apparatus for covering a wide area with insecticide under very precise control. Other studies were carried out, including the investigation of the value of DDT as a house spray against adult mosquitoes and a test of the comparative merits of DDT in powder form and in oil suspension as a larvicide.

While these experiments in combating mosquitoes were under way in Italy during the spring and summer of 1944, another project was gathering momentum in Egypt. This one had its origin in 1942, when there was a sudden outburst of malaria in southern Egypt with an official death toll of over 20,000. The *Anopheles gambiae* mosquito was found in the area. So virulent was the epidemic that the Egyptian Government appropriated \$1,000,000 for malaria control, an amount twenty-five times greater than any previous malaria budget. In October of 1943 there was a second and catastrophic outbreak. In some communities the sick roll reached 100 per cent and the death roll 15 per cent. Paralysis of farm activity was such that in certain areas the wheat crop failed 50 per cent and the sugar crop 33 per cent.

In March 1944 the Egyptian Government asked the Foundation to conduct a survey and, on the basis of recommendations made, invited the Foundation to direct a mosquito eradication program. All expenses of the work, with the exception of the salaries of International Health Division staff members, are paid for by the Egyptian Government.

Field headquarters and the active center of the campaign are at Asiut, 220 miles south of Cairo, on the Nile. The methods which worked in Brazil are in use, except that large amounts of pyrethrum are not available for spraying the houses. Paris green is used in large quantities in the field. It is planned to spray the Nile River boats, and perhaps the railway trains, with DDT. The work is now progressing rapidly.

*China.* — In 1942, as a result of the Japanese attack on southwest China, malaria studies were transferred from Chefang in that area to new quarters at the National Institute of Health, Chungking. The purpose of the work is to obtain basic malariological data, train personnel, demonstrate control measures, and develop a malaria organization and integrate it with the National Health Service. The year 1942 was devoted to obtaining basic malaria data regarding the adjacent study area. In 1943 a control demonstration was set up at Shapingpa, a suburb of Chungking which includes three university groups and a total population of about 100,000 persons, both agricultural and industrial. The control program was continued in 1944. Results to date are encouraging. Attention has centered on the control of *Anopheles minimus*, the important malaria vector in this area, and the study group has now demonstrated that this mosquito can be controlled in an extensive area with only one laborer and the use of 2 to 3 kilograms of

Paris green for the season. During 1944 the staff supervised a practical control program at Hsinchiau, where the National Health Administration is located. Plans are under way for a malaria course to be given to a group of health officers by the National Institute of Health, including lectures, laboratory work, and field experience in the study areas.

*British Guiana.* — Malaria is the most important public health problem in British Guiana, where nearly all agriculture and more than 90 per cent of the population are located on a narrow coastal belt. A maze of canals and ditches is necessary for the agriculture; and flood fallow is practiced, which provides favorable breeding places for *Anopheles darlingi*, the principal malaria vector. Unless agricultural changes occur, therefore, malaria cannot be controlled by land drainage methods.

Observations on the incidence of malaria and study of the local anophelines, especially *A. darlingi*, have been carried on since September 1939 under a cooperative governmental project. The main effort has been to observe conditions influencing the development of the anophelines in order to bring about conditions unfavorable for breeding. Observations on all breeding conditions at field stations in a defined study area are now supplemented by controlled observations made in a field laboratory near Georgetown, which has all types of water close at hand. Although no definite conclusions have been reached, it is becoming more evident that *A. darlingi* is a native of the highlands; but with an annual rainfall of more than 60 inches on the coast, this mosquito can quickly spread in the more neutral waters, with an increase in malaria in the populous coastal area. Effort is also aimed at obtaining definite information as

to what constitutes the species now called *Anopheles "tarsimaculatus,"* which may play a minor part in malaria transmission.

In addition to carrying out these special investigations, the study unit is constantly assuming more of the functions of a governmental malaria bureau.

*Trinidad and Tobago.* — Also a very serious problem in Trinidad and Tobago, malaria has been systematically studied there since July 1941 through a cooperative project supported by the government and the International Health Division. A survey of the disease and its two important vectors, *Anopheles aquasalis* and *Anopheles bellator*, has been completed and published. A Malaria Bureau has also been organized, which operates a diagnostic service, conducts surveys, and supervises malaria control activities. Close cooperation is maintained between the study staff and Army and Navy personnel.

Because it was learned that *A. bellator* breeds only in the epiphytic bromeliads attached to immortal trees and derelict cacao trees, a botanist was employed to complete studies of the plants, experiment with the effect of various plant poisons, and obtain more information on the ecology and adult habits of *A. bellator* as well as the bromeliad-*A. bellator* relationship. The suggestions resulting from these studies were recently tried out successfully by the Army. A weak solution of copper sulphate applied to the bromeliads by means of a gypsy moth sprayer killed the plants, thereby eliminating the breeding places.

The more widespread vector of malaria in Trinidad and the only one known in Tobago is *A. aquasalis*. Studies of this mosquito have been under way almost since the beginning of the project. The importance of debris

on water surfaces to egg laying has been shown and the related importance of clogged stream outlets. This problem is being successfully solved through the development by the engineer of a "sea head," which insures normal flow to the sea unobstructed by sand bars. Control of malaria is also being attempted by the use of animal-baited "dawn traps," which are based on observation of adult zoophilic preferences and attraction to light. Through the use of these traps the study unit can make comparable observations on the density of mosquitoes in relation to the changing conditions of breeding areas and seasonal fluctuations. It is hoped that more can be learned regarding the control of this species, especially in the areas where land drainage is impracticable.

*Peru.* — The fertile coastal valleys of Peru are believed to have as high an incidence of malaria as almost any other part of the world. The principal vector is *Anopheles pseudopunctipennis*. The efforts of the malaria control project there are directed toward complete extermination of the anopheline vector from one valley at a time at a reasonable cost, in the hope that the biological barriers of desert, sea, and mountains will prevent reinfestation from breeding areas in the adjacent valleys. The control problem has many unique epidemiological characteristics derived from the physical geography of the region.

It became evident in 1943 that while it was relatively inexpensive to control anopheline breeding in a Peruvian valley like the Lurin Valley, in which this project has been concentrated, to a point of practically stopping malaria transmission, the elimination of the species would require a much greater effort extended simultaneously to all parts of the valley. It was therefore decided

to intensify the attack, since experience had shown that it was possible to eradicate anophelines in any section of the valley where there was a sufficient concentration of dependable labor. Funds from the Government of Peru and from the International Health Division have been increased for this purpose.

Apart from the value and significance of demonstrating that a very harmful species of mosquito can be eradicated from highly productive agricultural areas under Peruvian conditions, the malaria control work in the Lurin Valley has had important repercussions in the National Malaria Service of Peru, evidenced by the training of personnel, the conversion of its methods from treatment to larva control, and the fourfold increase in the budget which it has been able to secure on the basis of better results under the new methods.

*Bolivia.* — Under the section of this Report dealing with local health services (p. 104) mention is made of malaria control in Bolivia.

*Mexico.* — Malaria studies in Mexico, begun in 1937 and interrupted in 1939 because of lack of personnel, were resumed toward the end of 1943. Objectives are to collaborate with the state malaria program to improve its effectiveness, to develop an organization which can utilize effectively the resources of the state and federal governments, and to apply new methods to the study and control of malaria. The medical director and chief engineer of the program were given special training in 1943, investigating malaria control methods in Venezuela, and studying malaria projects under the control of the Federal Malaria Office in Mexico in order to become familiar with local problems, their variations, and the methods by which they are now solved. Work has been started near Tierra Blanca in Veracruz.

*The United States.* — In the United States the only control program supported by the Foundation is maintained by the Bureau of Malaria Control of the Florida State Department of Health, Jacksonville, which became operative July 1, 1941. It is a cooperative project, funds for which come from the State Department of Health, the United States Public Health Service, the city of Pensacola, and the International Health Division. Since the beginning of the war, routine activities have been divided between training of Army and Navy officers and the administration and supervision of the Malaria Control in War Areas organization. Malaria surveys, mosquito-proofing, larviciding, and drainage are carried out.

#### INFLUENZA AND OTHER RESPIRATORY DISEASES

During 1944 the International Health Division conducted its work in influenza on the pattern laid out in former years. An important part of this work centers around research done in the Laboratory of the International Health Division in New York City. The chief activity of this Laboratory during the year was the study of adjuvants for increasing the immunizing properties of influenza virus vaccines. The addition of certain substances known as adjuvants to influenza virus suspensions greatly enhanced the immunity response to the virus. These adjuvants provided a more effective method of increasing the production within the body of protective antiviral substances than the use of concentrated preparations of the virus alone. In addition to the work in New York City, the International Health Division is cooperating in influenza studies at government laboratories and other recognized organizations in various parts of the world. The centers in which work was

going forward in 1944 were in California, Minnesota, Michigan, Ohio, and Buenos Aires.

The Division has given funds to the California Department of Public Health for influenza studies. The purpose is to collect material, make observations, and in general conduct a thorough investigation of influenza in the surrounding area. The laboratory undertaking this work in California is located in Berkeley, near the laboratories of the State Health Department. The Research Laboratory has investigated influenza epidemics occurring not only in California but in the Hawaiian Islands as well. Studies are under the direction of Dr. M. D. Eaton. The California Department of Public Health has also received funds from the Division toward alterations in the Research Laboratory and the purchase of land necessary for its enlargement. Funds for this purpose are also being supplied by the United States Public Health Service. The proposed addition will furnish about 2,000 square feet of floor space, of which 900 square feet will be assigned to the Research Laboratory staff now conducting studies in both influenza and jaundice.

It has often been stressed in these reports that no verdict of any kind can be given as to the value of various influenza vaccines until an opportunity has been provided to test these vaccines during an epidemic of influenza. A part of the work receiving support from the International Health Division at the Minnesota Department of Health, of which Dr. E. R. Rickard is the director, consisted in studying material obtained from an influenza epidemic during November and December 1943. By the use of recently developed laboratory techniques it was possible to diagnose this epidemic of influenza promptly. It was the first influenza A epidemic

that had occurred in the region in three years, so that children under three years of age were presumably having their first experience with the disease. Careful study was made of all children under ten years suspected of having influenza, and a special effort was made to include in the study children under three. The antibody response of the children who were having their first infection with influenza A was about the same as that of older children. Another study was made of some 170 typical clinical cases of influenza occurring toward the end of 1943 in a dormitory at the University of Minnesota housing 500 students. From this study it was concluded that apparently normal persons may be of equal, if not greater, importance in spreading infections than are persons with clinical cases.

At the University of Michigan School of Public Health the International Health Division is interested in influenza studies carried on under the direction of Dr. Thomas Francis, Jr. The studies here conducted concern the efficacy of subcutaneous vaccination. Clear evidence that subcutaneous vaccination can induce resistance to epidemic influenza has been obtained. Much remains to be done in order to determine the most effective method of vaccination, the optimal amount of antigen, the duration of resistance, the stability of material, and the practicability of production.

The International Health Division is aiding Ohio State University in influenza research directed by Dr. N. Paul Hudson. Dr. Hudson and his colleagues of the Departments of Bacteriology and Medicine of the University's College of Medicine are studying influenza infections in mice and monkeys, the relation of vitamin deficiencies to the susceptibility of monkeys to influenza virus, and especially serological and hematological

changes in vitamin-deficient monkeys. In addition to the laboratory work, epidemiological studies are made of local influenza epidemics. For this purpose arrangements have been made for collaboration with two state institutions.

In Argentina the International Health Division has been giving support to the Virus Section of the Bacteriological Institute of Buenos Aires, which is interested not only in the study of influenza virus but also of other viruses. The Bacteriological Institute keeps a look-out for cases of influenza occurring in certain institutions. The Naval School at Rio Santiago was the only one reporting an epidemic in 1944, and sera from its students are now under study. In the laboratory, physicochemical studies have been carried out on the ability of the nuclei of the red blood cells of chickens and other animals to absorb influenza virus and elute it irreversibly. The action of certain enzymes on fluid containing the influenza virus is also being studied.

#### NUTRITION

*North Carolina.* — Nutrition work in North Carolina aided by the International Health Division includes a nutrition educational program carried out by the State Board of Health and a nutrition survey and laboratory studies by the Board of Health in cooperation with the Duke University School of Medicine. A state-wide educational program was continued throughout 1944, with emphasis on six major activities: publicity, food production, food conservation, nutrition services by public health personnel, nutrition education, and nutrition in industry. By the end of 1943 nutrition committees had been organized in all but four of the 100 counties of the State; in 1944 effort was concentrated

on improving the services of these committees. All aspects of nutrition education were stepped up in 1944. This work included the dissemination of information through the press, the radio, leaflets, pamphlets, charts, motion pictures, and suitable nutrition classes and conferences for all elements of the population.

The nutrition study in cooperation with Duke University was advanced during the year by the completion of a twelve-month survey in Alamance County. The overall picture resulting from surveys carried on in North Carolina for the past five years has shown that the diets of the great majority of the people fall far below the levels of "Recommended Dietary Allowances" as set up by the Food and Nutrition Board of the National Research Council. There seems to be considerable evidence that, except for the rare individual, they do not fall below the minimum levels for adequate nutrition. The populations studied here are undoubtedly favorably situated with regard to foods available and consumed. Dietary deficiency diseases of underfed masses in other parts of the world have no parallel in these American populations in the years of this study.

Nutrition laboratory studies which were begun in cooperation with Duke University on April 1, 1944, had to be discontinued October 30, 1944, when the director of the work, Dr. W. J. Darby, took charge of the nutrition project at Vanderbilt University. The studies were concerned with vitamin C metabolism and amino acid nutrition.

*Harvard School of Public Health.* — Since 1941 the Department of Nutrition at the Harvard School of Public Health has received support from the International Health Division. The School has been strengthening its Department of Nutrition in an attempt to de-

velop a teaching center of distinction, with emphasis on the application of nutrition to public health and medicine. The Department has an extensive teaching schedule as well as a research program which attempts to deal with problems of fundamental importance to applied nutrition. For two years prior to July 1944, major emphasis was on problems dealing with atabrine and nutrition. The present program includes studies of nutritional status and response to malarial infection, protein requirement of man and the relation of dietary protein to absorption of calcium and retention of riboflavin, and community nutrition. During 1944 thirteen papers were published and six papers were given before various scientific organizations. The program is under the direction of Dr. Frederick J. Stare.

*Tennessee.* — The cooperative work in nutrition which has been under way since 1939 in Tennessee divides into two types of activities, one on a state-wide basis emphasizing extensive educational work and the other stressing concentration and research. During 1944 the nutrition project carried out by the Tennessee Department of Public Health and the Vanderbilt University School of Medicine was under the direction of Dr. W. D. Robinson until November, when he was succeeded by Dr. W. J. Darby. From January until May, 1944, a total of 306 white persons in Williamson County were examined in a thorough manner to determine their nutritional status. The nutriture of the population compared favorably with that found in an earlier survey in Wilson County. Groups of school children were also studied throughout the year. The work has included research using radioactive isotopes.

*England.* — In England the International Health Division, through The Rockefeller Foundation Health

Commission, has given aid to the Oxford nutrition survey, organized in 1941 by Dr. H. M. Sinclair of the Department of Biochemistry of the University of Oxford, and sponsored by the University. The purpose of the survey is to test, develop, and apply all reasonable methods of assessing the state of nutrition, and to give training in their uses. Special studies have been made of families, of women during pregnancy and lactation, and of the nutritional state of other special groups. A large amount of new information of scientific interest has been obtained. This includes the interpretation of clinical signs and biochemical analyses on blood, of functional tests, and of the accuracy of dietary methods, as well as the correlation between different methods of assessing the state of nutrition. In connection with the survey mobile nutrition units carried on studies in widely separate areas in Britain.

*Toronto School of Hygiene.* — The nutrition program in the Toronto School of Hygiene, to which the International Health Division is contributing, includes studies on human nutrition and vitamin research. It is under the direction of Professor E. W. McHenry, who, in addition to his university work, serves as adviser on a number of government committees relating to nutrition. The purpose of the Division's aid to the program has been to make possible nutrition studies among selected population groups which would test diagnostic procedures and help to train personnel for work in the field of nutrition. In surveys of East York and other areas, carried out by the School of Hygiene, it was found that laborious calculation of nutritive values consumed a great deal of time. A shorter method of calculation has been developed and a description of this method has been published.

*Mexico.* — Cooperative nutrition studies are also under way in Mexico, the purpose of which is to appraise the nutritional status of population groups, to develop procedures for correcting deficiencies, and to provide demonstrations of control procedures. Studies have been made in Tacuba, a suburb of Mexico City, and in certain arid villages in the Mezquital Valley. Dr. William D. Robinson was director of the study until June 1943, after which time the work was taken over by Dr. R. K. Anderson.

The resolutions adopted by the United Nations Conference on Food and Agriculture at Hot Springs, Virginia, in 1943, indicate that in the near future many nations may be undertaking studies to ascertain food consumption habits and the nutritional status of different groups of the population. Interesting material has already been gathered from the metropolitan area of Mexico City, where a cross-section embodying different economic and social levels was subjected to a thorough study of food habits. These food habits were based on Indian culture as influenced by the Spanish occupation. Evidence of malnutrition was very slight. One of the difficulties of a survey of this kind is to establish accurately the nutritive content of foods consumed. Data observed emphasized that infants, preschool children, and women during the reproductive period are the group that should receive particular attention in any program directed toward improvement of nutrition.

#### TYPHUS

The Foundation's interest in typhus emerged from the war. Considerable success has been achieved in perfecting methods for the control of the disease by attacking the insect vector, and a group in the Inter-

national Health Division Laboratories in New York is progressing in immunological and bacteriological studies of the rickettsia.

*Research at the Division Laboratories.* — The typhus section in the Laboratories is concerned with the study of two diseases, typhus *per se* (both epidemic and murine) and scrub typhus or Tsutsugamushi disease. Although a number of problems of academic interest are under investigation (i.e., the nature of the mouse toxin, the pathogenesis of the disease in cotton rats, and the immunologic response in mice and rats), the principal goal of the typhus studies is the improvement of the means of active immunization. One line of attack which remains to be carried much further is the antigenic analysis of purified rickettsial suspensions. Another is the attempt to enhance the response to vaccines of the type currently employed. Encouraging results have already been obtained by the use of adjuvants similar to those used with influenza vaccine, but additional work remains to be done. Also under continued investigation is the newly observed hemolytic activity of yolk sac suspensions rich in typhus rickettsiae. This promises to develop into a serologic technique of convenience and value.

The study of scrub typhus in this country is relatively new, and much basic information as to the storability and stability of the rickettsiae, their staining properties, and their behavior in animals remains to be acquired. Since the end of March 1944, when strains were received in the Laboratories, much of this essential information has been acquired. In addition, the susceptibility of the cotton rat has been demonstrated, and, more important, the chemotherapeutic activity of a number of closely related dyes has been revealed. With the ob-

taining of yolk sac suspensions of unusually high infectivity, attempts to develop a complement-fixing antigen and to produce active immunity with noninfective material have been initiated. Preliminary studies of the neutralizing capacity of convalescent and hyperimmune serum also have been carried out with the intent of developing a satisfactory serum-neutralization technique. The principal goals for the program with scrub typhus are the development of some means of active immunization; the development of more satisfactory serologic technique, complement-fixation or neutralization, for the study of the immune response; and the continued study of chemotherapy.

*Louse Control Studies.* — Louse control studies to test new insecticides and consider the problems involved in reducing the louse index of a community were undertaken in Mexico in January 1943, as part of the work of The Rockefeller Foundation Health Commission. In June of that year a new series of studies was begun in Mexico to determine whether it is possible to maintain a village in a louse-free condition by the use of the new insecticides, and if so, how often it is necessary to renew the application of the material. Materials used include a 5 per cent DDT preparation for the dusting of clothes and a 10 per cent phenyl cellosolve lotion or a lotion containing DDT for the treatment of the hair. Work was carried on in a number of villages and included re-examinations to determine the effectiveness of the preparation used.

The evidence collected indicates that the infestation of children below the age of fourteen may be taken as an index of the infestation of the population as a whole. If future examinations confirm this conclusion, the periodical examinations of villages will be much easier than

was the case in the early months of the studies when the entire population was examined with complete undressing of each person. Good cooperation of the population of the villages has been obtained and it has been possible to reduce the infestation in clothing in all villages and to maintain it at a low level for periods of weeks or months.

It has also been possible practically to eliminate adult lice from the scalp for a period of about a week, but there has been no success in maintaining a low level of infestation in the scalp for a longer time. In addition to the lotion mentioned above, DDT powder has been used in the scalp with no appreciable improvement.

These results appear to justify more extensive trials. Future plans include efforts at louse control over a relatively large area where typhus is endemic, possibly an area with a population of 50,000.

Mention was made in last year's Report of louse control studies conducted by The Rockefeller Foundation Health Commission in North Africa. This work was carried out in Algeria under the auspices of the Pasteur Institute and included the first field studies on the insect powder now currently used. Powders were tested at different concentrations on a prison population, and further experience was obtained by delousing civilians, including men, women, and children, in the commune of L'Arba where the population consists of urban and rural Europeans and urban, rural, and mountain Arabs, with each group presenting special problems. House-to-house delousing, house-to-house census followed by community delousing at a single house on a given date, institutional delousing, fixed station delousing, mobile station delousing with prefixed schedule without previous census, and estate delousing were all tried.

The North African work of the Health Commission typhus team showed that in field tests the louse powder most recently perfected fulfilled the promises based on laboratory tests. Not until almost three months after delousing was a significant increase in infestation noted in a close population group. Prisoners receiving a single application of the powder and remaining in daily contact with heavily infested inmates were only slightly infested at the end of one month's time. The mechanical application of louse powder without removal of the clothing was shown to be a highly satisfactory method. A satisfactory gun was developed for use with a power compressed-air unit. Common felons, civilian populations, and prisoners of war do not like being louse-infested and welcome the relief which follows the application of powder. This is most important, since the success of a delousing campaign in a civilian population depends largely on the good will of those treated. Both house-to-house delousing and station delousing are practicable systems. The choice of method should vary with local factors such as density of population, travel facilities, local social customs, and the imminence of the threat of epidemic typhus. Regimented groups can be rapidly and efficiently powdered by teams chosen from these groups and trained on the spot to do the job with hand dusters. Special instructions for this type of work were drawn up, which later served as a model for the Army technique in the North African theater and in the Naples epidemic.

*Typhus Control and Field Studies.* - In December of 1943, The Rockefeller Foundation Health Commission group working on typhus control in Algiers received word that Allied Force Headquarters had authorized the use of Health Commission personnel for the purpose

of typhus control in Italy. The group began work on December 9, at first under the Public Health and Welfare Section Region III, Allied Military Government. The first demonstration for training personnel was staged on December 11. The inauguration of contact delousing led to the discovery of numerous unreported cases of typhus and to the organization of a case-finding section on December 20 under an officer of the Allied Control Commission, who joined the group to take over this activity. Mass delousing at powder stations was planned from the beginning but could not be begun until the twenty-eighth of December. On January 3, 1944, the United States of America Typhus Commission took over typhus control in Italy. The Rockefeller Foundation Health Commission group was retained in charge of mass delousing.

The Mass Delousing Section began operations on December 28. Stations soon became overloaded with work. Other stations were rapidly installed, and their popularity was such that the initial goal of 50,000 persons dusted daily was passed fourteen days after the opening of the first two stations and when only one-half of the proposed number of stations were in operation. The rapid dusting method used in Italy was the result of the work of the Health Commission in North Africa and involved the use of a louse-killing powder applied directly by a compressed-air gun, which made it possible to distribute the powder effectively without removing the clothing.

Although mass delousing through the delousing stations was immediately popular and successful, the method had certain disadvantages. These included the difficulty of registering and sorting for future reference the names and addresses of persons dusted and the im-

possibility of regulating the interval between dustings of the same individual except on the statement of the person himself. These difficulties were largely overcome through the organization of block delousing, which provided for the registration of families by both street and block numbers.

With the withdrawal of the United States of America Typhus Commission on February 19, 1944, the responsibility for typhus control passed to the Public Health Sub-Commission of the Allied Control Commission, whose Deputy Director became the official director of the typhus organization; under him The Rockefeller Foundation Health Commission group became responsible once more for all delousing work and eventually for the study and analysis of the epidemiological and statistical material accumulated in Naples.

The work in Naples further substantiated results of the North African investigations. It is now well established that both of the official Army insect powders are satisfactory for epidemic control; that application of powder with various types of dusting equipment, without removal of the clothing, is both rapid and efficient; that field mixing of the newer insect powder with local diluents in a theater of war is apt to be difficult and time-consuming, but is feasible if necessary; and that the method of delousing used should depend on conditions, supplies of powders, accessibility of population, etc.

As a result of this work epidemic typhus, from being one of the most difficult of insect-borne diseases to control, has become one of the easiest. In the presence of a good case-finding service the only materials needed are adequate amounts of good louse powder, suitable hand dusters, and adequate means of transportation. The ease with which workers can be trained makes for a most

flexible and easily organized service of control. When an entire exposed group is dusted, most of the cases of typhus which follow do so within twelve days and all within about eighteen days.

In China the Foundation has made funds available to the National Health Administration for typhus studies in Free China, where the disease is endemic in several of the southwestern provinces. A part of the program has been carried out at Kweiyang and, later, because of the Japanese threat to this city, in Kunming, under the direction of Dr. H. Wei and Dr. P. Y. Liu, former fellows under the China Program of The Rockefeller Foundation. A second part of the program is conducted at Chengtu by Dr. W. T. Liu, technical expert of the National Health Administration and assistant professor of bacteriology of the National Central University Medical College. Emphasis of the studies has been on investigation of rickettsial strains and the preparation and testing of vaccines. Dr. Wei has succeeded in obtaining promising results in the infection of silkworm pupae with rickettsia bodies. Studies on local typhus conditions are under way. Through arrangements made by the United States of America Typhus Commission, Dr. W. T. Liu has been brought to the United States and given an International Health Division travel grant to enable him to visit Army, Navy, and Public Health Service laboratories as well as the Division's laboratories. Plans have also been made for Dr. Liu to spend a month or two with the commercial producers of typhus vaccine.

#### OTHER DISEASES

##### *Infective Hepatitis*

During 1944 three projects connected with the study of infective hepatitis received Division support. In each

case the project was a part of the activity of The Rockefeller Foundation Health Commission.

In 1943 the Division allocated money for a study of infective hepatitis and other infectious diseases, to be carried out under the direction of the United States Navy. Funds were made available to defray certain expenses in connection with a research unit under the direction of Captain Thomas M. Rivers. Pending the departure of this unit for duty overseas, plans were made to carry on preliminary measures in the United States. Lt. Commander Francis F. Schwentker was available for aid in this work.

In 1944 papers were published by Lt. Colonel Balduin Lucké on *The Pathology of Fatal Epidemic Hepatitis* and *The Structure of the Liver after Recovery from Epidemic Hepatitis*. These papers were based upon a thorough study of pathological material which had been accumulated in the Army Medical Museum in Washington, and which represented a large series of cases. Copiously illustrated, the papers constitute a substantial contribution to the present knowledge of infective hepatitis. The International Health Division provided funds to make possible the publication of these papers.

It will be recalled that in last year's Annual Report of the International Health Division, mention was made of aid to work in infective hepatitis at the Hebrew University, Jerusalem, Palestine. This work was under the direction of Dr. I. J. Kligler, who died September 23, 1944. During 1944, however, there was published a paper by Dr. Kligler, D. S. Btsh, and W. Koch on two epidemics of infective hepatitis in Palestine among recent immigrants.

There also appeared during the year an extensive report by Dr. Wilbur A. Sawyer and others on jaundice

in Army personnel. This report contains complete analysis and description of data covering the outbreak of jaundice in military units during 1942 in areas of the western region of the United States.

### *Diphtheria*

At the Johns Hopkins School of Hygiene and Public Health diphtheria studies under the direction of Dr. Martin Frobisher, Jr., were continued during 1944 with Division support. The investigations are directed toward a better understanding of the nature of diphtheria itself as well as the nature of the type of resistance developed to the type of disease, especially in nonhuman organisms. Experiments are being made to determine to what extent the chick can replace the rabbit and the guinea pig in work dealing with the standardization of remedies for diphtheria.

### *Syphilis*

The laboratory and epidemiological studies of syphilis, which have been carried on at the Johns Hopkins School of Hygiene and Public Health under the direction of Dr. Thomas B. Turner since 1937, have been greatly curtailed because of the war. Dr. Turner, however, is continuing to give part-time supervision to the work. There is need for further studies on the fundamental biology of treponemal diseases such as syphilis and yaws, and it is hoped that a full-time program may be resumed when the war is over.

Epidemiological studies were conducted in the Eastern Health District of Baltimore under the direction of Dr. E. Gurney Clark, then associate in venereal diseases at the School of Hygiene and Public Health and now professor of preventive medicine at Washington Uni-

versity. Basic data are being collected in the District from which to determine the incidence, prevalence, and trend of syphilis among District residents and the effectiveness of control measures.

The North Carolina State Health Department is receiving support in a field epidemiological study of syphilis. The work is under the direction of Dr. J. J. Wright, with headquarters in the University of North Carolina School of Public Health at Chapel Hill. The study area comprises the City-County Health District of Durham and the Tri-County Health District of Orange, Chatham, and Person counties. The excellent venereal disease clinic facilities of the City Health Department of Durham are available for the study, which was set up primarily to establish the prevalence and incidence rates of syphilis over a period of time and to follow the trend of the attack rate as an index of the effectiveness of the different control methods being used.

The importance of the epidemiological approach as a case-finding measure is being stressed in the study. This is particularly important in the light of the changing emphasis on therapy of early syphilis through use of the Rapid Treatment Center in the area. Base line data have now been obtained, but further efforts are in order to determine future changes in attack rates as a means of evaluating the effectiveness of control measures.

### *Tuberculosis*

The International Health Division has been supporting a tuberculosis study in Tennessee since 1931. The study centers in Williamson County and is designed to provide information on which to base a sound tuberculosis control program for a rural area. It was recognized at the beginning of this study that tuberculosis, by the

very nature of the disease, presents problems for study which can be evaluated only from an analysis of data collected over an extended period of time. A review of the study indicates that some questions raised have been answered with a fair degree of exactitude; these include the prevalence and incidence of tuberculosis; the extent of pulmonary calcification in relation to tuberculin sensitivity; the existence of tuberculosis in the general population; and the existence of a tuberculosis problem in the older age groups.

Other questions of great importance which remain unanswered are the factors of vital interest in the breakdown of an individual with tuberculosis and the nature and significance of pulmonary calcifications. The extent of calcification in relation to tuberculin sensitivity is known within reasonable limits, but whether or not all calcifications are tuberculous in origin is not known.

This study is at a stage where household associates observed since childhood are just now approaching ages of greatest risk. There are more than two hundred children on whom observations were commenced in infancy. Some of these are in tuberculous and some in nontuberculous households. In order to follow up this interesting situation, the International Health Division has provided funds for the work up to June 30, 1947.

### *Rabies*

Research in rabies was continued in 1944 in Alabama, with emphasis placed on the study of rabies vaccination in man and animals. Studies of the epidemiology, symptomatology, and pathology of rabies in man and animals have been largely completed, and these have served as groundwork for a better experimental approach to the study of methods of immunization.

The work already finished has established a sound scientific basis for the use of canine vaccination as a means of rabies control. The current study of the duration of immunity following a single injection of non-infectious tissue virus vaccine is of major interest both from the practical and academic standpoint. The study of the postexposure vaccine treatment in dogs has produced the first experimental evidence that the treatment is effective. It does not prevent the disease if the incubation period is less than twenty-five days. A study of the value of treatment with hyperimmune rabbit serum given soon after exposure is under way.

The State of Alabama has adopted vaccination of dogs as the principal method of controlling rabies, and the program has been supervised by the Rabies Study Laboratory. This has offered an excellent opportunity for studying the field application of canine rabies vaccination.

During 1944 it has been possible to investigate a disease called derriengue, which has caused serious losses of live stock in Mexico. This disease was shown to be vampire bat rabies. The virus isolated from the vampire bats is under investigation to determine its antigenic relationship to classic canine rabies.

As in the past, this Laboratory has given aid to the regional state health departments and Army medical corps detachments in the identification of virus and unusual bacterial pathogens.

### *Mental Hygiene*

At the Johns Hopkins School of Hygiene and Public Health there is in progress a study of mental hygiene in the Eastern Health District of the city of Baltimore. This project represents an attempt to apply to the

problems of mental hygiene an epidemiological method of study. Such a method is directed first toward determining the prevalence of mental diseases, defects, and dysfunctions in an urban population, and secondly, toward putting into operation as an integral part of the health services of the community procedures designed to bring about their control and prevention. The psychiatrist in charge of this study, Dr. Paul Lemkau, was assigned to foreign duty in 1943. During his absence and awaiting his return, the work is carried on at a lower level of activity in an attempt to continue as well as possible the functioning of the unit. Upon the return of Dr. Lemkau, it is intended to make mental hygiene an integral part of the training program at the School.

### *Hookworm*

A small amount of support was continued during 1944 for a program of research on hookworm disease, especially in relation to specific acquired immunity. Studies were carried on in the Johns Hopkins School of Hygiene and Public Health under the direction of Dr. W. W. Cort, and field work was conducted in an endemic hookworm area in southeastern Georgia. Objectives of the work have been to determine the role of immunity in human hookworm infection and to evaluate all the factors which interfere with the normal development and persistence of immunity. Investigation to date has resulted in some promising leads but because of wartime difficulties the work has had to be temporarily discontinued.

### AID TO STATE AND LOCAL HEALTH SERVICES

The cooperative method characterizes most of the Foundation's work with state and local health depart-

ments in improving administrative procedures. Frequently the International Health Division lends the services of staff members, but the bulk of the personnel comes from local sources. The plan is to cooperate over a limited period of time and with the least possible number of demonstrations. The Division tries to keep in the vanguard of progress. It experiments and encourages, but does not support on a long-continuing basis. It cannot and should not assume governmental responsibility in the widespread application of approved administrative practices. In this type of activity, it must envisage its exit as well as its entrance. Selection among the methods of operation in any given situation is determined in favor of the one which holds the greatest promise of speedily attaining the objective, due consideration being given to economy. To be successful, this method should result in a permanent activity after withdrawal of support by the Division.

#### STATE SERVICES

*The United States.* — There are at present three state health projects in the United States to which the Foundation is contributing. Two are coordinated school-health services: one in North Carolina and one in Mississippi. These receive support from both the International Health Division and the General Education Board, are organized along similar lines, and aim to integrate the facilities of the state departments of health and education in the development of unified school-health services to include programs in such fields as health education, physical education, public health supervision, nutrition, and mental hygiene. The third project is California's Virus Diagnostic Laboratory, now offering routine services to physicians and health officers

throughout California in the laboratory diagnosis of a number of virus diseases. Announcements of the service of the Virus Diagnostic Laboratory have recently been sent to all clinical and public health laboratories in the State. The laboratory is already supplying a definite need, but much more work is required in order to put such routine diagnostic services on a sound basis.

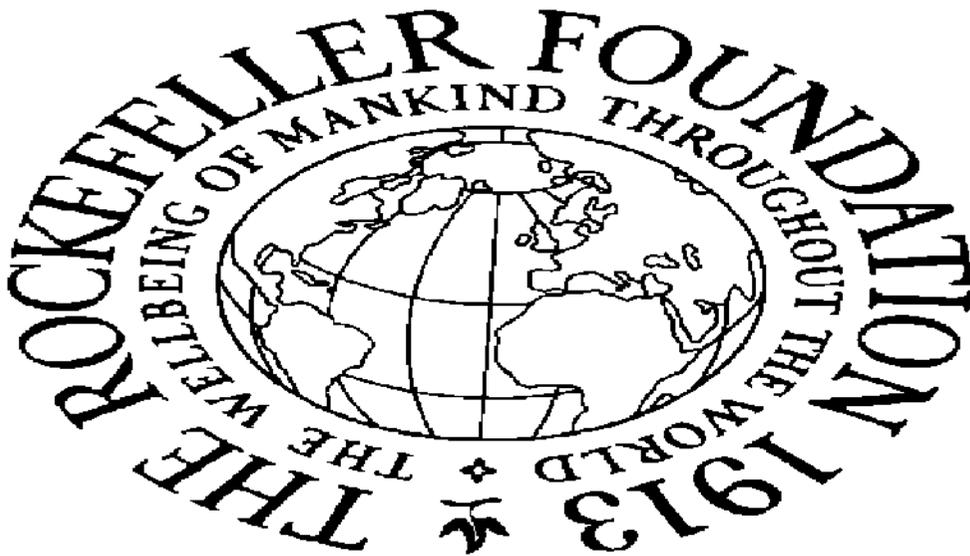
*Canada.* — A variety of special divisions of provincial health departments in Canada continue to receive Foundation assistance. In Manitoba aid is given to the Division of Local Health Services, which supervises the operation of existing full-time health districts in the Province and stimulates the establishment of new units; and to the Division of Industrial Hygiene, organized in 1942 to meet the needs arising from a sharp increase in industrial activities due to the war. During 1944 this Division gave special attention to examination of miners and foundry workers for silicosis. Extensive use of the Division has been made by all branches of the armed services. In Ontario the difficulty of obtaining public health personnel during the war has been aggravated by the fact that there is a growing and insistent demand from the public for the establishment of community health programs in many previously inadequately served areas. The Foundation is helping Ontario to take advantage of this developing interest through the emergency recruitment of public health personnel. In the Province of Quebec a Division of Health Education, aiming to utilize the educational value of all health factors and situations and to organize and coordinate all forms of health publicity, propaganda, and information, is receiving support.

*Mexico.* — The Foundation maintains an office in Mexico which serves as an administrative center for all



Photograph Excised Here

Nurse from the Quinta Normal Health Center in Santiago, Chile,  
giving a demonstration in infant care.



Photograph Excised Here

Outdoor clinic of one of Mexico's local health units.

cooperative health activities and provides close contact with the Federal Department of Health. Its purpose is to coordinate and supervise cooperative projects in Mexico toward which the International Health Division is contributing and to promote interest in health services and the employment of trained, full-time personnel.

*Caribbean Area.* — An engineer on the Division's staff has recently been assigned to the Caribbean Region as director of a public health engineering unit in the Leeward and Windward Islands. Plans have been formulated with the Medical Adviser to the Comptroller for Development and Welfare in the West Indies and a preliminary tour of inspection has been made. Work is not yet under way.

*Peru.* — During 1944 International Health Division funds and the services of a staff member stationed in Peru were at the disposal of the Government of Peru for a survey and study of state and local health services. Reorganization of the National Health Department, establishment of local health agencies, and the adoption of the full-time principle for all health workers were advocated. Already the government has established the full-time principle and is prepared to proceed with other needed reforms. Surveys and studies of the existing situations are continuing. Aid is also being given in Peru to the National Institute of Hygiene, which has been helped in the establishment of a Division of Diagnostic Laboratories, opened in January 1944. Such rapid progress was made in setting up this Division that it has been decided to reorganize the entire National Institute of Hygiene into clearly defined sections.

*Bolivia.* — Cooperative work in Bolivia, beginning with the establishment of a Yellow Fever Service, has progressively expanded in scope to include first malaria



Photograph Excised Here

Graduating class, School of Nursing, Bogotá, Colombia.

and now hookworm control. The Yellow Fever Service has accomplished its main objective, the elimination of *Aedes aegypti* from Bolivian territory, and its program is now one of constant vigilance along the frontiers to prevent reinfestation from Brazil and Argentina. Vaccination and viscerotomy are carried out in endemic jungle yellow fever regions. Some of the personnel of the Yellow Fever Service have been transferred to the Hookworm Service, which is particularly important because of the agricultural nature of Bolivia's economy. Treatment and soil sanitation are under way in certain sections. Malaria control has been intensively organized in four widely separated areas, differing considerably in physical geography but having the same mosquito vector. All are devoted to agriculture of different sorts, the development of which is impeded by lack of immigrant farm labor due in large part to malaria.

*Ecuador.* — The Foundation is assisting the Department of Epidemiology and Control of Endemic Diseases, of the National Institute of Hygiene of Ecuador. The Department has begun work on yellow fever, malaria, and hookworm. In the Amazon basin viscerotomy and vaccination posts have been organized.

*China.* — The Provincial Health Administration of Szechwan, China, established in 1939, is divided into three departments — Business, Medical, and Technical. The Technical Division, which receives support from the Foundation, includes the provincial training institute for health personnel, the organization of local health centers, sanitation, and the Institute of Infectious Diseases, for which the major part of the Foundation's contribution is used. This Institute has undertaken field investigations of certain epidemic diseases as well as the routine activities and special studies carried on by

the laboratories of bacteriology, parasitology, and entomology. The public health training institute prepares personnel to work in the regional health centers, and particularly the maternity and child health centers in Chengtu.

#### LOCAL SERVICES

*New York City.* — Funds have been given to the New York City Department of Health for the reorganization and expansion of its statistical service. At the present time each bureau develops its own methods of gathering and tabulating data. Coordination of effort and the addition to the staff of six well-trained statisticians will result in considerable economy and more efficient service.

*Canada.* — Since the survey of health organization in Nova Scotia in 1942 there has been steady progress in the Halifax District Health Department. Attention has been given to correcting defects disclosed by the school health program. Ninety-six per cent of the school children and approximately 84 per cent of the preschool children have been immunized against diphtheria. The social hygiene worker has been active, venereal disease control measures are in effect, water and milk supplies have improved. The work of the District Health Department is receiving Foundation support.

The Foundation has helped establish in the Department of Health and Public Welfare of Manitoba a Division of Local Health Services, the function of which is to supervise the operation of existing health districts and to stimulate the development of new health units. This Division reports that plans have been completed for the organization of a new full-time rural health unit to include the town of Dauphin and three neighboring rural municipalities.

*Mexico.* — Local health units in Mexico are continuing to grow in number and improve in quality. To the six units already in operation in the States of Mexico, Puebla, Veracruz, Morelos, Nuevo Leon, and Hidalgo, a new unit was added in 1944 in the State of Guanajuato, Foundation aid is still given to three regional health districts, which demonstrate the value of full-time, trained, resident health personnel and give instruction to the staffs of state and local health departments. Since 1931 a training station in Tacuba, associated with the School of Public Health in Mexico City, has received support. Now an appropriation has been made for an additional health training unit in the Juan Maria Rodriguez City Health Center of Mexico City to supplement the training station at Tacuba, which is no longer adequate for the number of students handled by the School of Public Health. In addition to the training station, Tacuba has a demonstration health unit.

*El Salvador.* — The Foundation is assisting the development of health units in El Salvador, which has a well-planned program for the training of personnel. The success of the health unit at Santa Tecla, established with Foundation aid, stimulated the organization of local health departments on a full-time basis in San Salvador, San Miguel, and Santa Ana.

*Chile.* — In Chile the cooperative Quinta Normal Health Unit has increased its personnel and extended its area of operation. During 1944 the unit's public health nurses made approximately 10,000 visits in six months. Infant mortality in the visited families is half that in the rest of the population. Communicable disease control has been extended to the entire district served by the unit. The three sanitary inspectors have secured the private and public expenditure of more than two

million pesos in sewer connections and improved water supplies alone. Training is provided for public health nurses and the staff of the unit takes an active part in the course for health officers given by the School of Public Health. The unit is gaining prestige both with the authorities and with the public.

*India.* — Through a collaborative agreement between the Government of India and the Government of Bengal, the All-India Institute of Hygiene and Public Health has been given the administration of a rural training field in the Serampore Sub-Division, including the Singur Health Unit, which has been supported by the Foundation since 1938. The program of this unit is larger than that of a standard health unit and includes various field studies to be conducted for training purposes under the direction of the All India Institute. The initial emphasis has been on the training of subordinate staff and villagers in the encouragement of the self-help principle, with special attention given to teachers, midwives, and village workers.

#### PUBLIC HEALTH EDUCATION

International Health Division aid for public health education includes appropriations for fellowships and travel grants and support to schools of hygiene and public health nursing. Perhaps the most significant contribution the Division has made to public health is in this field. Although by and large fellowships are granted only to those who return to a guaranteed post in government services, a small number of special fellowships have been given in recent years to individuals who have no guaranteed positions to which they will return. This is done for the purpose of preparing a few outstanding persons in fields of interest where the need is great and

the likelihood of employment is large. Travel grants are intended primarily for senior personnel who will profit from the broadening influence of visits to other organizations and informal contacts with other workers in their fields. Traditionally the International Health Division has a great interest in the university schools of hygiene and public health of Harvard, Johns Hopkins, Toronto, and London. Large sums were invested in their establishment and continuous interest has been maintained subsequently, in the hope that they will blaze the way and hold their positions in the vanguard of progress. Actions taken in support of schools of public health nursing have resulted from the concept that the practice of public health depends in no small measure upon the public health nurse. Demonstrations in health center practice succeed or fail in proportion to the efficiency of public health nursing services. Financial aid in the past has been given for the establishment of seventeen schools of nursing in eleven countries.

Among schools of public health now receiving support from the International Health Division are those at Harvard University, the University of Michigan, the Johns Hopkins University, the University of Toronto, the School of Public Health in Santiago, Chile, and the National Institute of Health in Chungking, China. Nursing schools receiving support are the University of Toronto School of Nursing, University of São Paulo School of Nursing, Quito School of Nursing in Ecuador, the School of Nursing of the National University of the Littoral, Rosario, Argentina, the National School of Nursing, Caracas, Venezuela, the School of Nursing, Bogotá, Colombia, and the Escola Técnica de Enfermeiras in Lisbon, Portugal. A training station in Jamaica, British West Indies, is being organized and

supported by the International Health Division, and aid is being given for the establishment of a public health engineering experiment station at the All-India Institute of Hygiene and Public Health.

#### FELLOWSHIPS

In 1944 the International Health Division had on fellowship 107 persons, exclusive of special fellows. This number included 69 new fellows, 2 on fellowship for the second time, 40 whose fellowships continued from 1943, 3 from 1942, and 2 from 1941. There was one continuation of a medical sciences fellowship.

Sixty-nine of those holding fellowships were physicians, 22 were nurses, 12 were sanitary engineers, 2 were public health educators, 1 was a statistician, and 1 a laboratory technical expert. The principal subjects studied were: public health administration 62, public health nursing 19, sanitary engineering 10, industrial hygiene 4, public health education 2, public health laboratory work 1, vital statistics 1, and miscellaneous 8.

The fellows came from the following countries: United States 24, Canada 16, Chile 14, Mexico 11, Venezuela 11, China 6, Brazil 4, British West Indies 4, India 3, Peru 3, Ecuador 2, Uruguay 2, Colombia 2, Argentina, British Honduras, British Guiana, Iceland, and Nicaragua, 1 each. One hundred and four fellows studied at 11 institutions in the United States and Canada, 2 studied at the National Yellow Fever Service in Brazil, and 1 studied at the Haffkine Institute, Bombay, India.

An eight-week course in English was given at the Johns Hopkins University before the start of the school term, for the benefit of some Central and South American fellows. This course was inaugurated in 1942.

For several years the Division has awarded special

fellowships to train public health workers in fields where a need for leadership is anticipated. In 1944 it supervised the studies of 15 special fellows, 13 of them from the United States, 1 from Canada, and 1 from Bolivia. All but 4 of the fellowships were continued from previous years. Eleven fellows studied nutrition, and there was 1 fellow in each of the fields of industrial hygiene, public health administration, public health nursing education, and malaria. Twelve of the fellows studied at the Harvard School of Public Health, and 1 each at the Johns Hopkins School of Hygiene, Toronto School of Nursing, and the Malaria Laboratory, Maracay, Venezuela. Occupations of the fellows were as follows: 7 physicians, 7 nurses, and 1 nutritionist.

Travel grants, mentioned above, are made to government health officials, teachers of public health, and health workers for the purpose of enabling them to observe techniques in other centers and talk to workers in their fields. Forty-three such travel grants were made in 1944 to workers from the following countries: China 6, Mexico 6, India 4, United States 4, British West Indies 3, Canada 3, Great Britain 3, Brazil 2, Russia 2, Uruguay 2, Venezuela 2, Bolivia, Argentina, Chile, Colombia, Cuba, and El Salvador 1 each. Sixteen grants were for the study of public health activities, 7 for the study of malaria, 3 for nutrition work, 2 each for nursing and study of tropical diseases, and 1 each for study of public health nursing, venereal disease, yellow fever, laboratory methods, clinical use and application of penicillin, typhus research in the United States, sanitary engineering, communicable disease control, epidemiology, rural sanitation, work of state health departments, tuberculosis, and hospital administration.

# THE MEDICAL SCIENCES

THE MEDICAL SCIENCES STAFF

During 1944

*Director*

ALAN GREGG, M.D.

*Associate Director*

ROBERT A. LAMBERT, M.D.

*Assistant Directors*

ROBERT S. MORISON, M.D.<sup>1</sup>

DANIEL P. O'BRIEN, M.D.

Appointment effective September 1, 1944.

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## THE MEDICAL SCIENCES

**T**HE record of activities for the year 1944 must in the main describe actions taken to maintain services whose termination would seriously prejudice the present as well as the future. Most medical scientists with research experience and ability are now working on government research problems; the remainder have been loaded with teaching duties. Junior workers are absent on military service. Consequently new research projects, unconnected with the war, have been few. War may show the value of research men but it does little to create them.

Despite the severe limitations imposed by the war upon the freedom and the number of men in research work, psychiatric research and the teaching of psychiatry to medical students, never before more needed and more clearly recognized as an important element in the practice of medicine, has been steadily maintained. In the light of the acute need in the armed forces for psychiatrists and physicians with some knowledge of mental and emotional disturbances it is fortunate that foundation support of this field of study and training antedated the outbreak of the war. Even so the task is far from finished. To maintain programs in the field of psychiatry remains an indispensable service.

The distribution of medical care claims the attention of all who are alert to the current needs of our people. As shown in the following pages The Rockefeller Foundation has contributed to studies and to exploration of

the organization of medical care, which seek to adjust it to social, political, and economic change.

Another form of adjustment comes from the need, especially after the war, for education and retraining of men returning from military service. In some countries medical education has been gravely disturbed. In many it has been interrupted. In a few countries medical education has ceased to exist. For the task of rehabilitation far larger resources will be required than could be provided by foundations. Universities, hospitals, voluntary associations, private donors, and in many instances the resources of government will be required to prevent the most serious losses of ideas, of standards, and of men essential to medical education.

Perhaps more clearly than ever before medicine shows its value to human welfare — a value transmitted by teaching and increased by research.

### MEDICAL SERVICES

#### ASSISTANTS AND RESIDENTS IN MEDICINE

#### POSTWAR APPOINTMENTS

On December 1, 1943, the trustees of The Rockefeller Foundation approved a plan for aiding the postwar training of medical graduates returning from the armed services, and appropriated \$320,000 for this purpose.

The sum was for allotments to medical schools, in amounts not exceeding \$8,000 per department, for the training of candidates for assistantships, internships, or residencies, upon their return from service. The basis of the choice of departments was the qualification and resources of the department head, or of a teacher in the department, for selecting and training the best talent from among the recent medical graduates who will re-

turn at some time in the future from the armed services. Twelve medical fields were to be represented, eight clinical and four preclinical. The 1943 appropriation is now allocated, and in 1944 an additional sum of \$188,000 was appropriated for the project. From the new grant, aid will be given to departments in medicine, obstetrics and gynecology, pediatrics, surgery, psychiatry, public health, pathology, and pharmacology, a total of twenty-five departments in fifteen schools. Allocations from the former grant, in addition to going to departments in these subjects, also went to departments of ophthalmology, orthopedics, otolaryngology, and parasitology.

An increasing number of medical officers in the armed services desire and will certainly need the type of advanced training they can secure in this way. Indeed the quality of medical practice in America in the future depends upon what can be offered these men to prepare them for civilian practice. Furthermore, unless opportunities of this type are created, the medical schools will have no way of recruiting from the classes graduating between 1940 and 1945 the ablest men for their teaching ranks.

UNIVERSITY OF MICHIGAN  
MEDICAL ECONOMICS

One of the major responsibilities of any educational system is to study, anticipate, and adjust itself to changes in its environment. These changes may result from scientific discoveries and consequent technological development, from political or social developments, or from economic factors. The war has intensified and quickened changes in the social and economic structure of American life, and in a direction that influences the

conditions in which medicine is practiced. The teachers of public health have been called upon to prepare medical students for a variety of new and increased responsibilities. Thus, with respect to both the types and the numbers of personnel, the educational programs of the past few years have called for special and at times hurried attention.

The School of Public Health of the University of Michigan included in its budget for the school year 1942-43 an appropriation from University funds for exploring means of developing a program of teaching and research in public health economics. The action was based upon the beliefs (a) that the school of public health is the logical meeting ground of those branches of the natural and social sciences that constitute public health economics and offers a favorable atmosphere for their integration, and (b) that public health economics will assume an increasingly important role in matters of national health and welfare. Near the end of the initial period The Rockefeller Foundation contributed \$7,500 toward work in connection with the project proposed for the school year 1943-44, and in 1944 it made an appropriation of \$30,000 to the University for the teaching of medical economics under the direction of Dr. Nathan Sinai during a three-year period.

The University of Michigan offers a combination of "on campus" and "off campus" teaching facilities for this subject. Besides the School of Public Health, other teaching and research units are available, including the School of Business Administration with its Bureau of Business Research, the Departments of Economics and Political Science, and the Bureaus of Government and Industrial Relations. Providing varied fields for experience and study are a statewide prepayment hos-

pital plan, a medical service plan, and many state and local agencies of public medical services.

Dr. Sinai, who teaches medical economics in the University of Michigan, has had a staff of six persons collecting, analyzing, digesting, and classifying accounts of developments in the field of medical economics in the United States and Canada. The library receives and reviews not only medical, dental, hospital, nursing, and public health journals, but publications representing the views of the group consumers of medical care — farmers, labor, federal agencies, etc. Since January 1944 a monthly digest of significant events and opinions has been prepared for the use of teachers in other medical schools. Syllabi of medical economics are put out for teachers in schools of medicine, dentistry, and public health. In May 1943 an institute was held at which administrators and teachers from different parts of the country discussed problems in public health economics. A similar institute for dental economics was held in July 1944. Emphasis is now placed on the administrative aspects of public medical services and various types of health insurance. Plans already in operation and proposed plans for medical and hospital care are subjected to careful analysis.

The School of Public Health is therefore preparing itself to meet the rising demand for training in medical economics with courses that have been planned and tested experimentally and a staff that has observed and participated in administration and is acquainted with administrative techniques and problems.

#### MEDICAL ADMINISTRATION SERVICE, INC.

The Rockefeller Foundation made grants to Medical Administration Service, Inc., in 1942 and 1943, which

totaled \$52,000, and in 1944 appropriated an additional \$30,000 for its general expenses. This is a voluntary association of laymen and physicians interested in promoting a better distribution of medical care through prepayment plans, group practice, and industrial health organizations. Its principal function is to give counsel and information to industries, governmental agencies, and private associations which plan or maintain medical care on sound economic and professional bases. Dr. Kingsley Roberts, the director, is assisted by an advisory committee of seventeen, which includes both doctors and laymen.

Medical Administration Service answers on an average of ten requests daily for information on prepayment medical and hospital care throughout the United States, as well as inquiries on other aspects of medical economics. Some of its most successful efforts to disseminate information concerning group practice and prepayment plans include establishment of an institute on the west coast for the community discussion of health problems; publication of a series of educational pamphlets; publication of the *Avnet Report on Voluntary Health Insurance Plans*, which was oversubscribed within a week of publication, and which received considerable attention in the press; participation in a number of radio programs on health and medical care; preparation of articles on medical economic questions for professional publications, as well as assistance in the preparation of articles for lay publications.

Emphasis is on the education of forward-looking physicians in the sounder economic and professional possibilities of group practice and prepaid medical care, and on impressing physicians now practicing in Army and Navy hospitals, as well as physicians practicing in

nonprofit hospitals and clinics, and in private clinics, with the fact that they are actually engaged in coordinated or group medicine. Attention is also given to educating laymen, through employers, unions, and community leaders, to an understanding of the aims and operation of group practice and prepaid medical care.

#### GROUP HEALTH COOPERATIVE, INC.

Licensed by the State Commissioner for Insurance since December 7, 1940, Group Health Cooperative, Inc., is a nonprofit organization operating in the New York City area and seeking to provide physicians' services on a prepayment basis. In general its functions in connection with medical insurance plans are to acquire subscribers and maintain the subscriber group from year to year; keep statistical and other records for the purpose of controlling experience; supervise the quality of the medical service given and handle complaints from either doctors or subscribers; educate subscribers; and represent and interpret the layman's point of view in matters of joint concern.

On April 4, 1943, Group Health Cooperative had contracts with 450 subscribers. On March 15, 1944, it had over 7,000 subscribers. Current trends both in New York City and elsewhere favor the continuing growth of prepayment plans for physicians' services and increase the need for operating organizations with integrity and experience. Staff members of Group Health Cooperative have aided in the preliminary stages of the formation of Mayor LaGuardia's Health Insurance Plan.

Group Health Cooperative had received aid from the Foundation since January 1, 1942, totaling \$99,000. In the belief that continued support to an experienced operating agency which stands for consumer represen-

tation and against cash indemnity, and is free from commercial motivation, has exerted and will continue to exert a valuable influence in the development of prepayment plans for medical care, the Foundation made another appropriation to the organization in 1944, amounting to \$49,100.

#### GRADUATE MEDICAL EDUCATION

##### EIGHTH SERVICE COMMAND

On July 1, 1943, a program of graduate medical education was put into effect in the Air Force base and station hospitals of the Eighth Service Command, under the control of Colonel W. Lee Hart. Such medical books and journals as were needed to supplement the routine Army allotment were purchased to bring hospital libraries up to an efficient level. Clinicopathological case histories and slides were purchased and put into use by groups of physicians serving in the base and station hospitals. The routine allowance of books and journals per hospital has been increased, and there is more reading of medical literature and more attention to the new developments in medicine and surgery. Civilian physicians, usually from the staffs of medical schools, were invited to visit, for about a fortnight each, a series of military hospitals in company with the medical, surgical, or psychiatric consultant, for the purpose of instructing, criticizing, and stimulating the physicians in military service. The object of the whole program was to improve the morale and practice of the military medical officers.

The experiment has succeeded. Colonel Hart reports that "the main accomplishment of the program is that it has brought into the wards as an accessory to the regular five specialized consultants outstanding members

of the medical profession who by their ward rounds, clinics, and informal talks with junior officers have been a definite inspiration to higher standards of medical practice." Reports from the visiting teachers have been requested by Colonel Hart for the use of his assistants. Furthermore, the experience has shown the visiting teachers many aspects of military medicine with which they had been unfamiliar.

The Foundation has followed up a previous grant of \$25,000 toward the support of this project for the year ending June 30, 1944, with a second grant of \$20,000. The project goes beyond meeting the present needs of doctors in military service. It is not only helping the Army, in the largest of its service commands, to provide better military medical service, but when the doctors return to civil practice the benefits of this wartime medical education will continue to serve the postwar world.

HARVARD UNIVERSITY  
LEGAL MEDICINE

In the United States the administration of justice makes a pitiable use of what the medical sciences could contribute. After waiting for more than a decade for a favorable opportunity to assist in the promotion of legal medicine, the Foundation in 1937 made a contribution toward its development at Harvard University by providing a special fellowship for an able young pathologist, Dr. Alan R. Moritz, in order that he might have two years of training in Europe to equip him to head a new department of legal medicine at Harvard, made possible by the gift of Mrs. Frances Lee. Since his return in 1939 progress has been made in the organization of the department for effective teaching and research. A professional staff of eight has been assembled.

Through official relationships with the Office of the Medical Examiner of Suffolk County and with the Massachusetts State Department of Public Safety, reasonable supply of case material — chiefly unexplained deaths — necessary for teaching and research is provided. Through this arrangement State, counties, and municipalities receive in return expert service of value in the detection of crime.

The two other medical schools in Boston, at Tufts College and Boston University, send their students to Harvard for instruction in legal medicine. The Harvard Law School is cooperating actively in the development of the department, chiefly through participation in research of common interest. A member of Professor Moritz's staff trained in both law and medicine holds appointments in the two schools. Probably the most important function of the department in the next decade will be the training of men to fill positions that are expected to open up as the need for better medico-legal service is more widely recognized in other parts of the United States.

A Rockefeller Foundation grant of \$65,000 to Harvard University in 1944 assures over a ten-year period support of an undertaking to which the Foundation has contributed through an initial five-year period.

## PSYCHIATRY AND NEUROLOGY

### CHILD RESEARCH COUNCIL OF DENVER

The Child Research Council of Denver is devoted to a long-term study of the growth of normal children and adolescents. It is affiliated with and housed in the School of Medicine at the University of Colorado. Mainly supported by the Commonwealth Fund, it also receives funds from local donors and the volunteer services of

physicians in Denver and members of the teaching staff of the School of Medicine.

Since 1939 the Foundation has contributed toward the support of psychological studies and studies in growth and development conducted by the Council. A 1944 appropriation of \$19,720 will continue support of both these studies for two years. The Foundation's assistance has been principally in assuring the services of a trained clinical psychologist to record the intellectual and emotional aspects of bodily and organic development.

During the past six years the Council has made steady and significant contributions to the knowledge of child growth and development. Its purpose is to determine which variations from the average are consistent with health and which point to the beginnings of disease. Variations may be in the shape and size of bodily structures, or in the function of different organs or systems, such as the nervous system, or in the rate and order of body growth. Children are selected without regard to any particular point of reference. Plans are made before birth for admittance to the group. The psychological study, an integral part of the program from the beginning, aims to establish norms and observe variations; to determine the significance of acceleration or retardation in certain phases of development; to ascertain patterns of behavior, adjustment, and test performance typical of particular ages or stages of development; to recognize the extent to which childhood patterns of adjustment or personality characteristics foreshadow difficulties of adjustment in adolescence and adulthood; to discover the age at which adult patterns of personality dynamics become recognizable; to determine whether or not any age, or any selected point on

the mental growth curve, or any other expression of mental capacity can be used for a valid prediction of ultimate adult intelligence; and to detect similarities in test-performance which might distinguish selected groups of children having common characteristics or problems.

As time passes and the records on 100 children studied from birth increase, their value increases. Analysis of the wealth of material that will accumulate as the children develop will yield knowledge obtainable in no other way. Some of the possibilities suggested may not be realized, or will have greater or lesser value than given at present, while others not seen as yet will grow out of the greater knowledge of human development. The possibility of correlating the psychological data with material coming from the other departments greatly enhances the value of the psychological data and, at the same time, lends value to the total program as a means of studying the child as a whole.

Studies as thorough and as competently done as those at Denver are so rare that the results of this group become each year more nearly unique in the field of medicine.

#### JUDGE BAKER GUIDANCE CENTER

The Foundation is continuing support given during 1943 and 1944 to the Judge Baker Guidance Center of Boston with a grant of \$17,000 for use during 1945. The purpose of the Center is to study and treat infants and children up to five years of age, and to teach volunteer and professional workers in the field of child health. It was inaugurated by Dr. Marian C. Putnam and Mrs. Beata Rank, working with the guidance of Drs. Stanley Cobb and Allan Butler of Harvard Medical School and

the collaboration of Dr. James Baty of the Tufts Medical School.

The increased recognition of this group as a teaching center is indicated by the steadily growing demand for lectures and seminars from parent groups, social workers, teachers, graduate nurses, and a request for a series of lectures in the pediatrics course for the third year medical students at Tufts. The Center is significant as being one of very few places in America where behavior in all the aspects of life of very young children can be observed and controlled by a staff of psychiatrists. In this way the actual strains and adjustments of child life are under observation and not recorded as reminiscences or secondhand testimony.

#### DALHOUSIE UNIVERSITY

#### PSYCHIATRY

In September 1941 Dr. Robert O. Jones, who had held a Foundation fellowship under Dr. Adolf Meyer at the Johns Hopkins University School of Medicine, took charge of the teaching in psychiatry at Dalhousie University. The Foundation at that time made a three-year grant to the University in support of his work.

Since the first year of Dr. Jones' service the number of patients accepted at the Dalhousie University's psychiatric clinic has increased from about two hundred to approximately six hundred, and many more patients are seen from points outside Nova Scotia. A psychiatric service at the Victoria General Hospital with five or six beds for psychiatric patients, a consultation service in the hospital, and courses for nurses may be expected as results of Dr. Jones' work. Special clinics have been set up for dealing with behavior problems of children. Shock therapy is used both in hospital and as an out-

patient procedure. The University has entirely revised its psychiatric teaching along more progressive lines, and has established contacts with the Maritime School of Social Work, the Nurses' Training School of the Victoria General Hospital, the Children's Hospital, and the Halifax Infirmary. Papers are presented at medical and nursing meetings in the province and published in the medical press, and talks on mental hygiene problems are given by the psychiatrist and the social worker. Psychiatric education has been pushed both in professional and lay groups, and an especial effort is made to reach those having responsibility for children.

A Foundation appropriation of \$19,500 made in 1944 will continue to provide, during a three-year period, the services of a clinical psychiatrist in Halifax and a teacher of psychiatry in the Medical Faculty of the University. This grant contributes to the recruitment and status of psychiatry in Canada by assuring the presentation of the subject to the students of the Maritime Provinces, which, though not heavily populated, play an important role as the source of teachers and physicians who settle in other parts of Canada and in the United States.

UNIVERSITY OF CHICAGO  
PSYCHIATRY

The Psychiatric Division of the Department of Medicine at the University of Chicago was made possible in 1935 by an initial grant of The Rockefeller Foundation. Twelve beds were assigned to its use in the Billings Hospital, with offices and laboratories adjoining. Enjoying ample support for research work from the Otho S. A. Sprague Institute, the division of psychiatry, though small, has supplied teaching for students in medicine

and social work and care for psychiatric and other patients in hospital. No comparable instruction or hospital care was given by the University previous to 1935.

Dr. David Slight, professor of psychiatry, reports that in spite of reductions in staff the work of the Division is progressing steadily, with considerable increase in the number of hours given to lectures and seminars, ward visits, interviews, and teaching in small groups. Treatment is provided for selected cases of neuroses and psychoses, and psychometric and other forms of psychological tests are available for all patients on the psychiatric service and to other services on request to the psychiatric division. A special clinic is maintained for vocational testing and counseling service.

Some of the research projects that have been undertaken are a continued study of experimental neurosis in animals, psychoanalytic studies of stuttering, a study of phantasy tests in relation to diagnosis of psychiatric conditions, study of parental attitudes in children committed for mental deficiency, psychometric and electroencephalographic studies, and further analysis of frontal lobe function by quantitative studies.

In 1944 the Foundation contributed \$120,000 to the University of Chicago toward the support of teaching and research in psychiatry for a period of three years.

#### CATHOLIC UNIVERSITY OF AMERICA PSYCHIATRY

The Catholic University of America, in Washington, D. C., has maintained a Child Guidance Clinic, under the direction of Dr. Thomas V. Moore, in its Department of Psychology since 1938. The objectives of this center are to study and treat children and adults presenting various problems of personal and social adjust-

ment, to evaluate therapeutic techniques, and to teach students whose professional interests or goals will be furthered by an understanding of psychiatry, psychiatric social work, clinical psychology, and remedial education. The Clinic has a full-time psychiatrist and a full-time psychologist. Approximately fifty adults and two hundred children are accepted annually for observation and treatment, and the psychiatric social work extends to more than two hundred children a year.

In creating a larger and more discriminating demand for psychiatric service it is important that clergymen, teachers, and persons directing hospitals and welfare institutions receive in their formal education a more complete presentation of psychology and child guidance. The Catholic University of America is supported by and serves all of the dioceses in the United States. Therefore, the teaching and clinical work in both psychiatry and child guidance under the direction of Dr. Moore reach clerical and lay Catholic workers coming to the University from many parts of the country.

The Foundation appropriated \$85,000 to the University for this work in 1939. Thanks to effective and growing support from the University, the Foundation's appropriation in 1944 for aid during a second five-year period could be reduced to \$40,000.

#### UNIVERSITY OF EDINBURGH

#### NEUROSURGERY, NEUROLOGY, PSYCHIATRY

In 1924 the Foundation provided a fellowship to enable Norman Dott of the University of Edinburgh to study under Harvey Cushing at Harvard University. Since Mr. Dott's return to Edinburgh several additional grants have been made to provide equipment, personnel, and other assistance for the solidly developing work in



Therapeutic play. A project illustrative of a type of work in the field of psychiatry in which the Foundation has had a part.

Photograph Excised Here



Photograph Excised Here

Adjustment work at the Child Guidance Clinic of the Catholic University of America.

neurosurgery which is under his direction. In 1940 the Foundation began support of a hospital center for the treatment and study of brain injuries under war conditions. Further developments in the war increased the need for this kind of work and accentuated its value. The plan involves the close cooperation of a neurologist and neurosurgeon with a psychiatrist, Dr. D. K. Henderson. The correlation of brain injuries with character changes is a study of fundamental importance — and one which has received far too little attention.

The unit has been working in the Royal Infirmary of Edinburgh and represents the cooperation of that institution and the Ministry of Health with the University. A recent report shows that up to August 1943, 878 patients, 420 of whom were from the armed forces and 458 from civilian life, were received and treated in the unit. Practically all the severe cases of head injuries from the fleets operating in the North Atlantic are brought here, as well as those occurring in the military establishments of Scotland and northern England. The more serious and complicated civilian cases from Scotland also reach the unit. Of the 420 army, navy, and air service men treated up to August 1943, 165 have been restored to full duty, only eleven died, and almost all the remainder have been regraded or invalided to former civilian employment. Of the 458 civilians treated, 259 have been restored to their former activity, thirty-five have died, fifty remain severely incapacitated, and the rest have been returned to lighter work or transferred to other institutions for treatment.

In the medicosociological sphere the facilities of the unit have enabled it to develop rehabilitation measures to an extent surpassing prewar standards. Neurologic, psychologic, and psychiatric measures, concerted by the



Photograph Excised Here

Members of the American Film Center staff preparing material for medical and public health films.

team as a whole, are leading to better disposal to domestic life and to the armed forces. Observation of patients undergoing physiotherapy, physical training, occupational therapy, and speech training has proved a means of clinical investigation and a source of data for research purposes. It has been possible to coordinate social and medical aspects in such a way that the departments in a voluntary hospital and in a state-supported hospital act as a single unit. Recognition of the value of this work is evidenced by the fact that the Department of Health for Scotland, in cooperation with Glasgow University, has inaugurated a similar unit near Glasgow.

In 1944 The Rockefeller Foundation appropriated \$20,750 to the University of Edinburgh for this coordinated work in psychiatry, neurology, and neurosurgery.

#### WASHINGTON UNIVERSITY

#### DEPARTMENT OF NEUROPSYCHIATRY

Over a six-year period beginning in 1938 the Foundation contributed \$300,000 at the rate of \$50,000 a year to Washington University for development of a department of neuropsychiatry. This aid brought to the medical school on a full-time basis three well-trained young men in the fields of psychiatry, neurology, and physiology. The Bliss Hospital, a branch of the St. Louis City Hospital, was opened for psychiatric patients, and a ward of sixty beds was placed under the direction of the psychiatrist. In January 1944 the Barnes Hospital opened a service of forty beds in neuropsychiatry which greatly improves the resources of the department for teaching and for assistance to the other services in the hospital. The full-time psychiatrist is Dr. Edwin F. Gildea, formerly at Yale. A Foundation grant of \$125,000 in 1944 will continue support for three years to this

six-year-old department of neuropsychiatry, which is now growing to meet an increasing demand.

#### TUFTS COLLEGE

#### BRAIN CHEMISTRY

For the past five years the research of Professor S. J. Thannhauser and his co-workers at Tufts College has been centered on the study of lipid substances, which constitute from the chemical viewpoint important building stones of brain and nerve tissue. Efforts have been directed specifically at the enzymatic breakdown of these substances. In the course of this work at least two new important tissue constituents have been found, one from the brain and one from the intestines. Experiments are in progress aimed at determining the synthesis of lecithin in organs.

Brain chemistry, a difficult field, has attracted relatively few competent investigators. Professor Thannhauser is also interested in the general field of lipid diseases, on which he is a recognized authority. The Foundation has supported his work at Tufts College since 1934, and in 1944 continued this aid with a grant of \$42,000 to be used during a six-year period.

#### OTHER SUBJECTS

#### RESEARCH COUNCIL OF THE DEPARTMENT OF HOSPITALS OF NEW YORK CITY

Chronic diseases place a heavy burden on large municipalities. The number of patients with such diseases is growing because of the decrease in deaths from infectious diseases at all ages, and the consequent increase in the population in the older age brackets. Research in these maladies, such as chronic diseases of the heart, arteries, joints, lungs (nontuberculous), kidneys,

and organs of internal secretion has not received the emphasis warranted by their incidence and the economic loss to the community caused by long-continued disablement. Unquestionably, also, the problems of old-age pensions and sickness insurance as they are affected by chronic invalidism will increase the importance of research in this field.

By its very persistence the economic loss due to chronic disease goes unnoticed, and the gradual withdrawal and isolation of the chronic patient is epitomized in the common term for such a person — “a shut-in.” Laymen are thus unaware of the burden of chronic illness. Quite as serious is the peculiar handicap of chronic illnesses in point of medical study. Medical students and their teachers spend most of their time and attention upon the patients in the teaching hospitals, which accept acute cases by preference so as to have a rapid turnover of patients and consequently a large variety of cases. As a result, far too little study or attention of any kind has been given to chronic disease, whether in terms of learning more of the cause, the care, or the cure.

There have been two main misconceptions about chronic disease: that it is synonymous with disease limited to middle age and senility, and that it is uncontrollable. Statistics show that about 16 per cent of chronic illness occurs before the age of 25; and two notable chronic diseases, diabetes and pernicious anemia, have been brought under control by means of thoroughgoing research.

In 1936 New York City provided new and enlarged hospital facilities for patients with chronic diseases and, a new arrangement for collaboration between the City and the medical schools. A Research Council in the Department of Hospitals was formed with a scientific

advisory committee to guide the commissioner of hospitals in securing from the medical schools the best possible collaboration in the study and care of patients with chronic diseases. At first, activities were carried out at the Research Division for Chronic Diseases on Welfare Island. Five years later the College of Physicians and Surgeons, aided by funds from The Rockefeller Foundation and other sources, staffed a research unit in the new \$5,500,000 Goldwater Memorial Hospital on Welfare Island, with Dr. David Seegal in charge of the unit. Between 1938 and 1944 the Foundation contributed approximately \$140,000 to the New York City Department of Hospitals for research in chronic diseases; in 1944 it appropriated an additional sum of \$22,000 for this purpose.

The new grant will support continued studies on such subjects as cirrhosis of the liver, chronic glomerulonephritis, pulmonary insufficiency, and arteriosclerosis. In addition the group conducts investigations on vitamins and the immunochemistry of human serum proteins. Particular progress has been made in studies of cirrhosis of the liver, and it has been shown that a highly nutritious diet supplemented by vitamin B concentrate alleviates the more distressing symptoms and prolongs life. The level of the serum albumin is a good index as to whether patients can recover. An early, presymptomatic form of the disease can be detected, and the results of dietary treatment at this stage are encouraging.

The interest of the general public in this work has been considerable. Visitors have come from every part of the world to study the organization of the unit. Although the average medical student has been wont to consider patients with chronic disease as representing a dull problem, it is the belief of the staff that students

are learning to appreciate the challenge posed by such patients. Young medical students and graduates in increasing numbers are choosing this institution as the locus of part of their education.

NATIONAL RESEARCH COUNCIL  
RESEARCH IN PROBLEMS OF SEX

As a record of a consistent attempt to explore and stimulate a previously neglected field, the story of the National Research Council Committee for Research in Problems of Sex is outstanding. The Committee began work under the leadership of Dr. Robert M. Yerkes in 1920, when taboo and aversion were generally associated with the study of sex and reproduction, and research in these subjects was usually neglected. Twenty-four years of deliberate, selective encouragement through grants in aid have fundamentally advanced knowledge in this field. The Foundation has supported the Committee's research since 1931, its contribution in 1944 amounting to \$135,000 for use during a three-year period.

A broad attack on the problem was intended from the beginning, as the experts on the original committee represented the sciences of biology, physiology, psychology, psychopathology, and sociology, but at first emphasis was placed on endocrinology, especially studies of the hormones. As the studies have developed, the primary emphasis of the Committee has shifted. Research in endocrinology made rapid progress and became so well established in many centers that in 1937 a separate committee was formed to administer grants in this particular field, with the exception of those for work directly concerned with sex and reproduction. In 1929 anthropological and psychological phases of the prob-

lem began to receive more attention, and in recent years the trend has been increasingly toward the neurological, psychobiological, and behavioral problems of sex and reproduction.

Projects aided during 1943-44 include studies on sex behavior, the neural and hormonal basis of sexual behavior in vertebrates, the physiology of sex development and behavior, sexual and reproductive phenomena in monkeys and other animals, the function of the prostate gland, genetics and behavior of mating types of *Paramecium*.

The Committee's present membership is: Walter B. Cannon, George W. Corner, Karl S. Lashley, Adolf Meyer, Carl R. Moore, Lewis H. Weed, ex officio, and Robert M. Yerkes, chairman. Though the Committee has occasionally voted grants in response to requests, it has preferred to find investigators who are leaders of research teams as recipients of continuing support through renewable grants.

It is perhaps appropriate, and it is certainly agreeable, to record the satisfaction the Foundation has felt with the performance of this Committee.

#### UNIVERSITY OF CALIFORNIA

#### RESEARCH ON HORMONES AND VITAMINS

Since 1929 the Foundation has contributed to research on hormones and vitamins at the University of California under the direction of Dr. Herbert M. Evans. In 1944 it made a grant of \$50,000 for continuation of the support for a four-year period, bringing its total appropriations for this work to \$267,500. The National Research Council's Committee for Research in Problems of Sex, which is largely supported by Foundation funds, contributed \$50,000 to the work during the years 1929-34.

During the period of this support Dr. Evans and his collaborators have carried out significant investigations on substances influencing growth and reproduction in animals. The discovery of vitamin E and its relation to fertility belongs to this group of workers; and they have added substantially to knowledge of the internal secretions or hormones produced by the pituitary gland.

The pituitary gland, lying in the middle of the head at the base of the brain, has been called "the master gland" by popularizers of science, because it seems to exercise some control over many of the other glands that regulate the mechanisms of the body. It secretes at least six hormones, four of which have been isolated and purified by the University of California group. These four control the production of milk, the secretion of one of the sex hormones, the production of cortin by the adrenals, and growth. Along with the isolation and purification of the four hormones have come improved methods for the biological assay of each of them and greatly increased knowledge of their chemical structure and biological effects. One of the biological properties of the adrenocorticotrophic hormone is its ability to stimulate the adrenal cortex of an animal in such a way as to cause increased secretion of the adrenal steroids. This property is most strikingly demonstrated through the protection it affords animals subjected to high altitudes and extreme cold. Work with this hormone has barely scratched the surface of its potential possibilities in the fields of clinical and aviation medicine. Isolation of the pure growth hormone is making possible rapid progress in this field, and experiments are now under way which should yield important facts concerning the physiological mechanisms through which the growth hormone elicits its various responses in animals.

Considerable progress has been made also in nutrition research, which has dealt primarily with the relation of chemical structure to vitamin E activity, the physiology of vitamin E deficiency, the prophylactic requirements of male and female rats for vitamin E, the effect of vitamin E therapy upon human beings suffering from various muscular dystrophies, and with numerous phases of avitaminosis due to the absence of several members of the vitamin B<sub>2</sub> complex.

Other recent work has included studies in the broad field of metabolism, on the physiology of the adrenal cortex, the action of the hormones upon bone growth, and possible interrelationships between the vitamins and hormones.

Between June 1939 and the early part of 1944 some 150 articles giving results of work in Dr. Evans' laboratory were written and published. These provide an imposing record of scientific accomplishment.

#### WASHINGTON UNIVERSITY PUBLIC HEALTH TEACHING

The sum of \$24,000 was appropriated to Washington University in 1944 for the teaching of preventive medicine over a three-year period. As a field of interest of the medical sciences, public health teaching has been promoted by the Foundation since 1938 in other medical schools, including those of Cornell, Yale, Manitoba, Johns Hopkins, and Dalhousie universities.

It is now more apparent than ever that instruction in preventive medicine is indispensable in modern medical education and that physicians are inadequately trained unless their clinical thought is thoroughly imbued with considerations of the preventive aspects of disease. The first essential of an education program in pre-

ventive medicine is the inculcation of a point of view and a habit of thought. To fulfill his obligations, the modern physician or surgeon must habitually consider in each individual case the environmental factors which have influenced and will influence his patient. Such emphasis will not be acquired by the student if teaching in the wards and clinics is limited to discussions of the clinical manifestations of disease. If a habit is to be formed, the environmental components of disease must be appropriately stressed and discussed in each day's clinical work.

Present teaching is too isolated to influence deeply the thought of medical students. The great advances in sanitation, community and personal hygiene, and the public control of infectious disease have necessitated lecture courses, demonstrations, and field trips, which are now part of the curriculum of all modern medical schools. Even so, application of the knowledge thus acquired is too infrequent, and the whole subject is too little stressed in the daily clinical teaching. The students need to learn the subject by participation in the activities of a city, county, or state health department.

Steps in the right direction have been taken by Washington University, which has established an effective unit for the treatment of venereal disease and initiated health clinics for children and adults. It is now developing a department of public health and preventive medicine. The St. Louis County Health Center will be used as a practice and demonstration area under the direction of the County Commissioner, Dr. E. G. McGavran, who has a teaching appointment on the staff of the medical school. Dr. E. Gurney Clark, formerly at the Johns Hopkins School of Hygiene and Public Health, is now professor of preventive medicine and public health at

Washington University. He will direct the student health service and maintain close contact with the department of medicine.

The city and county of St. Louis are giving their active support to this project to provide the St. Louis region with a training center in public health and preventive medicine.

INSTITUTE OF BIOLOGY AND EXPERIMENTAL  
MEDICINE, BUENOS AIRES

Dr. B. A. Houssay, the recognized dean of Latin American medical scientists, was dismissed in 1943 from his post as professor of physiology in the University of Buenos Aires for having made, along with 150 other Argentine scholars, a public plea for "effective democracy and American solidarity."

Declining invitations to other countries, Dr. Houssay, with the aid of former pupils and friends, set about immediately to establish a privately supported laboratory. Early in 1944 the new Institute of Biology and Experimental Medicine, occupying a large renovated residence, was opened under his direction, with a group of experienced assistants who had also lost their university posts because of political conditions.

A recent report on the Institute's activities in its first six months shows that research on the following important subjects is under way: experimental diabetes, thymus function in relation to other endocrine glands and diabetes, secretion of insulin and its quantitative determination in the blood, arterial hypertension with special reference to endocrine factors, secretion of adrenotropic hormones.

Between 1937 and 1944, in support of Dr. Houssay's work, the Foundation made grants in aid to the Univer-

sity of Buenos Aires to provide apparatus for returned fellows, and two appropriations of \$25,000 each for salaries and equipment. Before payments had been made under the second appropriation of \$25,000, Dr. Houssay was removed from his post. During 1944 the Foundation gave \$12,500 to the Institute of Biology and Experimental Medicine for Dr. Houssay's work during 1945, and provided approximately \$12,300 for research equipment and stipends for three fellows working under his direction at the Institute.

#### AMERICAN FILM CENTER, INC.

##### MEDICAL AND HEALTH FILMS

Despite the increasing interest in medical and health films and the heavy demands for them in recent years, this field suffers from a great lack of organization, caused by the largely nonprofessional character of production, the lack of organized film distribution, and the absence of cooperation. A large number of films have been made on aspects of medicine and public health, but for various reasons many of them are unsatisfactory. Often too many messages are crowded into one brief film. Subjects treated sometimes might better be left to some other educational medium. Many films tend to stress the negative avoidance of disease rather than the positive promotion of health. Intellect is generally relied upon without emotional appeal. Sound tracks are apt to be technically poor, and there is very little in most of the films that remains in the spectator's eye.

Existing medical films deal almost exclusively with surgical subjects; they are made by specialists for specialists; they are largely amateur productions; they ignore the rules of teaching. In addition, there is almost no method in their utilization. Health films are made

with very little interchange of information among sponsors or film producers, with the result that the list of subjects covered by available health films is incomplete. There are, for example, few if any satisfactory films on personal hygiene, basic sanitation and prevention of diseases, mental hygiene, maternal hygiene, posture, vaccination, common cold, heart and circulatory diseases, rheumatism, common acute conditions, home care of the sick. Some important fields, such as child, dental, and industrial hygiene, are very incompletely covered. There are not enough films on subjects of regional importance, such as hookworm disease and trachoma; and the many urgent health and sanitary problems brought about by the war have not yet led to practical teaching films for the vast groups affected by them.

Too many of our educational films, including health films, are produced with little imagination and do not show true sympathy for and searching into the subject on the part of the makers. Good health films can only be made by craftsmen with talent, sensitivity, and inner concern for their task, by film writers and directors who are willing to engross themselves in the film subjects and to live with the people for and about whom they make films.

In order to improve the situation with regard to health and medical films, a special section, headed by Dr. Adolf Nichtenhauser, was established in the American Film Center in 1941 with the aid of a three-year grant from The Rockefeller Foundation. The purpose of the section is to study and develop the use of motion pictures in health education and in medicine and to act as an information and advisory center in these fields. In 1944 the Foundation made a grant of \$8,600 to the

Center for support of this program for an additional two-year period.

### FELLOWSHIPS

A total of \$70,000 for fellowships in the medical sciences was administered directly by The Rockefeller Foundation in 1944 and a similar sum was appropriated for the same purpose in 1945. This is in contrast with \$50,000 administered in 1943. The fund in 1944 provided for 26 fellowships. Only one of these went to a citizen of the United States, the rest going to scholars from Argentina, Brazil, Chile, China, Peru, and Venezuela. Subjects studied included biophysics, physiology, thoracic surgery, metabolic diseases, bacteriology and immunology, anatomy, internal medicine, pediatrics, neurosurgery, infectious diseases, obstetrics and gynecology, urology, biochemistry, medical library science, psychoanalytic training, pathology, and biochemistry with special reference to nutrition. Twenty of the fellows studied in the United States, 3 in Argentina, 1 in Brazil, 1 in Canada, and 1 grant provided travel expenses from the United States to Brazil. Of the total, 16 fellowships were new in 1944; 8 were continued from 1943, and 2 from 1942.

Funds given to the National Research Council provided for 3 fellowships in the medical sciences, 2 of which were new in 1944.

### GRANTS IN AID

Thirty-four small grants in aid, ranging in amount from \$300 to \$6,000, and totaling \$95,480 were given in 1944. Aid went to such institutions as the laboratory of Dr. B. A. Houssay in Buenos Aires, the Hebrew University in Jerusalem, faculties of medicine in the uni-

versities of Rio de Janeiro, Chile, Brazil, San Marcos in Lima, and Colombia, the Serafimer Hospital and Karolinska Institute in Stockholm, the Catholic University in Santiago, National Institute of Cardiology, Mexico, Institute of Experimental Medicine, Caracas, and the Institute of General Anatomy and Embryology in the University of Buenos Aires. Some of the subjects studied were biophysics, biochemistry, psychiatric nursing, neurophysiology, neurosecretion, neuropsychiatry, neuropathology, and rural medicine. One grant was for a public health practice field in Chengtu, China, and another for a conference sponsored by the Roscoe B. Jackson Memorial Laboratory on heredity in relation to cancer incidence. The Brooklyn Child Guidance Center received assistance for a study of behavior difficulties and group therapy.

For the effective fellowship training of Latin Americans coming to the United States it would be a great advantage if more of our leading medical teachers had a first-hand knowledge of the environment from which trainees come and to which they will return. With this objective in mind a grant was given to enable Dr. Leo Eloesser, clinical professor of surgery at Stanford University, to visit a few of the strategic medical centers in Latin America.

The grants were distributed geographically as follows: United States, 13; Argentina, 3; Chile, 3; Brazil, 2; Sweden, 2; Peru, 2; Colombia, 2; Canada, China, Iceland, England, Mexico, Palestine, and Venezuela, 1 each.



**THE NATURAL SCIENCES**

THE NATURAL SCIENCES STAFF

During 1944

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## THE NATURAL SCIENCES

**D**URING 1944 the Natural Sciences Division of The Rockefeller Foundation contributed \$312,610 to twenty-seven research projects in the field of experimental biology. Four other grants totaling \$390,050 were made for an emergency program having direct bearing on situations produced by the war. These grants were for predoctoral fellowships in the natural sciences, applied mathematics fellowships, the coordination of information relating to geophysics, and assistance to British scientific journals affected by the war.

In biology, aid was given toward the solution of such problems as the fundamental nature of the red blood cell surface; gene position changes in the chromosomes of *Drosophila*; mutations in the genes of red bread mold and their biochemical effects; genetic control of development; the nature and effects of enzymes; physiological studies through the use of radioactive and heavy isotopes; X-ray spectral analysis of biological compounds.

Three projects assisted dealt with aspects of nutrition: the biochemistry of the amino acids and clinical symptoms of their deficiency, and the biochemical and physiological functions of the vitamins. Support was continued for research on immunology and serological genetics at the California Institute of Technology; and small grants for one year each were made to sixteen outstanding projects in Europe, most of which the Foundation had supported before the war. The Mexican agri-

cultural program was expanded and provision made for building and equipping a laboratory in Mexico.

## EXPERIMENTAL BIOLOGY

UNIVERSITY OF PENNSYLVANIA

CELLULAR PHYSIOLOGY

Every living cell is dependent on its environment: it obtains nutritive substances from the fluids surrounding it and gives to these fluids its excretory products. This exchange takes place at the cell surface, the rate of exchange being governed by the permeability of the membrane or cell wall. Many of the fundamental problems of cellular physiology are associated with processes occurring at cell surfaces.

The red blood cell, which has been chosen by Professor M. H. Jacobs of the University of Pennsylvania for his research, is the only cell in the human body that can easily be removed in large numbers with little contamination and studied for days outside the body in an approximately normal condition. It is unique among cells in providing a highly characteristic cell surface with a minimum of internal complications.

Preliminary work has indicated that the surface of the red blood cell of each species of animal has certain characteristic properties. These differ greatly from species to species but are of sufficient constancy within each species to permit the ready and accurate identification of different animals by their blood. The experimenter therefore has at his disposal a great variety of cell surfaces, with properties which are beginning to be fairly well known, from which the type most favorable for the testing of some particular hypothesis may be selected.

Professor Jacobs' work suggested the possibility that

there might be differences in the physicochemical properties of human red blood cells in disease sufficiently constant and characteristic to be useful for diagnosis. A simple procedure has been devised by which in a few minutes with an appropriate test solution a single drop of blood is made to yield several types of useful information in the form of a photographic record that can be analyzed at leisure by the physician. Although it is too early to say whether these methods will prove to be useful in clinical medicine, the results so far obtained with several of the most thoroughly investigated tests seem to justify the statements that in normal individuals the range of variation is small, large departures from this range may be found in persons suffering from a number of diseases, and in several of these diseases the departures so far encountered are of a consistent and easily recognizable nature.

In 1944 The Rockefeller Foundation appropriated \$13,500 for the salary of an assistant to Professor Jacobs and the purchase of supplies over a five-year period beginning July 1, 1944.

STANFORD UNIVERSITY  
BIOCHEMICAL GENETICS

In contrast with classical genetics, which is concerned primarily with gene transmission from one generation to the next, biochemical genetics is a field of recent development, which attempts to discover what genes are, what they do, and how they do it, seeking answers to these questions by means of chemical techniques. Professor George W. Beadle and his associates in the Department of Biology of Stanford University are making important contributions to our understanding of the biochemistry of genes.

As stated in the Foundation's Annual Report for 1942, experiments at Stanford are based on two discoveries: (1) the normal strain of the fungus *Neurospora crassa*, or red bread mold, is able to synthesize all the known vitamins, amino acids, and other substances necessary for growth and function with the exception of the vitamin biotin; (2) by treatment with X-ray and ultraviolet light, the organism is induced to mutate in such a way that it can no longer carry out specific syntheses. Through work on this mold a number of significant advances have been made in an attempt to answer the question of what genes do. Evidence that genes control certain chemical reactions has been accumulated. About one hundred mutant genes controlling vital syntheses have been detected. The mutation of a single gene can block the synthesis of an essential cell constituent or prevent the utilization of a normal product of metabolism.

The Rockefeller Foundation appropriated \$7,500 for the work of Professor Beadle during the year 1945.

#### UNIVERSITY OF ROCHESTER GENETICS

*Drosophila melanogaster*, the fruit fly, is perhaps by now the world's most famous experimental animal. Certainly there is no other so well adapted to genetic research. It is small enough for economical housing and feeding, yet large enough and varied enough in its differentiation between species to present contrasts for study. More important, it supplies up to thirty generations a year.

Geneticists everywhere are using *Drosophila* to discover by what means an existing species gives rise to a new one, what the relationship of the new species is to

the old, and how to identify the isolating mechanisms which bring about the observed differences.

Professor Curt Stern of the University of Rochester is doing outstanding research on questions of gene position changes. In a chromosome, the bearer of hereditary characters, the genes are arranged in a definite order. Under artificial laboratory treatment with high temperatures or X-rays, or under still unknown natural conditions, the genes may change their position in the chromosome. Sometimes a whole block of genes may be reversed. Two chromosomes may exchange genes. The genes themselves appear to be unchanged, yet the "mutations" or changes in bodily characters which result are governed by the places where the chromosomes were broken or reattached. The activity of a gene may well depend on its interaction with its neighbors, and thus its method of action can be affected by position changes. It becomes weak and unstable, or has a different effect upon the body characteristics involved. Although the existence of position effects is well established, their nature and causes are much less clear, and it is with these fundamental problems that Dr. Stern is concerned.

The Rockefeller Foundation has supported Dr. Stern's work for a number of years, and in 1944 appropriated \$6,600 for a five-year period ending June 30, 1949.

#### COLUMBIA UNIVERSITY

#### GENETICS

The young organism increases in bulk by the incorporation of material from its environment, but this increase continues only until a specific adult size is reached. Growth is accompanied by progressive changes

in external and internal structure which result in the complex body of the adult. These developmental processes are under genetic control, but how this control is exercised is one of the most difficult problems, and also one of the most fundamental ones, which confront scientists today.

Different approaches to this problem are being used by members of the staff of the Department of Zoology at Columbia University. Dr. L. G. Barth and Dr. J. A. Moore are studying the metabolic differences which accompany genetical differences in rate of development between species of frogs and their hybrids, some of which show specific arrests of development. Dr. F. J. Ryan and Dr. Robert Ballentine are working on similar metabolic differences between strains and mutant races of microorganisms, particularly gas gangrene bacilli and *Neurospora*, with special attention to the effects of genes on single metabolic or growth factors, such as specific amino acids or vitamins.

Dr. A. W. Pollister, cooperating with Dr. A. E. Mirsky of the Rockefeller Institute, has opened the way for a direct chemical attack on the nature of the hereditary material itself. In a study of the cytological constitution of the chromosomes, the isolation of the nucleoprotein chromosin has been accomplished. The new methods make possible the study of the protein changes occurring in cell division, which may underlie and determine the function of genes and chromosomes in development.

Dr. T. Dobzhansky, using "artificial universes," tests his theories concerning environmental factors which govern changes in the hereditary constitutions of whole colonies of flies. The importance of Dr. M. M. Rhoades' work on the cytogenetics of maize has been

recognized by the University, which recently set up a biological field station near Irvington-on-Hudson for expansion of this work. Dr. Franz Schrader is utilizing aberrant cases of chromosome behavior, most of them in tropical insects, to illuminate the normal process of chromosome division.

Dr. L. C. Dunn and Dr. S. Schoenheimer have devised a method for removing mouse embryos in their earliest stages, when about the size of a pinhead, transplanting these into a developing hen's egg. Normal development of the embryo continues up to certain stages, when it dies; but prior to death the greatest changes in the development of the embryo have taken place. By the use of mutant races of mice with marked physical characteristics, it is possible to discover when the genes begin to act in the development of various organs and structures. A number of different genes in the mouse are known to be lethal in effect during embryonic growth. This method discovers the predetermined point in embryonic life when the lethal gene kills.

The Rockefeller Foundation in 1944 appropriated \$75,000 for the three-and-one-half-year period beginning January 1, 1945, for these researches in genetic constitution which are under the general directorship of Professor Dunn.

#### WASHINGTON UNIVERSITY

#### BIOCHEMISTRY

The chemical reactions which take place in the cells of living beings are very poorly understood, especially with regard to certain agents called enzymes, which control but do not enter into the chemical reactions. In the intact cell there are taking place so many simul-

taneous reactions that it is impossible to trace the individual steps, but by isolating separate systems the scientist can gain an insight into the primary reactions involved. It is then possible to combine several of these systems after their isolation and to study their activity as a group.

The isolation of the enzyme systems concerned with the synthesis and breakdown of glycogen and the elucidation of these reactions, by Dr. Carl F. Cori and his associates in the Department of Pharmacology of Washington University, St. Louis, rank as fundamental discoveries. The problem is primarily to isolate the separate enzymes from tissues and to study the reactions which are catalyzed by these highly specific agents. Dr. Cori has studied particularly the enzyme systems concerned with the use of carbohydrates, which are stored in the body tissues in the form of glycogen. Through the agency of enzymes, glycogen is broken down into simpler substances and then built up into other carbohydrates, such as glucose, necessary to body function. Dr. Cori has discovered and isolated the enzyme phosphorylase, which brings about both the formation and breakdown of glycogen, an achievement which has eluded the efforts of many workers during the century since Claude Bernard discovered glycogen. Studies on enzymes extracted from brain tissues showed that glucose takes up phosphates and is broken down to lactic acid by the same intermediary reactions which have been shown to take place in muscle. A new enzyme, myokinase, an acid-stable protein important in transference of phosphate groups, was isolated from muscle tissue.

The Rockefeller Foundation has supported the work of Dr. Cori and his associates since 1938. A further

grant of \$5,000 has been made for the year ending June 30, 1945.

UNIVERSITY OF ROCHESTER  
BIOPHYSICS

Since 1938 The Rockefeller Foundation has been supporting cooperative research by eight departments of the University of Rochester with radioactive and heavy isotopes as tagged atoms for the solution of biological and medical problems. In 1944, \$16,000 was appropriated for this work, which is under the direction of Dr. George H. Whipple, dean of the School of Medicine and Dentistry.

Numerous long-standing questions regarding iron metabolism have been answered by studies at Rochester. Radioactive iron can be traced through the blood plasma, liver, bone marrow, and red cells; and the role of the liver in the building of red cells may eventually be clarified by this means. The process of calcium and phosphorus distribution is under study.

Much of the research at Rochester using heavy isotopes is concerned with the role of plasma proteins as intermediates in the building of other tissue proteins. Heavy nitrogen in lysine, one of the amino acids, does not exchange with nitrogen in other amino acids, thus providing an accurate tool for experiments concerning the role of various organs in the utilization of ingested amino acids for protein synthesis and the interchange between plasma protein and other body proteins.

UNIVERSITY OF LEEDS  
BIOPHYSICS

X-ray spectral analysis has been used with remarkable success by physicists in studies of the structure of crys-

tals, that is, substances composed of atoms or molecules arranged in regular patterns. This technique of the physicist has been employed by Dr. W. T. Astbury, director of the Textile Laboratory of the University of Leeds, who has used it to picture the type and arrangement of the molecules in a wide variety of substances, such as hair, horn, muscle, chromosomes, blood, polysaccharides, and penicillin. Through these studies Dr. Astbury has extended the knowledge of proteins, essential constituents of all living cells, which cannot be overlooked in any attempt to understand cell growth, reproduction, and function in the body. Not only has he, in his own research, opened up new channels of approach to protein problems, but he is also actively cooperating with others who approach protein research both theoretically and experimentally and who are interested in the practical role of the proteins in health and disease.

Support has been given by The Rockefeller Foundation to Dr. Astbury since 1934. This year \$9,315 was appropriated for salaries of assistants and for the purchase of equipment and supplies.

#### UNIVERSITY OF ILLINOIS NUTRITION

The Rockefeller Foundation appropriated \$10,000 for one year ending August 31, 1945, for researches on the biochemistry of the amino acids under the direction of Professor W. C. Rose of the Department of Chemistry of the University of Illinois.

Amino acids are nitrogen-bearing compounds which unite to form the large chemical structures known as proteins. The effect of digestion is to break up the gigantic protein molecule into its constituent amino acids, which are then used to build body proteins, such

as insulin, hemoglobin, fibrinogen, and albumin. When the body does not get the essential amino acids in the requisite amounts, it wrecks some of its living tissues to obtain the indispensable raw materials for cellular repair, maintenance, and growth. There are twenty-two known amino acids, and the work of Dr. Rose has been to determine just which of these are essential for growth and well-being. Some years ago Dr. Rose discovered threonine, the twenty-second amino acid, the absence of which in the diet of rats leads to immediate losses in weight, ending in death.

Whereas most of Dr. Rose's previous work has been done with experimental animals, he is now determining which amino acids are required by human beings. Healthy young men were placed upon diets containing the ten amino acids previously found to be necessary for animals. The other components of the food were starch, sugar, butter fat, inorganic salts, and vitamins. A few days after starting on this diet, the men came into nitrogen equilibrium, proving that all essential amino acids were present. Then single amino acids were omitted from the food, and the effects upon nitrogen balance were noted. The exclusion of each of eight of these acids induced a pronounced negative nitrogen balance. After the experimental period, the missing amino acid was returned to the diet and nitrogen equilibrium was promptly re-established. It was found that one acid, histidine, is either not necessary for the maintenance of nitrogen balance in man, or is required in minute amounts.

Professor Rose and his associates are now engaged in determining the minimum amount of each essential amino acid required for the maintenance of nitrogen balance. Such tests have already been completed on

some amino acids, and similar values are being established for the remaining members of the essential group.

#### NEW YORK UNIVERSITY

#### NUTRITION

Experiments on human requirements of amino acids are also the concern of Dr. L. Emmett Holt, Jr., who recently left the Johns Hopkins University to take the posts of professor of pediatrics in New York University and director of the Pediatric Service of Bellevue Hospital. His studies thus far have tested the importance in human nutrition of six amino acids, five of which appear to be indispensable for human well-being. Tendencies indicated in human subjects have been followed up and extended in prolonged experiments with rats. Clinical symptoms of deficiency sometimes occur. For example, in rats lack of the amino acid tryptophane caused cataracts, excessive growth of blood capillaries in the cornea of the eye, atrophy of sex glands, deformation of tooth enamel, and baldness. All human subjects living on a lysine-deficient diet experienced headaches, nausea, and dizziness as an almost chronic condition; with the restoration of lysine these symptoms disappeared.

Considerable progress has been made in the systematic analysis of urine for specific amino acids. Dr. Anthony A. Albanese, who works with Dr. Holt, has now perfected a procedure for the quantitative analysis of ten amino acids. The limits of excretion of these substances by normal individuals and their excretion in a variety of pathological conditions are being studied. Although it has been shown that tryptophane excretion, as might be expected, falls off sharply in the tryptophane-deficient state, methionine deficiency is not accompanied by diminished excretion of methionine. However, in this state there is a loss of tolerance to methionine given by

mouth, causing excessive spilling of this amino acid into the urine.

The Rockefeller Foundation appropriated \$22,500 for three years starting July 1, 1944, for Dr. Holt's researches on the amino acids at the Johns Hopkins University, and the remainder of this grant, \$18,750, has been transferred to New York University.

#### UNIVERSITY OF TORONTO

#### NUTRITION

Since July 1940 The Rockefeller Foundation has been supporting research on vitamins by Dr. E. W. McHenry of the School of Hygiene of the University of Toronto. In 1944, \$10,000 was appropriated for the continuation of this research during the two-year period beginning July 1, 1945.

The basic problem in vitamin research at present is to obtain further knowledge of the biochemical and physiological functions of the vitamins, knowledge which will explain the appearance of deficiency lesions and provide a sound basis for therapeutic measures. The success of attempts to isolate and synthesize various vitamins has opened new pathways and provided more exact methods for the study of metabolism.

In recent years experimental work has shown that several of the B vitamins are necessary in the intermediary metabolism of carbohydrates, proteins, and fats. This has long remained obscure. It has been known for some time that rats can synthesize fats from protein, but Dr. McHenry finds that fat synthesis from protein can occur only when B<sub>6</sub> is supplied, and it seems likely that this vitamin is necessary for normal metabolism of protein. Similarly, the synthesis of fat from carbohydrates is dependent upon Vitamin B<sub>1</sub>, and other members of the B complex, if present, will augment the

amount of synthesis. On the other hand, biotin, while causing fatty livers, actually does not increase the percentage of body fat as compared with the amount of body fat produced by all of the isolated B vitamins except biotin. Research on the nature of the fat in these fatty livers provided the first evidence that biotin has an effect upon metabolism.

CALIFORNIA INSTITUTE OF TECHNOLOGY  
IMMUNOLOGY

Since 1941 the Foundation has supported research in immunology under the direction of Professor Linus Pauling of the Gates and Crellin Laboratories in the Chemistry Department at the California Institute of Technology. This year \$19,000 was appropriated for the work of Professor Pauling, and Professor A. H. Sturtevant of the William G. Kerckhoff Laboratories of the Biological Sciences, for the period ending June 30, 1945.

The groups headed by these two men are working cooperatively on different aspects of immunology. Each is attacking the subject on a broad and somewhat standard front of research, from which important results are practically sure to come. But Professors Pauling and Sturtevant and their associates have also special interest in making new and somewhat venturesome approaches to these problems of disease resistance.

Certain substances, proteins or proteinlike, called antigens, when injected into the body cause the formation in the blood of a chemical compound or antibody, which will react specifically with the injected substance. Professor Pauling's new approach indicates that it may be possible, in the laboratory, to convert a normal protein solution into a solution with the properties of an animal antibody to a specific antigen.

For example, extensive series of experiments on the

protection of mice against anti-Type I pneumonia by use of artificial antibodies have been carried out during the past year. In general it has not yet been found possible to confer complete protection by the use of artificial antibodies, but the results show definitely that the artificial antibody has the power of influencing the course of the disease. This influence consists usually in increasing the mean survival time of mice used to test the antibody from about thirty hours to sixty hours or more. Similarly, preliminary experiments on the artificial antibody against diphtheria toxin have been carried out and are being continued during the coming year.

Professor Sturtevant's venture into immunology relates to genetics in a new field of serological genetics. Serology in the past has been largely limited to studies on the reactions of higher vertebrates and to the control of infectious disease in man. It has seemed to Professor Sturtevant and his colleagues that a broad survey of other groups of organisms, such as lobsters and sea urchins, might throw light on the value of immunological reactions and on the part they play in functions other than resistance to disease. Results of work at other research centers seem to confirm Professor Sturtevant's view that the processes of fertilization and of infection may be intimately related.

#### STATED EUROPEAN PROJECTS CONTINUATION

Continuing its program of year-to-year support of projects which were part of the European program before the war, The Rockefeller Foundation in 1944 appropriated \$99,445 for seven projects in Sweden, seven in England, and two in Switzerland, whose value has

not been adversely affected by the war. Institutions aided, the amounts given, and the purposes of the grants are listed below:

- Research Institute for Physics, Academy of Sciences, Stockholm, Sweden — researches with artificially produced radioactive substances — \$11,000
- University of Upsala, Sweden — biochemistry of fatty acids, lipoids, and proteins — \$3,375
- Eidgenössische Technische Hochschule, Zurich, Switzerland — Institute of Plant Physiology — physiological researches on the optical properties of fibers and of cell walls — \$1,625
- University College, London, England — Department of Biometry — genetics — \$6,685
- Karolinska Institut, Stockholm, Sweden — biophysics — protein metabolism — \$8,625
- University of Oxford, England — X-ray analysis of biologically important large molecules — \$2,835
- University of Sheffield, England — biochemistry — \$1,620
- University of Oxford, England — researches in the Dyson Perrins Laboratory of Organic Chemistry — \$3,240
- University of Cambridge, England — X-ray analysis of biologically important molecules — \$4,455
- University of Upsala, Sweden — physical-chemical properties of proteins — \$11,250
- University of Stockholm, Sweden — chemical physiology and embryology — \$6,300
- Karolinska Institut, Stockholm, Sweden — general biochemistry — \$8,500
- University of Upsala, Sweden — Surface chemistry of the red blood cell and mechanism of gastric acid formation — \$4,000
- Eidgenössische Technische Hochschule, Zurich, Switzerland — constitution and syntheses of physiologically active natural substances — \$15,000
- University of Cambridge, England — Institute of Biology and Parasitology — cellular physiology — \$6,075
- University of Oxford, England — Sir William Dunn School of Pathology — biochemical investigations of penicillin — \$4,860

## OTHER GRANTS

## MEXICAN AGRICULTURAL PROGRAM

In 1942, following a report made by a commission of experts from the United States, an appropriation was made at the request of the Mexican Government to initiate an agricultural program in Mexico. In 1944, \$147,800 was appropriated for general expenses in 1944 and 1945, and \$45,000 for the construction and equipment of an experimental laboratory.

In addition to Dr. J. George Harrar, director of the program, in charge of plant pathology, and Dr. E. J. Wellhausen, geneticist, two additional agricultural scientists have been added to the staff: Dr. W. E. Colwell, previously soils scientist at the North Carolina Agricultural College and Experimental Station, and Dr. Norman E. Borlaug, assistant plant pathologist, recently at the du Pont Agricultural Laboratory.

The Mexican Government has adopted the program proposed by the survey commission as an integral part of its agricultural organization, and Dr. Harrar holds the position of chief of special studies of the Mexican Department of Agriculture.

Native Mexican and American strains of corn and beans have been studied by Dr. Wellhausen with a view to the production of improved hybrids. One phase of Dr. Harrar's work is the study of wheat rust. Work on soil management is now under way, and a further project will be the improvement of domestic animals.

An important part of the program is the training of exceptional young Mexicans for posts of leadership and responsibility in that country. After being assigned as aides to staff members, those who show marked promise

will have an opportunity to be appointed Foundation fellows for advanced study in the United States and other countries. Thus a succession of well-trained Mexican scientists is being developed to man the Mexican centers of agricultural science.

NATIONAL RESEARCH COUNCIL  
EMERGENCY FELLOWSHIP PROGRAM

The Rockefeller Foundation in 1944 appropriated \$335,000 to the National Research Council for the establishment of a temporary nation-wide system of pre-doctoral fellowships in the natural sciences, the purpose being to attempt to repair, on a highly selective and qualitative basis, some of the damage caused by the war to the training of advanced scientific personnel.

The great majority of young men at all stages of scientific training have been drawn away from their studies to participate in the war program. In considerable numbers they have gone into the armed services, but in the physical sciences, and to a lesser extent in the biological sciences, the urgent necessity of devising new weapons has required the employment of large numbers in civilian organizations such as the Office of Scientific Research and Development.

It may be some time before young men can again elect science majors in colleges and universities, and not until six or seven years after that will the best of such men attain the level of competence which corresponds to the doctorate. Therefore educational institutions and research laboratories cannot expect before 1950 at the earliest to have the first of the new crop of men trained after the war. This lag occurred after World War I; it promises to be of disastrous proportions after this war.

Whereas a large number of the young scientists of the country who are in the armed services will, upon discharge, come under the educational provisions of the G. I. Bill of Rights, there is a large group which has been deferred from induction for essential war work. It is this latter group which The Rockefeller Foundation is attempting to aid by the establishment of fellowships so that they may go back to their universities and complete their training.

#### BROWN UNIVERSITY

#### APPLIED MATHEMATICS FELLOWSHIPS

While the development of pure mathematics in America since 1900 has become a matter of national strength and national pride, there has not been a comparable advance in applied mathematics. This situation is serious in view of the demands on applied mathematics by national defense. The lack of mathematical experts and the weakness of training facilities in applied mathematics have been revealed and emphasized by the war. Such talent, furthermore, is sure to be critically needed during the reconstruction period; the fundamental need is not for intensive short-term training but rather for a basic change of emphasis from pure to applied mathematics.

Of the more than 250 persons who have enrolled at Brown University for courses in applied mathematics since 1941, at least sixty-six are engaged in research on problems of war in government agencies and twenty-five in research in industries connected with the war. Almost without exception the remainder are instructors or students in colleges and universities, with more than seventy-five per cent teaching Army and Navy units. Among the instructors now in other colleges, a dozen

or more are continuing active research which was begun at Brown University on problems in applied mathematics. The demand for persons trained in the Brown University courses greatly exceeds the supply. Recently a request was received from just one government agency for several hundred persons trained in the work.

The program at Brown is under the general guidance of an outside advisory committee which consists of Thornton C. Fry, head of the Division of Mathematics of the Bell Telephone Laboratories, M. H. Stone, chairman of the Department of Mathematics at Harvard University, and Theodore Theodorsen, chief of the Physical Research Division, National Advisory Committee on Aeronautics.

Twenty thousand dollars was appropriated by The Rockefeller Foundation to Brown University for fellowships in applied mathematics for the academic year 1944-45.

NATIONAL RESEARCH COUNCIL  
AMERICAN GEOPHYSICAL UNION

The American Geophysical Union is concerned with those theoretical and applied sciences which relate to the earth, its configuration, its structure, and the natural forces in operation upon or within it. Since its inception in 1919, the Union has gradually developed so that now, with 1,900 members, it is undoubtedly the principal organization in the United States acting as a clearing house for new thoughts and ideas relating to geophysics. Communications are received not only from this country but also from Canada, Mexico, and parts of South America.

In addition, the American Geophysical Union functions as the national committee for the International

Union of Geodesy and Geophysics and as the Committee on Geophysics of the National Research Council. Its defined duties are to promote the study of problems concerned with the figure and physics of the earth, to initiate and coordinate researches which depend upon international and national cooperation, and to provide for their scientific discussion and publication. These duties are organized under the following sections: Geodesy, Seismology, Meteorology; Terrestrial Magnetism and Electricity; Oceanography, Volcanology, Hydrology, and Tectonophysics.

In 1944 The Rockefeller Foundation appropriated \$20,000 for the expenses of the American Geophysical Union during the three-year period beginning July 1, 1944.

#### ROYAL SOCIETY, LONDON SCIENTIFIC JOURNALS

Since 1941 The Rockefeller Foundation has made yearly appropriations to the Royal Society for emergency aid to English scientific publications which are threatened by the loss of subscriptions. The Council of the Royal Society has made allotments in amounts varying from less than fifty pounds to several hundred pounds. There is evidence that the Foundation's grants for scientific publications have been of appreciable help to British science. In 1944, \$15,050 was appropriated for allocation to British journals in need of assistance because of the war.

#### FELLOWSHIPS

During 1944 The Rockefeller Foundation provided fellowships for eighteen fellows in the Natural Sciences. Their studies were in the following fields: cytogenetics,

plant physiology, potato genetics and pathology, veterinary pharmacology, genetics, plant pathology, rice breeding, animal husbandry, applied mathematics, physical chemistry, entomology, and organic chemistry. There were 6 fellows from Colombia, 3 from Mexico, 3 from Brazil, 2 from Argentina, and 1 each from Chile, Peru, Uruguay, and Venezuela. Seven of the fellows were receiving Foundation aid for the first time this year, 8 fellowships were carried over from 1943, and 3 from 1942. Sixteen fellows studied in the United States, and 2 in Brazil.

Ten fellowships, in addition to those mentioned above, were administered by the National Research Council, with funds provided by The Rockefeller Foundation. Four of these fellowships were new in 1944, 5 were carried over from 1943, and 1 from 1942. Subjects studied were chemistry, geology, zoology, mathematics, botany, astronomy, physics, and psychology. Nine of the fellows studied at institutions in the United States and 1 in Toronto, Canada.

#### GRANTS IN AID

In 1944 the Natural Sciences Division made thirty-two grants in aid, of which twenty-three were for research in the following fields: general biochemistry, 5; genetics, 5; mathematics, 3; isotopes and biology, 2; chemistry, nutrition, ecology, plant pathology, general physiology, physical chemistry, cosmic ray research, and electron diffraction research, 1 each. Other grants in aid were given to the National Institute of Sciences of India in Calcutta, for the support of scientific journals in India; the American Institute of Physics, to support the War Policy Committee and the Office of Scientific Personnel; the American Mathematical So-

ciety, for its War Policy Committee; Massachusetts Institute of Technology, for emergency expenses in connection with the war effort which cannot be paid through normal government channels; the Ministry of Agriculture of Venezuela, to pay the expenses of visits of a staff member in Mexico and Central America; New York University, for the preparation and publication of material on applied mathematics; Smith College, for a conference on plant embryo culture; and the National University of Mexico, for the purchase and shipment of library materials for the Institute of Mathematics and the Institute of Chemistry. The researches of nine refugees here and in Sweden were supported by grants in aid this year.

Grants in aid in 1944 were distributed among the following countries: United States, 19; Sweden, 4; Venezuela, 2; Colombia, 2; 1 each in England, India, Brazil, Mexico, and Scotland. They varied in amount from \$600 to \$7,500, with an average of \$3,450. The total sum expended on grants in aid was \$111,415.16. For this purpose in 1945, \$125,000 was appropriated for the Natural Sciences Division in 1944.

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# THE SOCIAL SCIENCES

THE SOCIAL SCIENCES STAFF

During 1944

*Director*

JOSEPH H. WILLITS

*Assistant Director*

ROGER F. EVANS

*Consultant*

ANNE BEZANSON

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## THE SOCIAL SCIENCES

**I**N THE social sciences, grants totaling \$2,193,160 were made in 1944. These grants were directed to the study of a wide range of human relationships — international and domestic. They were made with the world at war and with the conviction that studies of strategic issues by competent scholars are vital bases for social policy, particularly when war has torn the fabric of social adjustments. Because man has to rebuild, on the wreckage of war, a new and better set of human relations, he needs the illumination which disinterested knowledge can provide. Because war tends to substitute force for reason, and propaganda for truth, there is need to support the agencies and the spirit which make for nonpartisan understanding. Because of its belief in the importance today of impartial studies, the Foundation made grants of longer term than has been customary of late years so that the recipient agencies might plan ahead toward the problems of the postwar world. As a result total grants in the social sciences for 1944 amount to more than twice those of 1943.

Economic research has claimed the largest portion of Foundation funds allocated to the social sciences. Sums amounting to \$855,280 were appropriated in 1944 for research in various aspects of the economic field. Under these grants fundamental research at the National Bureau of Economic Research, the National Institute of Economic and Social Research of Great Britain, and the University of Oxford, was continued. Special studies of agricultural policy, the Alberta Social Credit Experiment, and the western range cattle industry were under-

taken. Two grants in the population field, made to the Office of Population Research at Princeton and the Scripps Foundation at Miami University, and totaling \$217,380, are evidence of a new interest in the social science program. Organizations in the field of international relations continue to receive substantial aid: a total of \$245,000 was appropriated to the Canadian Institute of International Affairs, the Geneva Graduate Institute of International Studies, the League of Nations Economic, Financial, and Transit Department, and the Yale Institute of International Studies.

More than three hundred thousand dollars was voted for studies in group organization and behavior. At the Johns Hopkins University a study of the constitutional government of American trade unions, by Dr. William Leiserson, is receiving support. Research in industry and industrial relations at the University of Pennsylvania and Princeton University is being aided as well as studies of civil liberties at Cornell University.

The coordinating organizations — the Social Science Research Councils of Canada and the United States — continue to receive support of their programs. A grant of \$100,000 was made to the American Social Science Research Council for the demobilization of social science personnel by means of fellowship grants. The annual grant-in-aid and fellowship funds for allocation by officers of the Foundation were also continued.

Details of the grants which were approved in 1944 will be found in the following pages.

### INTERNATIONAL STUDIES

#### CANADIAN INSTITUTE OF INTERNATIONAL AFFAIRS

The Canadian Institute of International Affairs is the only organization of its kind in Canada and so is

addressed there to the functions covered here by several international organizations. Its general purposes are to maintain in Canada an intelligent interest in international affairs, to advance knowledge of international affairs by facilitating and encouraging objective study, to disseminate basic factual information on international affairs, to provide in its branches a confidential forum for the free expression of differing ideas about Canadian external relations, and to further international intellectual cooperation. It endeavors to carry out these objectives through its nineteen branches, the work of which is coordinated and pointed up by the central secretariat and its operating committees. The diversity of vocations represented in the membership assures the Institute of a wide range of opinion in every branch.

Since the beginning of the war, instead of curtailing its activities, the Institute has considerably expanded its program. Despite the large number of resignations by members engaged in many forms of national service, membership has increased from 1,190 in 1939 to more than 1,500 in 1944. Study conferences are attracting record attendance, and many excellent speakers have been routed to the branches. The increased interest in the work of the Institute is also reflected in the substantial increase in voluntary contributions for its program.

The research activities, for which the major portion of the Foundation's grant is used, are under the direction of Professor Alexander Brady of the University of Toronto. During the period of the previous Foundation grant, eight studies were published, including such titles as: *Canada at the Paris Peace Conference*; *Canadian External Relations: An Historical Study of 1914*; *Canada's Role in Geopolitics*; *The New Western Front*; *Canada in World Affairs*; and, *Canada After the War*.

The Foundation has contributed toward the support of the Canadian Institute of International Affairs since 1936. Its appropriation in 1944 is in the amount of \$20,000, for use during a period of two years.

GENEVA GRADUATE INSTITUTE OF  
INTERNATIONAL STUDIES

The Geneva Graduate Institute of International Studies was set up in 1927, with Foundation aid, as an autonomous graduate school connected with the University of Geneva, with a staff composed of eminent scholars in history, government, economics, and law, drawn from Austria, Belgium, France, Germany, Italy, Switzerland, and the United States. The proximity of the League of Nations Library and the headquarters of other international organizations in Geneva provided excellent research facilities, and the Institute became a recognized center for the study of contemporary international questions. During the war, in spite of the comparative isolation of Switzerland, the Institute has been able to continue the nucleus of a research program. The majority of the permanent staff have remained, and the student body has increased in numbers from 78 in 1938-39 to 110 in 1943-44. Twenty-two nationalities were represented among the students, many of whom were refugees from Hungary, France, and Italy.

In 1944 the Foundation appropriated \$40,000 to the Geneva Graduate Institute of International Studies to be available as needed during a two-year period.

LEAGUE OF NATIONS: ECONOMIC, FINANCIAL  
AND TRANSIT DEPARTMENT

The Foundation has aided the economic research group of the League of Nations since 1933. In 1940 the

group was moved from Geneva, Switzerland, to Princeton, New Jersey, and has continued as the Economic, Financial, and Transit Department of the League of Nations, with an annual subvention from the League budget.

In recent years the Department has concentrated its efforts on research on postwar problems. Some of the publications recently issued are: *Trade Relations Between Free Market and Controlled Economies*, by Jacob Viner, which deals with what may prove to be one of the major problems of commercial policy after the war; *Quantitative Trade Controls: Their Causes and Nature*, by G. Haberler and Martin Hill; *Relief Deliveries and Relief Loans, 1919-1923*, a survey of government and private relief activities after the last war which, although historical in form, is designed to provide background for similar activities after this war; *Europe's Overseas Needs 1919-1920 and How They Were Met*, concerning reconstruction rather than relief and showing the disastrous effects of the lack of any concerted international reconstruction policy; *Agricultural Production in Continental Europe During the 1914-1918 War and the Reconstruction Period*, concerned with reconstruction and the causes of the slow recovery of European agriculture; and *The Transition from War to Peace Economy*, constituting the first part of the Report of the Delegation on Economic Depressions and suggesting the measures, both domestic and international, by which as smooth a transition as possible from war to peace economy may be accomplished.

In addition to publishing these major works, the Department gets out a *Statistical Year-Book*, a *Catalogue of Selected Publications on Economic and Financial Subjects*, and a *Monthly Bulletin of Statistics*. The present

program of this organization includes research on monetary experience, control of inflation, rationing and agriculture, raw materials, the future population of Europe and the Soviet Union, and the economic problems of agrarian regions of rapid population growth. In support of these research programs The Rockefeller Foundation has contributed \$60,000 for use during the year 1945.

YALE UNIVERSITY: INSTITUTE OF  
INTERNATIONAL STUDIES

The Yale University Institute of International Studies was established in 1935 for the purpose of research and training in the international field directed principally to the clarification of American foreign policy and the development of policies that will lead to the avoidance of war. A strong research center has now been built up with a faculty of creative leaders and a promising student body. The publications of the Institute thus far have been acclaimed by both experts and the public at large. The titles include: *The Far Eastern Policy of the United States*, by A. Whitney Griswold; *A Navy Second to None*, by George T. Davis, a history of the development of modern American naval policy; *Britain and France between Two Wars*, by Arnold Wolfers, a study of the respective peace strategies of the two countries; *America's Strategy in World Politics*, by Nicholas John Spykman, an analysis of the position of the United States in relation to the balance of power in Europe and Asia; *The Latin American Policy of the United States*, by Samuel Flagg Bemis; *The Geography of the Peace*, by Nicholas John Spykman, a geopolitical study of world politics during the war and in the peace to come; *The Super-Powers: The United States, Britain, and the Soviet Union — Their Responsibility for Peace*,

by William T. R. Fox; and *China Among the Powers*, by David N. Rowe. In addition numerous articles have appeared as memoranda and published pamphlets.

The Foundation has made available to Yale University the sum of \$125,000 to be expended over a five-year period for the research program in international relations. The projected program includes studies of Anglo-American problems, Soviet-American relations, the treatment of ex-enemy powers, the relations of smaller states to the great powers, the Far Eastern conflict area. Other projects will deal with the vital problem of international organization after the war, the relations between the industrial nations and the so-called dependent areas, and the general question of the bearing of foreign policy upon the promotion of individual welfare.

### POPULATION STUDIES

MIAMI UNIVERSITY: SCRIPPS FOUNDATION

FOR RESEARCH IN POPULATION PROBLEMS

Population changes are certain to have a direct and vital influence on labor market problems. Analyzing the prospective shifts in the country's population structure from the point of view of labor supply should make it possible to give more effective consideration to a wide range of problems extending from operating programs of individual industrial firms to general social policies. The Foundation has appropriated \$17,380 to Miami University, Ohio, for expenses of a study, by the Scripps Foundation for Research in Population Problems, of the influence of population factors upon labor market problems. The study aims at the fundamental analyses and regroupings of existing data, which will provide labor economists and industrialists with an interpreta-

tion of a substantial body of material affecting their work in a variety of directions.

The first stage is to compile data on such subjects as the size of population by color, sex, and age, the size of the labor force, major trends ascertainable from these data, rates of labor force participation, indices for the productive groups of the population, and internal migration and seasonal swings as factors in the size and composition of the labor force. These data will be analyzed in order to ascertain the effects on the labor force of such factors as war casualties and other wartime population changes, and to check the soundness of current thinking about such problems. Other factors to be appraised are marital status and fertility factors in relation to the prospective number of women in the labor force, implications of the effect of general education and training plans on the age of entrance into the labor force, the effect of the rising age of the labor force on the need for adult education and training programs, the possible bearing on trade union policies of changes in composition and size of labor force, implications for particular industries and occupations of expected changes in the size and composition of the labor force, and crucial regional problems.

The Committee on Labor Market Research of the Social Science Research Council urged the Scripps Foundation to undertake this study, which is regarded as fundamental to the effective development of the area of research with which the Committee is concerned.

PRINCETON UNIVERSITY

OFFICE OF POPULATION RESEARCH

The Office of Population Research at Princeton University was established on the initiation of the Milbank

Fund in 1936 and has acted since that time as a clearing house for research workers on population problems. One of its principal functions has been the issuance of the *Population Index*, the major part of which consists of an annotated bibliography of demographic materials.

Since the outbreak of the war and the acceptance of Government contracts, the program of the Office has substantially expanded until it has now become an organization of outstanding importance dealing with research on international demographic problems. In order to maintain this momentum and to provide a training ground for students of population problems the Foundation has approved a grant of \$200,000, to be available over a ten-year period for research and training under Professor Frank W. Notestein at Princeton.

The postwar program of the Office provides for a continuation and intensification of both research and instruction. On the research side, as its major task, it proposes to round out and complete an analytical world demography, tracing population change and the components of change together with something of their social, economic, and political correlates. Special projects are contemplated which will presumably be directed to the demographic problems of backward areas and of areas of incipient population decline. The publication of *Population Index* will be continued. Comparative trends in fertility, mortality, and migration will be studied as well as the significance of population change.

### ECONOMIC RESEARCH

ASSOCIATION OF LAND-GRANT COLLEGES  
AND UNIVERSITIES

In the belief that the land-grant colleges and universities of the country contain a body of technical, eco-

nomic, and regional knowledge of the agriculture of the several states, which, if assembled and synthesized from a national point of view, might contribute substantially to the development of a sound agricultural policy for the nation during and after the postwar period, the Association of Land-Grant Colleges and Universities appointed, in December 1943, a Committee on Postwar Agricultural Policy Planning. The members of the Committee were selected for their competence in the broader fields of agricultural science, including economics, and for their first-hand knowledge of the more important agricultural industries of the several regions of the nation. The University of Wisconsin provided the services of Mr. Noble Clark, associate director of its Agricultural Experiment Station, as chairman.

The Committee organized its approach to the broad field of agricultural policy around seven main phases of the subject: agriculture and the national economy, production adjustments, price policy, land tenure, conservation of resources, farm living and social facilities, and policy and program-making relationships. A subcommittee was appointed for each of these seven topics, with three or four of the eighteen Committee members serving on each subcommittee. Meetings were held throughout 1944, regional conferences were organized in various parts of the country providing an opportunity for the states to present the issues which they consider important to national policy, and specialists in particular fields were consulted. Free and open discussion is the main objective as far as organization of these meetings is concerned.

Assisted by a two-year grant of \$17,500 from the Foundation, the Committee will continue to study the basic questions of national agricultural policy and to

help bring together the thinking and efforts of the colleges, the United States Department of Agriculture, and the farmer organizations on these issues.

CANADIAN SOCIAL SCIENCE RESEARCH COUNCIL  
STUDY OF ALBERTA SOCIAL CREDIT EXPERIMENT

The Rockefeller Foundation has been providing general support to the Canadian Social Science Research Council since 1941. Additionally, it has now appropriated \$25,000 for the expenses of a study of the Alberta Social Credit Experiment, to be available over a two-year period.

The Social Credit Movement is presented as a Canadian development of genuine significance. The break with tradition which brought a protest party to the head of the Alberta Provincial Government was preceded by a long period of experiment and disaffection in the provinces of Manitoba, Saskatchewan, and Alberta. All these provinces, and especially the wheat areas, had suffered seven years of depression associated with low prices for farm products and low yields. By 1935 Alberta, though less distressed than Saskatchewan, had seen the net value of its annual agricultural production drop to little more than a third of the peak value attained in 1928. These factors explain the unrest of large parts of the population, the existence of heavy private debts, and the loss of owners' equities in many farms. They do not explain the convergence of political, social, and religious sentiment strong enough to create a political party which has not since been absorbed by either of the dominant political parties of the Dominion; nor do they explain the appearance of the movement in Alberta instead of in one of the provinces even more severely affected.

Because of the influence of the Movement, the Canadian Social Science Research Council is sponsoring a thorough study of its origin, spread, and significance by persons familiar with the problems of the western provinces of Canada. Attention will be given to the series of events which preceded the swing to the Social Credit Party in the Alberta elections of 1935. The geographical, political, and economic factors will be studied, since the combination of drought and debt was important in focusing attention upon problems peculiar to the region. Also important will be the studies of population and of religion, for the appeal of the Movement rested not only upon its political and economic program, but also upon its deeply religious, moral view. The constitutional problems raised by the Alberta experiment, which will be considered in this project, are still rife subjects of discussion in Canada.

The services of Professor S. D. Clark, a sociologist and economist born in Alberta and graduated from the University of Saskatchewan, will be available to the Council in developing the project. He will work under a committee of the Council made up of the members in western Canada.

#### NATIONAL BUREAU OF ECONOMIC RESEARCH

The National Bureau of Economic Research is devoted to the advance of basic knowledge in the social sciences, and for twenty-four years has been engaged in the study of economic processes and their interrelations. In 1944 the Foundation continued the support which it has given to the Bureau over a long period with an appropriation of \$550,000 to be available for five years for the general program of the Bureau and for its specific research in finance and fiscal policy. The



Photograph Excised Here

Calgary, Canada, center of the Alberta Social Credit Movement.

*Economic Journal of London* recently said of this American group:

We in England owe much to the National Bureau of Economic Research for its achievements in the field of realistic economics. Our debt is twofold: for we have profited not only by the excellence of its enquiries but also by the stimulus its work has given to empirical studies in this country. In the field of national income in particular, it has always been a pioneer in organized research, and at this time, when national income problems are widely discussed on both sides of the Atlantic, it is a pleasure to welcome two notable contributions from the National Bureau.

The two contributions referred to are the culminating volume of the study *National Income and Its Composition, 1919-1938*, and the first volume of a new study, *Outlay and Income in the United States, 1921-1938*. The National Bureau has published and distributed eighty-three titles, in addition to approximately 200,000 copies of the eighty issues of its *Bulletin*. Its investigations are cumulative in effect, based on the belief that the needs of the times for economic research can best be met by systematic and persistent study of fundamental processes.

The program of the National Bureau of Economic Research continues to be focused on studies of national income, capital formation, business cycles, prices, production and productivity, wages, trade unionism finance and credit, and fiscal policy. Aside from specific research contributions the Bureau takes a part in the training of scholars for research and teaching, in the development and organization of statistical records covering long periods and, more recently, in collaboration with war agencies and departments of government. Its findings are accepted as impartial by men of many shades of opinion, among them scholars, business and



Photograph Excised Here

Western range cattle near Estes Park, subject of the industry study of the State Historical Society  
of Colorado.

labor leaders, and those responsible for the formulation of Government policy. The distinctive contribution of the Bureau is that it has broadened the base of factual information on which sound policy-making can be built.

NATIONAL INSTITUTE OF ECONOMIC AND SOCIAL  
RESEARCH, GREAT-BRITAIN

The National Institute of Economic and Social Research of Great Britain was established in 1937 to undertake research into economic and social problems of contemporary importance, and to provide assistance to approved research conducted by universities and other institutions and persons in consultation with the Institute.

During the war the Institute has developed programs along two main lines: inquiries of urgent current importance, and long-term quantitative investigations into the workings of national economy. The results of this wartime research policy are shown in the initiation and support of the measurement of the burden of British taxation; the series of sample inquiries by field survey into the spending and saving of certain social groups; the measurement of the effect of the war on earnings; and an inquiry into the method of measuring the national income of colonial communities. The two major long-term investigations under way are "National Expenditure, Output, and Income," and "Distribution of the Product of Industry." These contributions to the basis of empirical knowledge upon which economic policy should be built will be supplemented by factual studies of the experience of British industries.

The Institute looks forward to an expanded program at the close of the war. The coordination which it can

promote among academic agencies is largely to be achieved through its own development as a strong central institution. It has already begun to be a training ground for promising graduates and a center where established research workers can pursue their studies. Throughout its research programs it has sought and will seek to preserve flexibility and to harmonize its undertakings with the changing work and needs of the universities, the government, and industry.

The Foundation has contributed to the support of the program of this Institute since it was founded and is now continuing its support with a five-year grant of \$121,500.

#### UNIVERSITY OF OXFORD

#### SOCIAL STUDIES RESEARCH COMMITTEE

Since 1934 the Foundation has had an interest in the University of Oxford as a center for the development of research in the social sciences in Great Britain. A grant of \$22,690 was made in 1944 to the University for the use of its Social Studies Research Committee during the academic year 1944-45. The program of social studies at the University continues to be focused on wartime economic problems. The Institute of Statistics receives the larger portion of the Foundation's grant and has, for the past two years, been concerned with two major research programs. The first of these is an attempt to portray the actual operation of the British economic machinery and to set forth various trends in the economic field. War finance is the center around which this research problem revolves. It includes inquiry into such important items as budgets of working men, minimum diet costs, general trend of commodities' consumption, effect of subsidies and rationing on the

cost-of-living index, coal production and distribution, and the shipping and housing shortage. The second program of concentrated research has to do with international reconstruction and is conducted in part in collaboration with the Royal Institute of International Affairs and with Nuffield College. A historical survey of the industrialization of backward areas has been undertaken which is to serve as a background for discussion of the problem of planned and unplanned industrialization after the war.

Many of these studies are published in the *Bulletin* of the Institute; some have appeared in other scientific journals or in book form.

UNIVERSITY OF PENNSYLVANIA  
RESEARCH IN DISTRIBUTION

Distribution costs in the United States run far into the billions of dollars each year. Some studies have indicated that these costs fully equal, and probably exceed, the costs incurred in extracting and processing the goods distributed. The number of people employed in distributive occupations runs well into the millions. The number of business and other organizations operating in the field exceeds 1,500,000. What makes consumers willing and able to pay for this expensive addition to the costs of goods; what determines how much they can afford to pay, how good a value they receive, etc.? Despite its importance, distribution has been long neglected as a field of formal study.

The Foundation has appropriated the sum of \$45,000, over a three-year period, to the University of Pennsylvania for an exploratory program of research in distribution under the direction of Professor Reavis Cox of the Wharton School of Finance and Commerce.

The subject which Professor Cox plans to explore is the efficiency of the distributive system as measured by the service it renders to the American consumer. His experience with the Office of Civilian Supply and, since then, in laying out a research program for the Retail Credit Institute of America, suggested an approach to the problem through a study of the effects of installment credit available to consumers for the purchase of durable goods. This study of installment credit will supplement that by the National Bureau of Economic Research. The Bureau has studied exhaustively the rise of new forms and machinery of financing the consumer, featuring the new institutions and processes of finance and credit, and their economic effects. Professor Cox is studying the effect of this service, credit, and the charges therefor upon the consumer. This approach is important to general knowledge in the field, but the problem of consumer credit is merely the initial avenue through which Professor Cox will approach the efficiency of the distributive system from the point of view of its service to the consumer.

The basic purpose of the project is to explore the field of distribution for fundamental research, rather than to answer specific questions about a particular industry chosen for its own sake. The end product is to be a clearer understanding of the nature of the economic problems raised by distribution and the devising of tools for use in analyzing them.

UNIVERSITY OF PENNSYLVANIA

STUDY OF COMPARATIVE ECONOMIC DEVELOPMENT

During the past decade Professor Simon Kuznets, of the National Bureau of Economic Research and the University of Pennsylvania, has contributed funda-

mentally to studies which make more precise the knowledge of economic processes. His studies of national income and capital formation are standard works that broke new ground. For some years Professor Kuznets has planned to reduce his emphasis on precise statistical-economic studies and undertake a study of wider implications. This study will be a comprehensive analysis of the longer-term economic trends now revolutionizing society in the industrial countries of the world. The Foundation has given its support to the work during a three-year period with a grant of \$9,000.

The scope and character of the study are still fluid. The first year will be devoted to a more precise definition of the series of problems involved. The general intention is, as far as materials will permit, to make comparative studies of countries long highly industrialized, like those of Western Europe and North America, countries which have recently undergone surprisingly rapid secular changes, like the Union of Soviet Socialist Republics and Japan, and countries with a period of industrialization still to come, like China. Interrelationship among the various secular tendencies rather than their qualitative behavior will be stressed, since in comparative studies among various countries the emphasis will be upon the order in which one factor or another leads in economic development.

Such a program will require quantitative studies. It is expected that many of these will be done through the National Bureau of Economic Research, with which Professor Kuznets will continue to be associated.

STATE HISTORICAL SOCIETY OF COLORADO  
STUDY OF WESTERN RANGE CATTLE INDUSTRY

As an economic and social factor the "range cattle industry" has played an important part in the develop-

ment of the Rocky Mountain region. It enjoyed its greatest development following the Civil War and the extension of the Pacific railroads. Dr. Herbert Brayer, archivist of the Colorado State Historical Society, has undertaken to make a thorough-going collection of existent documentary materials relating to the founding and development of the range cattle industry in the states of New Mexico, Colorado, Wyoming, and Montana; to correlate such materials and make them available to historians, economists, and other investigators; and to prepare a history of the industry with emphasis on its economic and social aspects and its effect upon the settlement of the intermountain area from 1865 to 1895. For this purpose the Foundation appropriated \$64,600 to be available over a five-year period.

The State Historical Society of Colorado is sponsoring the project; and banks, commission and brokerage firms, and various stockyard corporations will make their records available for the study. In order to provide an economic interpretation of the findings a group of economic historians will serve as advisers.

#### STUDIES OF GROUP ORGANIZATION AND BEHAVIOR

CORNELL UNIVERSITY

STUDY OF CIVIL LIBERTIES

The war and the events which preceded it have brought out the need for illuminating research into the subject of civil liberties. Not only does the obliteration of civil liberty in the rest of the world accentuate its importance in the democracies, but in addition, civil liberties in the democracies may be affected by the new problems and situations created by the war. Dozens of agencies, inside the government and out, are

engaged in activities impinging on civil liberties and tending either to restrict or to protect them.

Because of the importance of this subject a special committee on civil liberties was appointed in 1942 by the Committee on Government of the Social Science Research Council, with Professor Robert E. Cushman of Cornell University as chairman. The task of the committee is to encourage and aid competent scholars to record and analyze the management of civil liberties during the war and immediate postwar period. Professor Cushman's Committee acts as a clearing house through which knowledge of what is going on or being planned by scholars in the field is made generally available and duplication of effort is avoided. Scholars are encouraged to regard their studies not as wholly isolated efforts but as parts of a broadly conceived program covering the more important phases of the field.

Professor Cushman proposes to use his contacts and acquaintanceship with scholars interested in the subject of civil liberties to stimulate further studies so that a foundation may be developed for a history of civil liberties in World War II. Some of the specific subjects for exploration include: the management of wartime restrictions on freedom of speech and the press; postal censorship; political and military censorship; freedom of opinion inside government and the denaturalization of naturalized citizens. For this program in the study of civil liberties the Foundation has granted \$18,000 for a three-year period to Cornell University.

#### THE JOHNS HOPKINS UNIVERSITY

#### STUDY OF GOVERNMENT OF AMERICAN TRADE UNIONS

The size to which labor unions have grown in recent years has created problems of union government similar

to those brought on by the growth of large city populations. The changes in size, structure, government, power, and influence of labor unions have also brought changes in policy which are reflected in the aims and philosophy of unionism. A study of the basic problems in union government and their implication for the future was recommended by an ad hoc group assembled by the Social Science Research Council. Dr. William Leiserson, who will supervise the study, combines competence with long and intimate experience with both unions and management, as an impartial chairman and government official. The Johns Hopkins University Department of Political Economy has for many years stressed studies and publications in the field of labor economics and possesses an outstanding collection of trade union publications. The Foundation has made available \$90,000 for a three-year period to the Johns Hopkins University to permit Dr. Leiserson to undertake the proposed study.

#### PRINCETON UNIVERSITY

#### INDUSTRIAL RELATIONS SECTION

The Industrial Relations Section at Princeton University was established in 1922 for the purpose of enhancing and extending knowledge of industrial relations in the broadest sense of the term. Over two decades, the Section has grown up with the field of industrial relations in this country. It has both aided and observed the development of rational policies on the part of employers, trade unions, and government in solving problems affecting the human resources of the country. The Section's staff of seven is competent in areas including personnel administration, labor relations, trade union organization and policies, labor and

social security legislation, and other aspects of industrial relations. The unit is favored by its location, near the governmental activities of Washington, close to the New York headquarters of many large national concerns, and in the midst of the concentrated industrial activity of the Middle Atlantic States.

Since 1931 the Section has held annual conferences which have become an established institution for the clearance of ideas among industrial relations executives throughout the country. It maintains a large working library of both standard and current materials, including much unpublished material from cooperating companies, trade unions, and government bureaus, and it aids in the University's instructional program by bridging the gap between University courses and actual practice. In addition it provides consulting service to both public agencies and private companies, and carries on research which has yielded a currently active list of sixty publications, mainly in such fields as employee stock ownership, labor banks, sick benefits, employee credit unions, dismissal compensation, savings plans, seniority, optimum hours, employment of women, part-time employment, and labor utilization. Over 100,000 copies of these publications have been distributed since 1939. The Section has developed new methods for obtaining the information used in its reports. Great care is taken in the preparation of questionnaires to stimulate thinking and judgment as well as to obtain facts. Field interviews are used extensively for obtaining information on the many intangible factors which affect industrial relations experience rather than statistical material alone.

The pioneering nature of the Section's research work, its staff facilities, and its resources of current material

have encouraged a steadily increasing demand by governmental agencies for advice and research data. Since the establishment of this Section at Princeton similar departments have been organized at other universities in different parts of the country, each with a distinct personality related to its own region. The Foundation has made a three-year grant of \$22,500 to Princeton University toward the support of research carried out by its Industrial Relations Section.

UNIVERSITY OF PENNSYLVANIA  
INDUSTRIAL RESEARCH DEPARTMENT

An appropriation in the amount of \$175,000 has been made to the University of Pennsylvania toward the support of its Industrial Research Department during a five-year period. The Department was established at the close of the last war in response to evident need, intensified during the war itself, for inquiry into problems of industrial relations. It has since broadened its activities to include studies of wages, commodity prices, many phases of the functioning of the Philadelphia labor market, and intensive studies in selected industries. In the past few years the Department has contributed to the war effort by releasing staff for full- or part-time employment and by directing research to studies of use to community and federal agencies. During this period such studies as *Wool and the War*, *Man Power Outlook in Philadelphia in 1943*, *The Philadelphia Labor Market in 1944*, and *War Labor Supply Problems in Philadelphia and Environs* have been published.

The past work of the Department has given its members experience in the study of industrial problems at three different levels. Research has been done at the national level, at which industries compete for capital,

market, and managerial talent. Labor market studies have been made at the community level, at which industries compete for labor supply, and workers for employment. Enterprise studies represent the level at which factors of production are combined to turn out goods and services. Investigations at these three levels will be continued and integrated, and the operation and interrelationship of industrial processes will receive further attention. The present program concerns not only the organization and operation of an industrial system, but its ability to progress technically and to provide employment and a measure of economic security for its participants.

### COORDINATING SOCIAL SCIENCE INSTITUTIONS

#### SOCIAL SCIENCE RESEARCH COUNCIL CONFERENCES AND PLANNING

The primary function of the Social Science Research Council is the stimulation and planning of research. This is accomplished to some extent through grants in aid and fellowships, but the most active medium is the conference activity carried on by committees meeting under the Council's auspices throughout the year. Highly qualified personnel assemble for over-all survey of the social field, for more detailed examination of special fields, and for intensive planning of research on selected areas and problems.

Within the social disciplines, uniting knowledge and its application to social ends, there is possible and desirable a specialization of attention and effort. Thus the Social Science Research Council has made its primary concern the development of scientific knowledge of society. Advance of knowledge is brought about in great

part by advances in scientific methods and ways of working. Experimental projects are the most significant part of the work. Research is here designed not to illuminate any problem of present public importance, nor to add to existing knowledge of society more knowledge of the same quality; but is designed to attain to knowledge at new levels of objectivity and conclusiveness.

The Council is much concerned also with practical social problems of our time and place, with aid where possible to public and government, but it is confident that progress in the development of a more rigorous science of society will prove of inestimably greater service to mankind. In research the Council stands for coordination without regimentation. The conference and planning of the Council are exerting an influence on the development of the social sciences in the direction of objectivity, validity, and usefulness.

The Foundation is continuing its support of the conferences and planning activities of the Social Science Research Council in 1944 with a grant of \$250,000 to be used during a period of five years.

#### SOCIAL SCIENCE RESEARCH COUNCIL

#### DEMOBILIZATION OF SOCIAL SCIENCE PERSONNEL

The Social Science Research Council, which has for many years been the recipient of aid from The Rockefeller Foundation both for general and for specific programs, has received \$100,000 for the administration and carrying out of its program of demobilization and retraining of social science personnel. The war has brought about a tremendous migration of social scientists into government service — civilian and military. To aid in the effective utilization of this personnel in the war effort, the Foundation in the past granted funds to the

Social Science Research Council for the establishment of a Washington office during the war. The work carried on in this office has, as a by-product, given the Council intimate knowledge of varied social science personnel, their training and experience, their capacities and contributions, and their hopes and ambitions. The problem has been to bring about effective integration of this personnel for purposes of war.

As peace approaches, the reverse problem, that of effective resifting and reconversion of talent, becomes critical. How can the deteriorating effects of war experience be minimized? How can the return to scholarly work of those who are able be stimulated? How can institutions with posts to fill in education and research obtain the right men? These and other similar problems are the proper concern of the Social Science Research Council. A program under the direction of Dr. Donald Young, who was in charge of the Washington office, is designed to encourage the return of outstanding talent to scholarly work and to remotivate men whose research habits and interests have been interrupted. In a way a problem of this sort pursues much the same objective and ends as a fellowship program. The work comes within the broader rubric of dealing as effectively as possible with the deterioration or wastage of talent which accompanies war. It is hoped that the program will influence the quality of teaching and work in the social sciences in the next few decades.

#### CANADIAN SOCIAL SCIENCE RESEARCH COUNCIL

Prior to the creation of the Canadian Social Science Research Council in 1940, there was no general coordination of Canada's numerous research activities in this field and no attempt to appraise them from a Canadian

point of view and in relation to Canadian problems as a whole. The work already accomplished has firmly established the Council as a force in Canadian scholarship. Patterned after the Social Science Research Council in the United States, it has a membership of four Canadian learned societies in the social science field. Four standing committees were set up, dealing with current research in social science, grants in aid, publication, and postgraduate training. The first undertaking of the Council was a survey of work already in progress, particularly of meritorious work that was in suspension or meeting difficulties in reaching the publication stage.

In the past two years the Council has concentrated the use of its funds on aid to publication and aid to research. Among the former, such studies as *Government Aid to Agriculture*, *Agriculture in Ontario*, and *Colonial Theories* have been published. Research aid has been given for studies of maritime sociology, maritime industry, Church and Confederation, and the Canadian family.

The Council has two large projects in the preliminary stages: first, a comprehensive Canadian atlas, the need for which has long been felt by Canadian scholars and on which the necessary exploratory work is nearing completion; secondly, a survey of research facilities in Canada, including libraries and the possibilities of their organization and extension to parts of the country in which such materials are now extremely limited. A special committee has the latter project in hand and is in hopes of joining forces with a similar committee to be appointed by the recently organized Research Council in the Humanities for Canada.

The Foundation has already contributed to the Council toward its general support and for special studies of

Arctic Canada and of the Alberta Social Credit Movement. In 1944 it appropriated \$20,000 for the continuation of general support during a two-year period.

### FELLOWSHIPS AND GRANTS IN AID

#### FELLOWSHIPS

In 1944 the Foundation appropriated \$50,000 for fellowships in the social sciences in 1945. One new appointment was made from funds allocated the previous year and one renewal of a previous fellowship for a short period.

The conduct of the war has not permitted the resumption of the Foundation-administered fellowship program, since these fellowships are intended principally for foreign students who plan to return to their own countries. The single new appointment was an exception to program and was awarded to Dr. Carlos Sigfrido Mazza of the University of the Republic of Uruguay for statistical studies in this country. The Social Sciences Division has not extended its program to South America to any degree, but Dr. Mazza's ability and the need for increased statistical knowledge among South Americans prompted the officers to approve this exceptional grant.

In the fellowship program administered by the Social Science Research Council for American students seventeen grants were active during 1944. The awards were made from funds granted to the Council in 1942. Seven of the recipients were postdoctoral research training fellows and ten were predoctoral field fellows. All but one of the fellowships were new awards.

#### GRANTS IN AID

A fund of \$125,000 was provided for the purpose of grants in aid in the social sciences during 1944. A sim-

ilar fund was voted in 1944 for such grants in 1945.

During 1944 a total of \$90,095 was allocated from this fund for twenty-two grants in aid. These ranged in amount from \$1,000 to \$7,500 and averaged approximately \$4,100.

Under this program aid was given for a study, at the California Institute of Technology, of the physically handicapped in industry, for African studies at the University of Pennsylvania, for a study of prices by the Cowles Commission for Research in Economics at the University of Chicago, and for a study of law enforcement in Philadelphia in relation to Negroes, to be undertaken at the Bureau of Municipal Research.

A special grant-in-aid fund of \$25,000 for the purpose of sending two persons to China for a report on the social sciences there was not used because of the difficulty in obtaining travel accommodations.



# THE HUMANITIES

THE HUMANITIES STAFF

During 1944

*Director*

DAVID H. STEVENS

*Associate Director*

JOHN MARSHALL

*Assistant Director*

WILLIAM BERRIEN <sup>1</sup>

<sup>1</sup> Resignation effective September 30, 1944.

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## THE HUMANITIES

**W**ITH minor change of emphasis, the program in the humanities during 1944 followed the pattern of recent years. Grants for projects in foreign languages and cultures reflected the present academic concern with pressing and immediate needs in teaching and research. Other grants for the study and reorganization of specific disciplines, notably history and philosophy, involved groups of scholars in both Americas in a very wholesome and appropriate self-examination. The results of these studies will aid returning scholars in the reorganization of humanistic work. A balance must be found between the traditional areas of humanistic concern and those emerging from the new cultural contacts with South America and Eastern Asia which have resulted from the war.

Studies in American culture were strengthened by grants to several universities and research libraries in the United States. Improved coordination in Far Eastern studies is expected to result from grants to four institutions on the Pacific coast. The role of drama, film, and radio both in general interpretation and in specific exposition received a minor share of Foundation assistance.

Perhaps the most effective aid to the rehabilitation of intellectual interests here and abroad during the year was given to the American Library Association and to organized centers of library work in China, Mexico, and a few South American countries. In this as in other phases of the program, interest has been in guidance and

advice rather than in the great task of re-establishing primary libraries in devastated areas. The Foundation has also made a grant for the distribution of reference books to countries in need.

The Foundation's appropriations in 1944 for work in humanities totaled \$1,547,670.

### STUDIES IN LANGUAGE AND FOREIGN CULTURES

#### UNIVERSITY OF CHICAGO

#### MODERN LANGUAGE TEACHING

Since 1929 The Rockefeller Foundation has had continuous interest in the way modern languages are taught for general purposes of communication. The earliest activity of this kind to be aided was the teaching of English in the Far East. In 1933 similar work was begun in this country on methods of teaching Chinese, Japanese, and Russian. Both types of support have continued without interruption, and both have increased in amount and significance since the beginning of the war.

Early in 1944 a grant of \$10,000 was made to the University of Chicago to enable Professor Ralph W. Tyler to train field workers and to examine methods of language work at thirty-seven significant centers. Some of these centers have operated plans for intensive or experimental language instruction for fifteen years or more. Others have had experimental routines set up under operation of the Army or Navy involving full time of the student for a period of three to fifteen months. The varieties of method described by Professor Tyler's research workers have been assessed in preparation for an objective analysis of methods and results at several of these centers. Toward the end of the year a second appropriation, in the amount of \$90,000, was

made to the University for a full examination during the next three years of the most promising of these methods.

CONNECTICUT COLLEGE

DEPARTMENT OF GERMAN

An experimental program of the German Department at Connecticut College is devised to overcome the discrepancy between the student's intellectual maturity in college and his immaturity in the applied use of a foreign language. By appealing to the intellectual interests of the students, the Department gives a stronger motivation to the student's desire to learn the language. The program is directed toward reduction of routine drill and grammatical study. One course for general orientation is in English; in all the others control of the language for daily use is increased by requiring discussions of current ideas and contemporary literary and historical problems. With the exception of a course in beginning German, all the courses in the department are organized around a central theme, "The Cultural Background of Contemporary Germany." Literary and historical material of the usual kind are subordinated, autobiographical material is used extensively, and other departments are brought into cooperation for work on many phases of life in Germany since 1919.

In 1944 the Foundation appropriated \$5,000 toward the support of this program over the period ending December 31, 1946.

HARVARD UNIVERSITY SCHOOL OF EDUCATION

TEACHING OF ENGLISH AS A SECOND LANGUAGE

Since 1939 the Foundation has supported work started by Dr. I. A. Richards in the School of Education at Harvard University to train students for the teaching

of English as a second language for foreigners and at the beginning level for certain classes of American citizens. Dr. Richards was released in 1944 from the responsibility for this work which he had carried during the past five years and is now professor in the field of literary criticism at Harvard College and Radcliffe College. He will enlist the interest of college students in the teaching of English, and indirectly will strengthen the teacher training program in the School of Education. That program is now under the direction of Miss Christine M. Gibson, who was Dr. Richard's assistant for five years. A Foundation grant of \$20,000 in 1944 will enable the School to develop, during a five-year period, a small staff for continued work on methods of teaching English.

The special quality of teaching materials prepared under the direction of Dr. Richards is in the method of progression from simple to complex forms of English sentences. The ordering of word use and of grammatical example is such that the student enters upon his use of English in a logical, progressive routine.

#### LIBRARY OF CONGRESS

#### SLAVIC MATERIALS

A grant of \$47,800 to the Library of Congress, in 1944, for cataloguing and organizing Slavic materials in the Library followed an appropriation of \$12,000 made in 1943 for a national survey of holdings of Slavic materials in the principal depositories of this country. The Slavic collection of the Library of Congress began through purchase in 1907 of the Yudin Collection, which was made by a Siberian merchant with such discrimination and inclusiveness as to give the Library a thoroughly representative body of material on Russian thought up to the year 1907. Later purchases have

strengthened the original collection, particularly in philosophy and religion, history, fine arts, social and political science, and bibliography.

Demands on the Library for war purposes have led to increased buying of materials on geography, agriculture, and technology. In 1942, 2,000 contemporary titles were added. Law and maps are two classifications substantially increased during 1942-43. During these years the Librarian completed arrangements with the Moscow Central Library of Foreign Literature for exchange of recent publications, and standing orders have been placed for all periodicals appearing in Soviet Russia.

These steps toward organized buying and distribution will bring American scholars and scientists closer to a knowledge of Slavic countries through materials in printed form. They are basic to all general understanding of the cultural and scientific significance of the Soviet Union.

UNIVERSITY OF COLORADO  
FAR EASTERN STUDIES

In 1936 the Foundation made a three-year grant of \$10,000 for the development of Far Eastern studies in the University of Colorado, and in 1944 it appropriated \$20,000 more for the same purpose. The new funds are to be used over a period of five years for the purchase of library materials and for the expenses of lectures, temporary staff appointments, and conferences.

In recent years, under the direction of Professor Earl Swisher and others, there has been a steady growth of Far Eastern studies at the University. In many respects this growth has been changed by war conditions. A committee in charge of plans for future development of Far Eastern studies has made the summer session a spe-

cial point for contact with teachers in schools and colleges, in order that an understanding of Eastern Asia may soon be more general throughout the Rocky Mountain region. Absence of staff and emergency demands due to the war have modified programs of study during the academic year.

#### FAR EASTERN AND SLAVIC STUDIES AT WEST COAST INSTITUTIONS

Foundation support to work on Far Eastern subjects at four West Coast institutions, Washington, California, and Stanford universities, and Pomona College, began in 1936. In humanities this support has been in the form of aid to library development and for staff appointments. In most instances grants have followed the appointment of former Foundation fellows to the faculties.

The new demands on these four institutions by reason of the war have created a need for closer cooperation between them in the development of Far Eastern studies. The demand for men trained to meet the needs of education and research or to prepare for future requirements of business and government now exceeds the supply. Future relations of the United States with China, Russia, Japan, India, and the South Pacific area call for plans for training and for research on a national scale.

The United States, although late in recognizing necessities that for some time governed university work on these areas in France, Germany, Great Britain, and Italy, is now beginning to deal seriously with the problem. Cooperation among institutions on a voluntary basis is the first step toward work of high quality in many subject materials and for many purposes in future



Photograph Excised Here

The Humanities in print.

international relations. The four institutions named hold key positions in Far Eastern studies on the West Coast. During 1944 officers of the Foundation held discussions with faculty and administrative representatives that defined the common interests and specific strengths of the members of this group for future work in studies of Eastern Asia.

Grants of \$75,000 each were made by the Foundation to Stanford University, the University of California, and the University of Washington, and one of \$35,000 to Pomona College for use during a seven-year period from January 1, 1945, in enlarging both their basic work and their special interests in Far Eastern fields. At the University of Washington, for example, there are large undergraduate enrollments in courses on the general history of culture and in the languages of the Far East. At the University of California the work extends over more languages and dialects than at any other institution in the group, and there are particular facilities for advanced study. Stanford University has developed a varied and strong program of area studies, while Pomona College offers the best examples of basic courses for undergraduates. One use of the funds will be to give opportunity to members of the faculties in humanities and social sciences to travel and study in the countries which are their special fields of interest. Visiting professors may also be secured, and there will be cooperative book buying to enlarge library resources for this work.

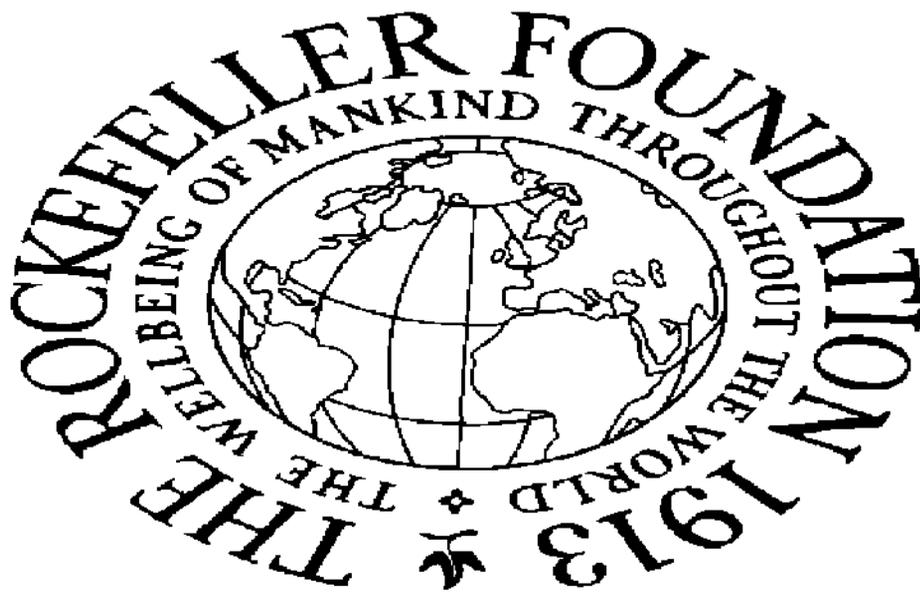
AMERICAN COUNCIL OF LEARNED SOCIETIES  
LATIN AMERICAN STUDIES

The American Council of Learned Societies was given the sum of \$20,000 in 1944 for support over a two-year



Photograph Excised Here

Intensive language study with specially prepared records and texts.



Photograph Excised Here

Books selected and purchased by the American Library Association  
for libraries in war areas.

period of activities of the Joint Committee on Latin American Studies and of the *Handbook of Latin American Studies*. Preparation of the Handbook has been aided since 1938; and two previous grants have been made for the Committee on Latin American Studies, which represents three national councils: the National Research Council, the American Council of Learned Societies, and the Social Science Research Council.

The preparation of the *Handbook of Latin American Studies*, of which the eighth volume is shortly to appear, is the one continuing project of the Joint Committee. Apart from that project, its principal activity is planning and development. Emphasis at present is on encouragement of Latin American studies in the disciplines of the social sciences and the arts. The Committee will continue to serve in an advisory capacity to the three councils, the Government, and other agencies.

The *Handbook of Latin American Studies*, which has been published annually since 1936, gives immediate access to scholarly work relating to Latin America produced in all the countries of the world. Subjects covered by the Handbook include anthropology, art, economics, education, folklore, geography, government, history, international relations, language, literature, and law.

#### AMERICAN COUNCIL OF LEARNED SOCIETIES

##### CHINESE HISTORY

A grant of \$6,000, in 1944, to the American Council of Learned Societies for studies in Chinese history by Dr. Hu Shih, former Chinese Ambassador to the United States, was the second contribution made to the Council by the Foundation for this purpose. With the first grant, provided in 1943, Dr. Hu began revision and continuation of his *History of Chinese Thought*, originally

published in 1919, on which he had spent considerable time until the beginning of his diplomatic service.

In the course of his review of sources, Dr. Hu has produced a number of monographs and articles on problems of historical criticism involved in materials of the medieval period (200 B.C.—300 A.D.) covered by Book I of the History: He has also written short papers on such subjects as the development of the civil service system under the Han Empire and of the secret political police system in the third century A.D. In addition Dr. Hu has acted as consultant to the Council in the matter of cultural and intellectual relations between scholars and scientists of China and those of the United States.

### AMERICAN STUDIES

#### PRINCETON UNIVERSITY

#### AMERICAN CIVILIZATION

In January 1942 Princeton University established a program of study in American civilization, under the supervision of a committee of six members of its faculty representing the departments of Art and Archaeology, Economics, English, History, Philosophy, and Politics. In spite of wartime difficulties the program has been carried on as planned, with students graduating each year. Work has now reached the stage at which it is necessary to take stock of progress thus far, as a basis for future planning.

A Foundation grant of \$12,000 was given in 1944 to free all or part of the time of three members of the faculty committee for further work in the development of the program during the academic year of 1944-45. Part of the time will be devoted to general planning and discussion, particularly with representatives of other

departments in the University. The balance will be used in special studies aimed at producing materials clearly needed by the program in the future.

On the basis of its experience the committee believes that the study of American civilization will inevitably prove a major integrating factor in the field of liberal education, particularly as a bridge between the social sciences and the humanities. It proposes to investigate new ways of stimulating public understanding of the American heritage and has already made a start in this direction by establishing a forum for British military personnel and a new series of publications relating to America.

#### UNIVERSITY OF VIRGINIA

#### BIOGRAPHY OF THOMAS JEFFERSON

The Foundation made a grant of \$21,000 in 1944, payable over three years, for a comprehensive biography of Thomas Jefferson to be written at the University of Virginia, the institution so fully identified with Jefferson tradition and scholarship. The work is being undertaken by Mr. Dumas Malone, a historian who has given many years to the study of the period of which Jefferson's life was a part.

There is no adequate biography of Jefferson, yet no one else, except possibly Franklin, made such notable contributions to American life in so many important fields of activity and thought: government, law, religion, education, agriculture, architecture, science, philosophy. No synthesis has been made of the numerous works on separate periods and activities of Jefferson's long career, and there are many gaps in the record of his life as a whole. There is, for example, no real study of his work as a lawyer, of his career as governor of Virginia, or of his

scientific activities. His unpublished account books contain details of personal life which have remained unknown, and his vast correspondence is still to be explored. It is estimated that more than 70 per cent, or 13,000, of his own letters, and 90 per cent, or some 20,000, of the letters written to him, have not been published.

UNIVERSITY OF TORONTO

BIOGRAPHY OF SIR JOHN A. MACDONALD

An appropriation of \$6,500 was made to the University of Toronto in 1944 for a work on Sir John A. Macdonald, the first prime minister of the Dominion of Canada and a leading figure in the developments that led up to the Confederation. He headed the Canadian government through two administrations, from 1867 to 1874 and from 1879 until his death in 1891. His personal history as a figure of central importance largely parallels the history of Canada for those years; yet there is no adequate interpretation of his life.

The Foundation's grant will enable Dr. D. G. Creighton, associate professor of history, to write a definitive study of Macdonald. The plan is indicative of a trend on the part of Canadian historians who, like him, see the need of wider understanding of Canada's national history as a basis for future policy and development.

WESTERN RESERVE UNIVERSITY

STUDIES IN AMERICAN CULTURE

A Rockefeller Foundation grant in aid enabled James H. Hanford, professor of English in the Graduate School of Western Reserve University, to make a preliminary study during 1943 of American culture in the Midwest. The result of this work, carried out with the

assistance of W. E. Lawrence, sociologist and cultural anthropologist, was a two-year grant of \$20,000 in 1944 to the University for research by these two scholars into the contemporary life and cultural institutions of northern Ohio, particularly in such cities as Cleveland, Akron, and Youngstown. The region of northern Ohio under investigation, the historic Western Reserve of Connecticut, with its roots in the eastern sources of American tradition but with that tradition substantially modified by later admixture of peoples and cultures, offers an unusual opportunity for this type of inquiry. The project is a step in the direction of interpreting the new forces at work in the industrial Middle West.

#### NEWBERRY LIBRARY

#### STUDIES IN MIDWESTERN CULTURE

An appropriation of \$25,000 was given in 1944 to the Newberry Library in Chicago for a different type of regional study. The fund will be used for grants during a three-year period to a limited number of individuals especially well qualified to write on various phases of midwestern culture.

The Library administration has in mind the preparation of books which, falling within the general classification of the humanities, explain, describe, or interpret those aspects of the Midwest's culture which are both its peculiarity and its strength. The intention is to make grants only to writers whose plans and abilities give promise of works of distinction which will be widely read. Fellowships have already been awarded for manuscripts on these topics: the life of William Allen White, Chicago in the 1930's, the life of Edward Zane Carroll Judson, Midwest architecture before 1850, the Old Northwest, Negro life in Chicago.

The Newberry Library is a free reference library established in 1887 under a bequest from W. L. Newberry, pioneer merchant of Chicago. It contains over four hundred thousand books, pamphlets, and manuscripts in the humanities and social sciences. Special emphasis has been placed on materials on English and American history, literature, and music.

UNIVERSITY OF OKLAHOMA  
SOUTHWEST HISTORY

An important center of study and publication of materials on the life and cultural history of the southwestern states is the University of Oklahoma. Its University Press specializes in publications on this region, and many of the University staff in American literature and history who are natives of the Southwest have done notable work with Indian and pioneer materials.

The Foundation gave \$25,000 in 1944 to the University of Oklahoma to enable it to release several staff members during the next three years for the completion of manuscripts already under way. The grant will also help bring to completion manuscripts by others than members of the University staff for publication through the University Press.

Primarily the grant is directed toward the needs of four members of the staff. Professor Walter S. Campbell, whose work for twenty years has been with history and legend of Oklahoma, is preparing a critical study of the advancement of literature in the Southwest. Related to Professor Campbell's field of interest are studies of Professor A. O. Weese in the biological history of Oklahoma, based on published and manuscript records of early explorations. These records cross many of the lines of interest of Professor E. E. Dale, who has spent

twenty-five years in investigating and teaching the history of the Indian tribes of the State and who is writing a contemporary history in which he will show the significance of Indian traits in the cultural and intellectual life of the Southwest today. The fourth writer in the group, Professor Kenneth C. Kaufman, has outlined a research into sources of information on the life of William Clark of the Lewis and Clark Expedition.

#### DUKE UNIVERSITY

##### FOLKLORE COLLECTION

During the quarter century ending in 1942 Professor Frank C. Brown of Duke University made an extensive collection of folk materials within the State of North Carolina. At his death the collection was assigned to Professor Newman I. White, and a plan has now been made for its publication through the Duke University Press. The proposed edition is intended as a descriptive analysis of method in work with folk material. It will include work maps, illustrations, and an extended essay on the geographical, racial, and historical aspects of the background. Professor White will serve as general editor of the publication with Professors Belden of Missouri and Herzog of Columbia as his associates. These two assistant editors are to prepare two volumes, which will contain the texts of songs and ballads and the musical scores. The third and fourth volumes are to be made up of contributions by a number of specialists. The Foundation is supporting the work with a grant of \$7,800, given in 1944, for use over a five-year period.

#### MICHIGAN STATE COLLEGE

##### STUDIES IN AMERICAN AND CANADIAN CULTURE

An appropriation of \$16,000 in 1944 to Michigan State College for use over a three-year period will enable

Professors A. J. M. Smith, Russel B. Nye, and Elwood P. Lawrence to carry out studies in American and Canadian culture.

Mr. Smith is undertaking a general interpretation of Canadian prose in the form of a critical and historical anthology giving special prominence to memoirs, letters, travel, and historical and political writing. Mr. Nye's subject is the development of the American tradition of civil liberties during the period of abolitionist activity (1830-60), under such topics as freedom of speech, assembly, the press, and use of the mails; women's rights; democratic privilege; and equality of suffrage. His study centers in the work of Theodore Weld in shaping American ideals of civil liberties and in determining the attitude of the West toward the abolition and secession movements. Mr. Lawrence is completing a study of the immigrant in American fiction from 1890 to 1920.

#### UNIVERSITY OF MONTANA

##### REGIONAL STUDIES

The University of Montana is undertaking a study to determine the contribution which can be made by the humanities to a program of higher education designed to improve the quality of living in the State of Montana. The State system of higher education is so administered as to make possible a well-integrated program of activities. All six of the institutions of higher education in the State report to the Legislature and the State Board of Education through the Chancellor of the University.

Topics to be covered in the investigation are: evolution of Indian civilization; origins and changes of population; folklore and tradition; literature and present life; the development of educational and other institutions which have given stability to Montana life — the

family, the church, lodges, clubs; physical environment; mediums of public information; and finally, artists and art of the State.

The project, supported by the Foundation with a grant of \$25,500, given in 1944 and available over a three-year period, will offer American higher education an example of a state educational program based upon careful study of the peculiar geographic, social, and political conditions of that state. It is a step toward reorientation of the humanities, adjusting them to people rather than to academic patterns.

#### UNIVERSITY OF ALBERTA

##### LOCAL FOLKLORE AND HISTORICAL MATERIALS

Under the direction of Mr. Robert E. Gard a program is developing at the University of Alberta for building up and utilizing a collection of materials on the life and traditions of the Province of Alberta. The work grew from a Foundation grant in aid for the gathering of local materials to be used in writing plays suitable for performance by rural groups. Mr. Gard has traveled extensively through the province, enlisting the cooperation of individuals and groups, as well as the support of newspapers and radio stations. Selected individuals are gathering local folklore and history in different districts.

A Foundation appropriation of \$14,350, given in 1944, will establish this work as a project over a three-year period in the University's Extension Division. The ultimate aim is to stimulate playwrights, novelists, and other writers to use the excellent materials of the West. On the interpretative side it is hoped to bring about better appreciation of Alberta among its people. On the creative side, the goal is the nurture of literature and art indigenous to the region by finding a wider audience and

by setting higher standards for writers on life in this province.

UNIVERSITY OF NEW BRUNSWICK

STUDIES OF THE HISTORY OF NEW BRUNSWICK

In 1943 the Foundation made a grant in aid to the University of New Brunswick for studies in the history of the Province of New Brunswick under the leadership of Professor Alfred G. Bailey. During the year Professor Bailey undertook investigation of four topics showing the educational development of the province: growth of the common schools in relation to needs of the people, development of higher education, formation of intellectual leadership within the province, and the social views of its educators. These and other studies are to culminate in a series of pamphlets to be circulated in and outside New Brunswick.

A grant of \$8,000 in 1944 by the Foundation will enable the University to carry out special study during the next two years of two other main phases of cultural life: social and intellectual attitudes of the people as reflected in their literature, and religious and scientific development in New Brunswick.

COLEGIO DE MEXICO

CENTER FOR HISTORICAL STUDIES

The Center for Historical Studies of the Colegio de Mexico was organized for full-time research, with special interests in the origins and growth of American culture. It is associated with the National University, but is an independent scholarly body with funds from private sources as well as from the government. A grant of \$56,520 was made by the Foundation in 1944 for the work of this institution during a four-year period.

The purpose of the Center is to train investigators who will develop fuller understanding of the literary, artistic, and intellectual tradition of the American continents. Toward this objective it has enlisted the collaboration of scholars from Spanish universities who are specialists in various fields and now live in Mexico. Internationally known Mexican scholars on the staff include Alfonso Reyes, Daniel Cosío Villegas, and Silvio Zavala.

The work is organized for a limited number of students carefully selected and in many cases supported by small fellowship stipends. Such help assures the continuity of work throughout a period of four years and the production of substantial pieces of research.

### DRAMA, FILM, AND MUSEUMS

#### UNIVERSITY OF SASKATCHEWAN

##### DRAMA

The natural growth of new interests in a population that has freed itself from the restrictions of a pioneer period has brought about an active demand throughout the Province of Saskatchewan for experienced direction of plays. In the larger population centers, strong community groups are working in music and drama. During 1942, with no trained directors, the students of the University of Saskatchewan produced eight plays for a total audience of 8,000 persons. At that time constant requests were coming to the University extension service from rural areas for new plays, stage materials, and experienced directors.

The University is in a unique position to take advantage of this interest and need, and to unite many activities of cultural nature through nonprofessional work

in playmaking and play production. It is working in close cooperation with the Saskatchewan Drama League, a voluntary organization devoted to the improvement and cultivation of dramatic taste. The League has seventy affiliated groups or clubs, maintains a lending library of plays for the use of extension workers in communities and schools, and conducts a special summer program at the University. From these beginnings a broader program is developing in the University, which includes the establishment of a department of drama, to be expanded into a school of dramatic art. With these future possibilities in view, the University and the Drama League are now giving particular attention to the development of summer programs for secondary school teachers. For support of this program during a three-year period the Foundation appropriated \$9,750 in 1944.

#### AMERICAN FILM CENTER, INC.

In addition to special grants to the American Film Center, Inc., the Foundation has contributed since 1938 a total of \$174,500 toward the general support of this organization. In 1944 an additional sum of \$75,000 was given for its use over a four-year period.

The American Film Center, a nonprofit agency, was established in 1938 to provide impartial guidance and advice on the production, distribution, and use of motion pictures of educational and cultural value. The Center maintains an office in New York City with Mr. Donald Slesinger, formerly associate dean of the social sciences at the University of Chicago, as director. With the Educational Film Library Association it publishes a monthly bulletin, *Film News*.

Since its establishment, the Center has had as its first

concern the planning and supervising of film production. It has now produced more than forty films for educational and cultural purposes. During 1944 it established a separate corporation, Film Consultants, to take over responsibility of film production. This new corporation will be operated exclusively for the benefit of the Center.

#### UNIVERSITY OF NANKING

#### DEPARTMENT OF EDUCATIONAL CINEMATOGRAPHY

Visual education through the use of films began in China at the University of Nanking in 1930, largely through the initiative of Dr. H. R. Wei, dean of the University's College of Science. The Department of Educational Cinematography was established in 1934 to supply films for the various mass education agencies throughout China. In the next three years the Department produced sixty-eight films on Chinese industry, military affairs, geography and travel, natural science, agriculture, and civic activities. When the staff left the Nanking campus in 1937, films were being shown at eighty-three different places in twenty-five provinces and municipalities, with an average monthly audience of more than one hundred fifty thousand. Since the University's removal to Szechwan Province the Department has continued its work in the College of Science at Chengtu, where it is producing films needed for teaching, editing films from abroad for use in China, and arranging for the showing of these films in West China. The Department is also a center for microphotography in China and has been of considerable service to American agencies concerned with the transmission of material by microfilm to and from China.

A Foundation fellowship in 1940-41 enabled a member of the Department of Educational Cinematography

of the University of Nanking to obtain experience in film production and use in the United States. Grants in aid in 1940 and 1941 provided for purchase of equipment and supplies needed in the work of the Department. A grant of \$15,000 made in 1944 will be used over a three-year period toward general support of this work.

AMERICAN COUNCIL OF LEARNED SOCIETIES  
STUDY OF ART MUSEUMS

The sum of \$8,500 was appropriated in 1944 to the American Council of Learned Societies for a study by Walter Pach of the influence of art museums in American life. Mr. Pach's writings of the past twenty years have brought recognition to many individuals and to new schools of painting. In the present study he intends to give more than a historical account of increase in number and in value of museum holdings. He will aim to describe American cultural growth and to show the influence of art museums in developing appreciation and the spirit of creation through the arts.

LIBRARIES

AMERICAN LIBRARY ASSOCIATION  
PURCHASE OF REFERENCE BOOKS FOR WAR AREAS

A grant of \$100,000 was made in 1944 to enable the American Library Association to select and purchase reference books published during the years 1939-43 for libraries in war areas. The appropriation follows a grant in aid of \$1,500 to the Association for preparation by its Board on International Relations of a list of American books published since 1938 and suitable for distribution to foreign libraries. A similar project for the purchase and storage of scholarly journals has been receiving support from the Foundation since 1941.

Bulletins carrying the lists of important works published since 1938, prepared by the International Relations Office, under the direction of Mr. H. M. Lydenberg, are to be printed and given wide distribution both here and in foreign countries. This will be a very useful service to all groups dealing with library reconstruction. Purchases of books now will build up stock piles of works to be distributed to centers of learning abroad.

ASSOCIATION OF SPECIAL LIBRARIES AND INFORMATION  
BUREAUX: UNION CATALOGUE OF PERIODICALS

The Association of Special Libraries and Information Bureaux in Great Britain has undertaken to prepare a catalogue of the periodicals contained in British libraries. Such a catalogue will make it possible to locate accurately and promptly any given issue of a periodical or any monograph in a series that may be wanted on loan or through microfilm copy. Furthermore, British librarians and information specialists see in the proposed catalogue a basis for agreement as to the division of responsibility for maintaining periodical files that will assure an adequate coverage in Great Britain of the various fields of knowledge. Finally, an accurate knowledge of present holdings will indicate the most advantageous allocation of stocks of American periodicals issued during the war which the American Library Association is now building up under aid from The Rockefeller Foundation for postwar distribution. The Foundation made a five-year grant of \$56,700 in 1944 toward the preparation of the catalogue.

AMERICAN LIBRARY ASSOCIATION  
UNION CATALOGUE, MEXICO, D. F.

For two years specialists in library practice from the United States have aided in a project in the libraries in

Mexico City to organize a union catalogue of all scientific and scholarly journals in the city. The project was supported by the Foundation in 1943 with a grant of \$13,000, and in 1944 an additional appropriation of \$8,500 was made. The plan was advanced through the appointment of American staff in 1941 to open and operate in Mexico City a general library of American books. This library quickly became a center for bibliographical work and for the training of a Mexican staff for later service in the libraries of the city.

The catalogue has now been completed for seven biological, public health, and medical libraries, with a total of about four thousand titles. This listing gives the first key to duplications in purchase, missing numbers, and general usefulness of each collection to scholars. The work so far has produced a finding list useful to all agencies concerned with the further purchase of scientific journals for these institutions. The plan for the coming year is to complete the listing of collections in similar institutions, and to produce a finding list for all journals on medicine, public health, and dentistry in Mexico City.

AMERICAN LIBRARY ASSOCIATION  
BOARD ON INTERNATIONAL RELATIONS

The Board on International Relations of the American Library Association was established in 1942 as a result of growth in the Association's international activities, particularly in cultural relations with Latin America and in work looking toward the rehabilitation of European library services. International activities center in the Washington office, at the Library of Congress. The Board now has full charge of international projects such as the stocking of periodicals and books for distribution

in foreign countries after the war; and the Washington office also carries on work for various government agencies, including the administration of libraries established in Mexico City, Managua, and Montevideo by the Division of Cultural Relations of the Department of State.

In 1944 the Foundation made an appropriation of \$19,500 toward expenses of the year's activities of the Board and another grant, in amount of \$72,750, for its use during the next three years. The aid during 1944 provided added staff and made possible several new activities, such as visits of North American librarians in Central and South America and of leading South and Central American librarians to the United States.

#### BOONE LIBRARY SCHOOL

The Boone Library School, normally in Wuchang, now a refugee in Chungking, is historically an international institution. Its story goes back to the days when Mary Elizabeth Wood, a young librarian from Batavia, New York, went out to visit her brother, the Reverend Robert E. Wood, in Wuchang, in the 1890's. Intending to stay a few weeks, Miss Wood stayed more than thirty years, teaching through revolution, civil war, and World War I. She launched the modern library movement in China, built up the Boone College Library, opened in Wuchang the first free public reading room, persuaded the United States to use a large share of the Boxer Indemnity Fund for library work in China, and, with the help of specialists sent out from the United States, founded China's first library school. Though classes in library work are given in a few colleges, this is still the only library school in China.

One of Miss Wood's first students and assistants was Samuel T. Y. Seng, who graduated from the New York Library School and later succeeded Miss Wood as director of the Boone School. Since 1938 he has been carrying on in temporary headquarters with inexhaustible enthusiasm. The School has been able to keep most of its teachers, maintain fairly stable enrollments, and meet new requests from the Ministry of Education for the training of custodians of public records.

A grant of \$15,000 was given by the Foundation in 1944 toward general support of the School for three years.

### OTHER GRANTS

#### AMERICAN COUNCIL OF LEARNED SOCIETIES

##### PLANNING AND DEVELOPMENT

The American Council of Learned Societies, which has been confronted by many important opportunities and obligations as a part of the total national war effort, will face equally important and urgent problems as a part of the world-wide peace effort. Its position as a federation of the major American organizations (academies, societies, associations) devoted to the humanistic studies, causes it to be regarded as a sort of general staff of the humanities, charged with gathering and analyzing information, planning, taking appropriate initiative, stimulating useful activities, and striving always to perform the greatest possible service to intellectual cooperation through the discovery and dissemination of useful knowledge.

Since 1935 the Foundation has appropriated \$112,000 for the planning and development activities of the American Council of Learned Societies. In 1944 an

additional two-year grant of \$30,000 was made for this purpose.

#### AMERICAN COUNCIL OF LEARNED SOCIETIES

##### PROTECTION OF CULTURAL TREASURES IN WAR AREAS

A grant of \$15,000 was made to the American Council of Learned Societies in 1944 for the use of its Committee on Protection of Cultural Treasures in War Areas. Two grants totaling \$24,000 were made in 1943 for work of the Committee, and the purposes of the Committee were described in some detail in the Foundation's Report for that year.

Maps for Europe were completed by the Committee in the summer of 1944. These were multiplied for distribution to the Army as rapidly as produced, and the material also has been put into atlases for individual countries. These atlases and special handbooks for the use of civil affairs officers were prepared in quantities by the Government and were distributed throughout the British and American forces. A subsidiary activity of the Committee has been to prepare a file of information on objects taken by the enemy from museums, libraries, archives, and private collections.

#### AMERICAN COUNCIL OF LEARNED SOCIETIES

##### CRITICAL HISTORY OF FEDERAL ARTS PROJECTS

The American Council of Learned Societies is sponsoring the preparation of a critical history of Federal Project No. 1 of the Works Progress Administration, generally known as the Federal Arts Project and including work in art, the theater, music, writing, and the Historical Records Survey. The Foundation first appropriated \$40,000 for the history in 1942 and then added \$7,500 in 1944. Chapters already completed deal

with the administration of the projects and in detail with those in the fields of music, art, and writing. Still to be written are chapters dealing with the theater projects, the Historical Records Survey, a comparison of the Federal Arts Project with analogous projects of other departments of the Government, and a final appraisal.

The history was undertaken to provide a record of a unique experiment by the Government, and to give an evaluation of the organization and administration of the project and of its cultural objectives and achievements which will be useful when similar programs are prepared in the future.

#### HUMANITIES RESEARCH COUNCIL OF CANADA

In the autumn of 1942, a proposal to discontinue some forms of academic work in the liberal arts in Canada for the duration of the war led to the formation of a committee of the Royal Society of Canada to consider the matter. This committee presented a memorial to the Prime Minister urging, on the contrary, the strengthening of the humanities in higher education. The Royal Society then appointed a committee on establishment of a national organization for scholars in the humanities.

At its first meeting in December 1943, the purposes of the new organization — the Humanities Research Council of Canada — were outlined as follows: to provide a central organization in the Dominion which can furnish a clearing house for ideas and speak for the interests of the humanities; to promote liaison between Canadian scholars working in cognate fields; to explore ways of improving library and research facilities in Canada; to secure research funds; and to maintain cordial relations with similar bodies in other countries.

Following a grant in aid of \$500 to the Humanities Research Council of Canada, which made possible a conference of members of its executive committee with officers of the American Council of Learned Societies in Washington, the Foundation appropriated \$8,000 to the Canadian Council for a survey of the state of the humanities in Canada and for the general support of its work for approximately two years.

TSING HUA UNIVERSITY  
HUMANITIES

The Foundation is helping Tsing Hua University, Kunming, China, to develop its general program in humanities under the direction of Mr. Robert Winter. Mr. Winter collaborated with Dr. I. A. Richards in work, supported by three Foundation grants to the Orthological Institute of China, through which methods of teaching English as a second language were adapted to use in China. When hostilities began in 1937, Dr. Richards had completed plans with approval of the Chinese Government to organize formal instruction for the country, with parallel plans for the use of English in newsprint and on the radio. Meanwhile in Tsing Hua University Mr. Winter was developing materials for teaching the language.

In 1944 the Foundation made a grant of \$15,000 for use over a period of two years in establishing the teaching of Western humanities under a plan that will serve Tsing Hua University and the two other members of the Associated Universities now located in Kunming, West China. Part of the fund will be used to provide Mr. Winter with a full-time assistant to help in developing adequate materials for college instruction in literary and

social history of the United States, and for the purchase of new works necessary for teaching these subjects.

NATIONAL UNIVERSITY OF MEXICO  
CENTER OF PHILOSOPHICAL STUDIES

In 1944 The Rockefeller Foundation appropriated \$15,000 to the National University of Mexico for aid to individual research projects in its Center of Philosophical Studies and in support of the Center's library. This grant will be available through 1947.

The influx of refugee Spanish scholars into Mexico has brought valuable recruits to philosophical studies in that country. Toward the end of 1940 a group of native and emigré philosophers, under the leadership of Professor Eduardo García Máynez, formed the Center of Philosophical Studies, an autonomous department within the National University. Some of the purposes of this Center as set down in its statutes are to promote philosophical studies throughout Mexico by means of lectures, publications, seminars, and special courses; to foster collaboration among men working in this field in Mexico; to maintain close relations with other cultural centers in Mexico and elsewhere; to establish a library and reading room for philosophy and allied disciplines; to organize an information service upon philosophical activities throughout the country. Considerable progress has been made toward all of these objectives.

Production of the group in Mexico has included edited translations of classic texts and a series of monographs on philosophical systems for use in university courses. The Center publishes quarterly a bibliographical bulletin with extensive reviews of recently published philosophical works, by both Mexican and foreign authors, and a

digest of reviews in which an account is given of articles published on philosophical questions.

#### SPECIAL GRANT-IN-AID FUND FOR CHINESE SCHOLARS

A subject of continuing discussion during the war years has been the interchange of scholars between China and the United States. A few notable Chinese scholars have come to this country under governmental auspices for lectures and study in philosophy and history, but there is a further need here for resident work on faculty appointment in subjects not offered by American nationals. In response to several requests for assistance, the Foundation has created a special fund for the humanities, to be used in bringing a few Chinese scholars to American institutions. Invitations will be extended by the institutions themselves, which will also make all arrangements for the visits.

The fund of \$60,000 which the Foundation appropriated in 1944 for this purpose is for services that are essential to progress in humanities in Far Eastern studies. The aim is to develop consistently the kind of interchange of personnel that will do most to promote sound intellectual relations with Chinese institutions.

#### FELLOWSHIPS, SPECIAL FELLOWSHIPS, AND GRANTS IN AID

In 1944 the Foundation made grants in aid and awarded fellowships to develop more adequately certain fields of the humanities. The grants to individual scholars were to enable them to complete special studies related to the defined areas within the humanities program or, in some cases, to complete significant contributions to the general fields of the humanities. Similarly, fellowships were awarded to develop personnel.

For the Far East and Latin America, assistance was primarily in the fields of language, history, philosophy, and library administration. In American studies, the largest measure of assistance was to critical writing on literary and historical subjects and to surveys of method in teaching and in research.

Distribution according to five general fields was as follows:

	<i>Grants in Aid</i>	<i>Fellowships</i>
American studies	17	12
Studies in language and foreign cultures	11	10
Drama, film, and radio	5	5
Libraries	5	5
Other grants	14	..
	—	—
	52	32

From 1944 funds the Foundation allotted \$100,000 to humanities for a program of postwar fellowships. The initiative in selection will lie with officers and a consultant, Mr. Donald Goodchild of the staff of the American Council of Learned Societies. Care will be taken to canvass the plans of former fellows in humanities, in order to discover ways of re-establishing them in study and research programs. A group of advisors will supply information on other persons whose abilities and interests have been discovered during their wartime activities. The intent of the plan is to assure to a selected group definite periods of study following release from military or governmental service. The selection will be completed early in April, 1945, with provision that final arrangements for use of a postwar fellowship in humanities may be made at any time before December 31, 1948.



## OTHER APPROPRIATIONS



## OTHER APPROPRIATIONS

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## OTHER APPROPRIATIONS

### AMERICAN LIBRARY ASSOCIATION

#### PURCHASE OF JOURNALS

**T**HE program for purchasing or microfilming American scholarly journals for institutions in war areas, described in previous Annual Reports of the Foundation, was successfully continued during 1944. This work is the responsibility of the American Library Association's Committee on Aid to Libraries in War Areas. The journals are being stored all over the country until such time as they can be distributed to libraries of universities or research institutes in Europe and Asia at the end of the war. A total of 34,670 annual sets of 356 periodicals, covering the years 1939-44, has been purchased. Titles include those of interest in all Foundation divisions.

The Association reports increased activity in the collection of gifts. Considerable publicity has been given to the program by the Special Libraries Association, the Medical Library Association, and the American Chemical Society. The Library of Congress and other government libraries have turned over large quantities of material. Other large gifts have come from the University of Nebraska Medical Library, Queen's University Medical Library at Kingston, Ontario, New Mexico State College Library, and Montana State College Library. Frequently transportation charges are paid in connection with the donations of business firms and those of individuals.

Problems of distribution, shipment, and the selection of proper recipients are now of immediate importance and are under careful study. It is probable that a substantial number of the sets will be placed in libraries abroad during the course of the year 1945. The Foundation provided \$70,000 in 1944 for carrying on this work.

#### EUROPEAN REFUGEE PROGRAM

Since September 1940 the Foundation has been supporting a plan to assist outstanding European refugee scholars in this country. The New School for Social Research has been the principal agency in the program and has received a total of \$67,834, including a 1944 grant of \$11,800, toward its administrative costs.

Of the fifty scholars who arrived in this country, thirty-four came at the invitation of the New School or have been under its administration. Of these thirty-four, eighteen are now at other institutions. There remains a total of thirteen, as compared with twenty last year, still at the New School.

The work of the New School office supported by the Foundation grant includes placement efforts, handling of questions regarding alien nationality, problems of curriculum, financial and technical matters connected with publication, teaching, and research, and liaison with the bookkeeping department of the School. The discontinuance of the Army specialized training program and the closing down of graduate classes has made it necessary for the School to find new positions or support for some scholars hitherto employed. In addition to Foundation scholars, the office takes care of fourteen other scholars who are supported by the Belgian American Educational Foundation, the Emergency Committee in Aid of Displaced Foreign Scholars, the American

Committee for Christian Refugees, and by private donors.

#### WORK IN CHINA

Since 1935 the Foundation has contributed a total of \$1,885,560 toward a Chinese program in rural reconstruction, including training in agriculture, community organization, public health, and mass education, making use of existing institutions for these purposes on a cooperative basis. Grants for 1943-44 totaled \$226,720. Under the vicissitudes of war, the program has, of course, undergone progressive modification. The Chinese National Association of the Mass Education Movement, the College of Public Affairs of Yenching University, the Nankai Institute of Economics, and the Department of Agricultural Economics of the University of Nanking are surviving elements of the original program. The sum of \$60,000 was appropriated toward the emergency needs of these four institutions during the year ending June 30, 1945.

Foundation assistance was also given to the Associated Boards for Christian Colleges in China. The current enrollment of the private foreign colleges in China almost equals the enrollment in September 1941, the largest in their history. The total enrollment in 1941 was 9,064; the total at the present time is 8,503. In spite of this high enrollment, the difficulties of the colleges, long almost intolerable, continue to increase. The colleges constitute, however, an important element in China's intellectual leadership. A total of \$375,000 has already been appropriated for the use of the Associated Boards, and in 1944 a further grant of \$50,000 was made.

The war has greatly decreased the Foundation's fellowship program for Chinese. In 1944 only one Chinese

held a fellowship under the China Program. A few fellowships for Chinese are being administered by other divisions of the Foundation. One grant in aid was given from funds provided in 1944 to the National Agricultural Research Bureau for the improved cultivation of pyrethrum in Free China, and another to Yenching University for the cost of printing in Chinese four or five monographs resulting from sociological field research in southwest China.

## **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, 1944:

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## THE ROCKEFELLER FOUNDATION

## BALANCE SHEET — DECEMBER 31, 1944

## ASSETS

SECURITIES (Ledger value).....		\$162,586,939.60
(Market value \$203,933,412.01)		

## CURRENT ASSETS

## Cash on deposit

In New York.....	\$4,559,796.10	
In London — £14,954-8-0 @ \$3.665.....	54,810.89	
In Canada — C\$399,147.23 @ .90244.....	360,206.36	
Advances and deferred charges.....	729,218.95	
Sundry accounts receivable.....	155,361.51	5,859,393.81

## EQUIPMENT

In New York.....		48,892.92
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\$168,495,226.33

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TREASURER'S REPORT

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BALANCE SHEET — DECEMBER 31, 1944

FUNDS AND OBLIGATIONS

PRINCIPAL FUND.....		\$144,833,346.88
COMMITMENTS		
Unpaid appropriations.....	\$19,033,113.63	
Unappropriated authorizations.....	1,189,233.00	20,222,346.63
	<hr/>	
FUNDS AVAILABLE FOR COMMITMENT.....		3,348,003.48
CURRENT LIABILITIES		
Accounts payable.....		42,636.42
EQUIPMENT FUND.....		48,892.92
		<hr/>
		<u>\$168,495,226.33</u>

## PRINCIPAL FUND

Balance, December 31, 1943.....		\$145,160,333.97
Deduct		
Amount by which the proceeds of securities sold, redeemed, etc., during the year failed to equal the ledger value..	326,987.09	
Balance, December 31, 1944.....		<u>\$144,833,346.88</u>

## FUNDS AVAILABLE FOR COMMITMENT

Funds available for commitment, December 31, 1943.....		\$4,379,073.07
Add		
Income and refunds received during 1944		
Income.....	\$8,209,807.40	
Refunds.....	29,921.91	
Unused balances of appropriations allowed to lapse.....	948,228.34	
Unappropriated authorizations allowed to lapse.....	87,230.42	9,275,188.07
		<u>\$13,654,261.14</u>
Deduct		
Appropriations during 1944.....	\$10,298,957.66	
Authorizations during 1944 for later appropriation by the Executive Committee.....	7,300.00	10,306,257.66
Funds available for commitment, December 31, 1944.....		<u>\$3,348,003.48</u>

APPROPRIATIONS AND PAYMENTS

Unpaid appropriations, December 31, 1943 .....		\$16,369,873 57
Appropriations during the year 1944 (For details see pages 268 to 297)		
Public Health .....	\$3,200,000 00	
Medical Sciences .....	1,253,170 00	
Natural Sciences .....	1,090,460 00	
Social Sciences .....	2,193,160 00	
Humanities .....	1,547,670.00	
Program in China .....	125,000 00	
Miscellaneous .....	81,800 00	
Administration and Scientific Services		
Scientific Services .....	563,411 00	
General Administration .....	244,286 66	
	<hr/>	
	\$10,298,957 66	
Unused balances of appropriations allowed to lapse .....	948,228.34	9,350,729 32
	<hr/>	
		\$25,720,602 89
Payments on 1944 and prior years' appropriations (For details see pages 268 to 297);		
Public Health .....	\$1,991,313 47	
Medical Sciences .....	1,088,259 96	
Natural Sciences .....	655,567 06	
Social Sciences .....	1,072,855 52	
Humanities .....	895,492 06	
Program in China .....	97,437.37	
Miscellaneous .....	84,630 59	
Administration and Scientific Services		
Scientific Services .....	545,868 13	
General Administration .....	256,065 10	6,687,489 26
	<hr/>	
Unpaid appropriations, December 31, 1944 .....		\$19,033,113.63
		<hr/> <hr/>

TREASURER'S REPORT

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## UNAPPROPRIATED AUTHORIZATIONS

Unappropriated authorizations, December 31, 1943. . . . .	\$1,269,163 42
Add	
Authorizations during 1944 for later appropriation by the Executive Committee. . . . .	7,300 00
	<u>\$1,276,463 42</u>
Deduct	
Unappropriated authorizations allowed to lapse . . . . .	87,230 42
	<u>\$1,189,233 .00</u>

## EQUIPMENT FUND

	BALANCE	CHANGES DURING 1944		BALANCE
	DEC. 31, 1943	EXPENDITURES	DEPRECIATION	DEC. 31, 1944
Library . . . . .	\$12,645 00	\$492 29	\$742 29	\$12,395 00
Equipment . . . . .	36,866.52	224 00	592 60	36,497 92
	<u>\$49,511 52</u>	<u>\$716 29</u>	<u>\$1,334 89</u>	<u>\$48,892 92</u>



APPROPRIATIONS DURING 1944, UNPAID BALANCES OF PRIOR YEAR APPROPRIATIONS,  
AND PAYMENTS THEREON IN 1944

	APPROPRIATIONS		1944
	PRIOR YEARS	1944	PAYMENTS
<b>PUBLIC HEALTH</b>			
International Health Division of The Rockefeller Foundation *			
Prior Years (RF 39096, 40125, 41104, 42105) . . . . .	\$1,996,015 90	} \$ . . . . .	\$1,838,282 09
1944 (RF 43092) . . . . .	2,200,000 00		
1945 (RF 44106) . . . . .		2,200,000 00	. . .
Revolving Fund to Provide Working Capital (RF 29093) . . . . .	200,000 00		. . . . .
The Rockefeller Foundation Health Commission (RF 42106, 43093, 44107) . . . . .	463,057 94	1,000,000 00	40,540.03
Schools and Institutes of Hygiene and Public Health			
University of Michigan, Ann Arbor			
Site, Building, Equipment, and Operating Expenses (RF 40126) . . . . .	112,491 35		112,491.35
<b>TOTAL — PUBLIC HEALTH</b> . . . . .	<u>\$4,971,565.19</u>	<u>\$3,200,000 00</u>	<u>\$1,991,313.47</u>
<b>MEDICAL SCIENCES</b>			
Psychiatry, Neurology, and Allied Subjects			
American Association of Psychiatric Social Workers, New York City			
Toward maintenance of a War Service Office (RF 43080) . . . . .	\$6,150 00	\$ . . . . .	\$6,150 00
American Psychiatric Association, New York City			
Work of Committee on Psychiatric Nursing (RF 43013) . . . . .	15,000 00	. . . . .	10,000 00
Catholic University of America, Washington, D. C.			
Teaching and research in psychiatry and child guidance (RF 39026, 44059) . . . . .	8,060 63	40,000 00 ✓	9,783.11
Child Research Council of Denver, Colorado			
Psychological studies and studies in child growth and development (RF 39028, 42068, 44060) . . . . .	11,950.00	19,720 00 ✓	10,900 00

\* A complete financial statement of the work of the International Health Division for 1944 will be found on pages 299 to 311.

Columbia University, New York City			
Research on constitutional aspects of disease (RF 42064)	\$27,000 00	\$ ..	\$16,948 71
Teaching and research in neurology (RF 38080)	8,811 20	....	... ..
Dalhousie University, Halifax, Nova Scotia			
Development of teaching in psychiatry (RF 41072, 44058)	4,032 84	19,500 00 <sup>f</sup>	5,083 32
Dikemark Mental Hospital, Asker, Norway			
Research on mental disease (RF 39044)	12,492 16	....	... ..
Duke University, Durham, North Carolina			
Teaching and research in psychiatry and mental hygiene (RF 40005)	88,664.55	....	25,000 00
Harvard Medical School, Boston, Massachusetts			
Teaching and research in psychiatry (RF 43015)	72,000.00	..	48,000 00
Harvard University, Cambridge, Massachusetts			
Research in epilepsy at Harvard Medical School and Boston City Hospital (RF 42109)	104,500 00	..	18,333.73
Studies at the Psychological Clinic (RF 40102)	36,000 00	..	... ..
Institute of the Pennsylvania Hospital, Philadelphia			
Research and teaching in psychiatry (RF 40129)	14,223.66	..	13,974 63
Studies on apraxia and related phenomena in children (RF 43002)	7,000.00	....	5,793 62
Institute for Psychoanalysis, Chicago, Illinois			
General activities and training analyses (RF 38021)	665.59	..	... ..
Johns Hopkins University, Baltimore, Maryland			
Research and training in psychiatry (RF 43053)	171,000 00	..	36,859.13
Judge Baker Guidance Center, Boston, Massachusetts			
Children's psychiatric consultation center (RF 43087, 44137)	17,000.00	17,000.00 <sup>f</sup>	17,000.00
London County Council, England			
Research in psychiatry at Maudsley Hospital (RF 38061)	49,145.64	.....	11,937 81
McGill University, Montreal, Canada			
Maintenance of a Department of Psychiatry (RF 43046)	136,490.62	...	27,078 79

	APPROPRIATIONS		1944
	PRIOR YEARS	1944	PAYMENTS
<b>MEDICAL SCIENCES — <i>Continued</i></b>			
<b>Psychiatry, Neurology, and Allied Subjects — <i>Continued</i></b>			
Medical Research Council, London, England			
Research in endocrinology, psychiatry, neurology, and allied subjects (RF 39002)	\$20,632.34	\$ . . .	\$8,086.36
National Committee on Maternal Health, New York City			
Administrative and research expenses (RF 42100) . . . . .	3,290 95	. .	Cr. 1,300.00
New York University, New York City			
Teaching and research in Department of Psychiatry (RF 43078) . . . . .	50,000 00	. .	5,000 00
Tufts College Medical School, Boston, Massachusetts			
Research in brain chemistry (RF 40027, 44098) . . . . .	7,506 80	42,000 00 <sup>✓</sup>	5,999 55
Research in neurology (RF 40009) . . . . .	6,262 84	.	5,000.00
University of Brussels, Belgium			
Research in neurophysiology and endocrinology (RF 39068) . . . . .	23,145.30	. .	... ..
University of Cambridge, England			
Department of Experimental Medicine. Research (RF 37137) . . . . .	31,628.12	.	... ..
Department of Experimental Psychology. Alterations and expenses (RF 37079)	29,451 21	..	.. ..
University of Chicago, Illinois			
Teaching and research in psychiatry (RF 41026, 44024) . . . . .	31,439.72	120,000.00 <sup>✓</sup>	42,805.42
University of Cincinnati, Ohio			
Research in neurophysiology (RF 43004) . . . . .	6,500 00	.	3,179 89
University of Edinburgh, Scotland			
Research in psychiatry, neurology, and neurosurgery (RF 42063, 43079, 44097)	15,615 95	20,750 00 <sup>✓</sup>	16,751.52
University of Lund, Sweden			
Enlargement of research facilities in neurology (RF 39063)	14,977.70		... ..
University of Oxford, England			
Research in brain chemistry (RF 39061) . . . . .	8,376 80		.....

University of Tennessee, Memphis			
Teaching and research in psychiatry (RF 42004) . . . . .	\$22,500.00	\$ . . . . .	\$10,500.00
University of Toronto, Canada			
Research in psychiatry (RF 39001) . . . . .	34,649.88	. . . . .	12,274.31
Washington University, St. Louis, Missouri			
Support of Department of Neuropsychiatry (RF 41027, 44025) . . . . .	29,755.97	125,000.00 <sup>✓</sup>	42,474.30
Research in neurophysiology (RF 38017) . . . . .	18,589.96	. . . . .	3,394.48
Yale University, New Haven, Connecticut. School of Medicine			
Development of psychiatry (RF 42108) . . . . .	262,500.00	. . . . .	68,264.50
<b>Endocrinology</b>			
Columbia University, New York City			
Research in endocrinology (RF 43012) . . . . .	44,400.00	. . . . .	14,189.55
McGill University, Montreal, Canada			
Research in endocrinology (RF 41074) . . . . .	12,785.15	. . . . .	3,376.10
Massachusetts General Hospital, Boston			
Research on the parathyroid hormone and calcium and phosphorous metabolism (RF 43003) . . . . .	10,000.00	. . . . .	4,000.00
National Research Council, Washington, D. C.			
Committee for Research in Problems of Sex (RF 41011, 44002) . . . . .	40,987.54	135,000.00	58,633.30
University of California, Berkeley			
Research on hormones and vitamins (RF 39062, 44064) . . . . .	7,737.92	50,000.00	13,127.52
<b>Medical Education</b>			
American Film Center, Inc., New York City			
Developing the use of films in teaching medicine and public health (RF 41075, 44065) . . . . .	1,500.00	8,600.00	3,650.00
American Library Association, Chicago, Illinois			
Expenses of survey of Army Medical Library (RF 43047) . . . . .	10,000.00	. . . . .	5,000.00

	APPROPRIATIONS		1944
	PRIOR YEARS	1944	PAYMENTS
<i>MEDICAL SCIENCES — Continued</i>			
<i>Medical Education — Continued</i>			
Dalhousie University, Halifax, Nova Scotia			
Teaching facilities for medical students at new Victoria General Hospital (RF 42038) . . . . .	\$150,000 00	\$ . . . . .	\$ . . . . .
Graduate Medical Education, Eighth Service Command, Dallas, Texas			
For graduate medical education under the direction of the medical consultant of the Eighth Service Command in Army hospitals of that area (RF 43052, 44057)	15,255.74	20,000.00	20,278.11
Harvard University, Cambridge, Massachusetts			
Development of legal medicine (RF 43017, 44001) . . . . .	12,500 00	65,000 00	3,280.07
Medicolegal research (RF 41013) . . . . .	2,000 00	. . . . .	666.64
Johns Hopkins University, Baltimore, Maryland			
Institute of History of Medicine (RF 38022) . . . . .	67,500 00	. . . . .	15,000 00
School of Medicine. Research fund (RF 39004) . . . . .	5,000 00	. . . . .	5,000 00
Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York City			
Research, teaching, and professional care (RF 43018) . . . . .	50,000 00	. . . . .	37,500.00
Postwar appointments for medical graduates from armed services (RF 43103, 44135) . . . . .	320,000 00	188,000 00	. . . . .
University of Iceland, Reykjavik			
Scientific equipment for School of Medicine (RF 42039) . . . . .	3,285.58	. . . . .	1,047.39
University of Manitoba, Winnipeg, Canada			
Development of teaching of preventive medicine (RF 40061) . . . . .	7,554.92	. . . . .	2,430.79
University of Rochester, New York			
Fluid research fund in medicine (RF 41053) . . . . .	15,532.53	. . . . .	8,463.56
University of Utah, Salt Lake City			
Fluid research fund in the School of Medicine (RF 43102) . . . . .	15,000 00	. . . . .	5,000 00

Washington University, St. Louis, Missouri			
Maintenance of departments in the School of Medicine (RF 38059).....	\$184,079.29	\$.....	\$35,753.49
Teaching of preventive medicine (RF 44062) .....		24,000.00	4,000.00
West China Union University, Chengtu			
Support of public health practice field (RF 40063).....	48.83	.....	48.83
Group Medicine and Medical Economics			
Committee on Research in Medical Economics, Inc., New York City			
Expenses of operation (RF 42111).....	7,500.00	.....	7,500.00
Group Health Cooperative, Inc., New York City			
Operation and development of medical insurance program (RF 43019, 44026) ..	12,775.00	49,100.00	55,246.00
Medical Administration Service, Inc., New York City			
General budget (RF 44019).....		30,000.00	30,000.00
National Health Council, Inc., New York City			
Study of the organization, interrelationships, policies, and opportunities of volun- tary agencies in the field of public health (RF 41089) .....	22,624.35	.....	22,601.57
University of Chicago, Illinois			
Research in industrial diseases (RF 43016).....	100,000.00	.....	4,931.39
University of Michigan School of Public Health, Ann Arbor			
Teaching of medical economics (RF 44051).....		30,000.00	4,425.00
General			
Institute of Biology and Experimental Medicine, Buenos Aires			
Support of research (RF 44136).....		12,500.00	.....
Research Council of the Department of Hospitals, New York City			
Research on chronic diseases (RF 40104, 44063).....	12,543.50	22,000.00	21,711.18
University of Buenos Aires, Argentina. Institute of Physiology.			
Research (RF 40128, 43054).....	26,931.40	.....	Cr. 210.04

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	APPROPRIATIONS		1944 PAYMENTS
	PRIOR YEARS	1944	
<b>MEDICAL SCIENCES — Continued</b>			
Fellowships and Grants in Aid			
Fellowships			
Administered by The Rockefeller Foundation (RF 41057, 41113, 42133, 43118, 44084, 44139).....	\$95,326.86	\$90,000.00	\$37,085.79
National Research Council, Washington, D. C.			
Medical sciences (RF 40056, 42040).....	58,316.46	.....	6,046.57
Welch fellowships in internal medicine (RF 41028).....	162,034.74	.....	12,462.74
Scholarships for British medical students (RF 40127, 42005, 42110, 43101).....	176,898.44	.....	75,081.42
Grants in Aid (RF 40094, 40138, 41117, 42137, 43122, 44143).....	182,320.43	125,000.00	85,659.81
<b>TOTAL — MEDICAL SCIENCES.....</b>	<b>\$3,239,449.11</b>	<b>\$1,253,170.00</b>	<b>\$1,088,259.96</b>
<b>NATURAL SCIENCES</b>			
Experimental Biology			
Amherst College, Massachusetts			
Research in genetics, experimental embryology, and growth problems (RF 39104)	\$9,901.16	\$.....	\$6,600.00
Brown University, Providence, Rhode Island			
Research in genetics (RF 39032).....	31.14	.....	.....
California Institute of Technology, Pasadena			
Development of chemistry in relation to biological problems (RF 42081).....	26,378.24	.....	11,163.68
Research in serological genetics (RF 40073).....	2,000.00	.....	172.17
Research on the structure of antibodies and the nature of immunological reactions (RF 43050, 44066).....	12,150.00	19,000.00	20,682.02
Catholic University of America, Washington, D. C.			
Research on decomposition and synthesis (RF 40059).....	15,062.73	.....	.....

Columbia University, New York City			
Research on electrical properties of cells and tissues (RF 41093) . . . . .	\$11,411 13	\$ . . . . .	\$ . . . . .
Research in enzyme chemistry (RF 42044) . . . . .	7,500 00	. . . . .	5,000 00
Research on problems of metabolism with the aid of chemical isotopes (RF 43026)	36,250 00	. . . . .	14,500 00
Research on vitamins and related substances in relation to plant growth (RF 40107) . . . . .	10,108.46	. . . . .	5,000 00
Research on variation in genetic constitution in relation to growth and development (RF 44115) . . . . .	. . . . .	75,000 00	. . . . .
Connecticut Agricultural Experiment Station, New Haven			
Research in genetics of growth in plants (RF 40106) . . . . .	10,939 37	. . . . .	1,517 50
Cornell University, Ithaca, New York			
Research in the field of enzyme chemistry (RF 42050) . . . . .	17,250 00	. . . . .	2,000 00
Duke University, Durham, North Carolina			
Research on physical chemistry of proteins (RF 43051) . . . . .	9,500 00	. . . . .	3,300 00
Eidgenössische Technische Hochschule, Zurich, Switzerland			
Institute of Plant Physiology. Research (RF 43043, 44067) . . . . .	859 25	1,625 00	1,521 76
Laboratory of Organic Chemistry. Research on constitution and synthesis of physiologically active compounds (RF 42116, 43110, 44123) . . . . .	13,634 25	15,000 00	9,826 00
Harvard University, Cambridge, Massachusetts			
Research on the determination of heats of organic reactions (RF 41018) . . . . .	1,202 76	. . . . .	Cr. 1,422 49
Research on the chemical and electrical behavior of proteins (RF 38038) . . . . .	29,257 09	. . . . .	9,965.82
Indiana University, Bloomington			
Research in cytogenetics (RF 40001) . . . . .	6,244 69	. . . . .	3,633 32
Institute of Andean Biology, Lima, Peru			
Studies on animal fertility in Sierra regions (RF 43045) . . . . .	2,888 00	. . . . .	1,888 00
Iowa State College, Ames			
Research in genetics (RF 43040) . . . . .	14,625 00	. . . . .	3,250 00

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	APPROPRIATIONS		1944 PAYMENTS
	PRIOR YEARS	1944	
<b>NATURAL SCIENCES — Continued</b>			
<b>Experimental Biology — Continued</b>			
Johns Hopkins University, Baltimore, Maryland			
School of Hygiene and Public Health			
Research in nutrition (RF 41019) . . . . .	\$2,411 86	\$ . . . . .	\$2,006 21
School of Medicine			
Research in nutrition (RF 41050, 44055) . . . . .	2,508.00	22,500 00	6,174 14
Karolinska Institut, Stockholm, Sweden			
Research in biochemistry (RF 43108, 44121) . . . . .	6,000 00	8,500.00	5,744 10
Research in biophysics (RF 43073, 44087) . . . . .	2,865 75	8,625.00	6,762 25
McGill University, Montreal, Canada			
Research in cytology and genetics (RF 40072) . . . . .	2,488 75	. . . . .	. . . . .
Massachusetts Institute of Technology, Cambridge			
Development of biological engineering (RF 40039) . . . . .	102,614 91	. . . . .	21,589 30
Operation of the differential analyzer (RF 42080) . . . . .	25,000.00	. . . . .	. . . . .
Ministry of Public Health, Montevideo, Uruguay			
Construction and equipment of laboratory for the Research Institute of Biological Sciences (RF 43049) . . . . .	30,250 00	. . . . .	18,578 40
National Research Council, Washington, D. C.			
Research in biophysics (RF 37020) . . . . .	2,136.45	. . . . .	800 00
New York University, New York City			
Research in nutrition (RF 44127) . . . . .	. . . . .	18,750 00	. . . . .
Northwestern University, Evanston, Illinois			
Research in steroid chemistry (RF 42047) . . . . .	7,500 00	. . . . .	4,233 59
Princeton University, New Jersey			
Research in organic chemistry (RF 40058) . . . . .	26,466 72	. . . . .	. . . . .

Research Institute for Physics, Academy of Sciences, Stockholm, Sweden Research with artificially (cyclotron) produced radioactive substances (RF 43107, 44010, 44120).....	\$6,000 00	\$11,000.00	\$10,524.84
Roscoe B. Jackson Memorial Laboratory, Inc., Bar Harbor, Maine Establishing and maintaining a Mammalian Stock Center (RF 43024).....	31,125 00	.....	7,053.00
Special researches (RF 43025).....	6,750 00	.....	4,500.00
Stanford University, Palo Alto, California Research in biochemical genetics (RF 43114, 44116).....	7,500 00	7,500 00	6,125.00
State University of Iowa, Iowa City Research in general physiology (RF 40022).....	4,000 00	.....	3,000 00
University College, London, England, Department of Biometry Research (RF 43044, 44068).....	2,027 25	6,685.00	5,360 29
University of Birmingham, England Research in genetics and physiology of reproduction (RF 42119, 43115).....	4,050 00	.....	3,037 40
University of California, Berkeley Construction and installation of cyclotron (RF 42001).....	374,046 35	.....	18,737 93
Cyclotron research (RF 39042).....	10,554 63	.....	Cr. 5,062 50
University of Cambridge, England, Institute of Biology and Parasitology Research in cellular physiology (RF 43111, 44124).....	4,860 00	6,075.00	4,855 40
X Ray analysis of biologically important molecules (RF 43077, 44091).....	2,588 75	4,455 00	3,690.60
University of Chicago, Illinois Research in molecular spectra (RF 39030, 41101).....	14,890 98	.....	Cr. 5,215.45
Research in application of spectroscopic methods to biological problems (RF 40021).....	24,220.23	.....	3,749.98
University of Illinois, Urbana Research in biochemistry of amino acids (RF 43042, 44054).....	4,500 00	10,000 00	9,500 00

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	APPROPRIATIONS		1944
	PRIOR YEARS	1944	PAYMENTS
<b>NATURAL SCIENCES — Continued</b>			
<b>Experimental Biology — Continued</b>			
<b>University of Leeds, England</b>			
Research on X-ray analyses of biological tissues (RF 38041, 44029) . . . . .	\$11,392.76	\$9,315.00	\$6,898.83
<b>University of London, England</b>			
Research on vitamins, sterols, and related compounds (RF 38070) . . . . .	34,554.67	.....	5,157.36
<b>University of Minnesota, Minneapolis</b>			
Application of spectroscopy to investigation of lipid metabolism (RF 42003) . . .	442.05	.....	Cr. 711.06
Research in lipid metabolism (RF 39031) . . . . .	1,714.22	.....	906.29
Research in biophysics (RF 41062) . . . . .	10,500.00	.....	.....
Research on mechanism of osmosis (RF 42051) . . . . .	7,950.00	.....	5,300.00
<b>University of Missouri, Columbia</b>			
Research in genetics (RF 39041) . . . . .	906.53	.....	750.00
<b>University of Oxford, England</b>			
<b>Dyson Perrins Laboratory of Organic Chemistry</b>			
Research on hormone synthesis (RF 43076, 44090) . . . . .	2,440.50	3,240.00	3,235.00
X-ray analysis of biologically important large molecules (RF 43074, 44088) . .	1,375.00	2,835.00	2,072.40
<b>Sir William Dunn School of Pathology</b>			
Biochemical investigation of penicillin (RF 43112, 44125) . . . . .	4,860.00	4,860.00	4,857.30
<b>University of Pennsylvania, Philadelphia</b>			
Research in experimental biology (RF 43038) . . . . .	25,250.00	.....	7,016.29
Research on permeability of the red blood cell (RF 40023, 44056) . . . . .	1,995.85	13,500.00	1,949.73
<b>University of Rochester, New York</b>			
Research on biological and medical problems (RF 41034) . . . . .	12,251.23	.....	4,179.46
Research in biophysics (RF 44028) . . . . .	.....	16,000.00	8,000.00
Research in genetics (RF 44031) . . . . .	.....	6,600.00	1,100.00

University of Sheffield, England			
Research in biochemistry (RF 43075, 44089) . . . . .	\$1,218.00	\$1,620 00	\$1,624.15
University of Stockholm, Sweden			
Research in chemical physiology and embryology (RF 43106, 44119) .	6,300.00	6,300 00	6,030.78
University of Texas, Austin			
Research on growth-promoting substances (RF 40070) . . . . .	4 40	...	.....
Research in genetics of <i>Drosophila</i> (RF 41052) . . . . .	2,400.00	.... ..	Cr. 319.33
University of Toronto, Canada			
Research in nutrition (RF 42045, 44117) . . . . .	7,287.55	10,000 00	2,826 43
University of Uppsala, Sweden			
Research on physical-chemical properties of proteins and other substances of biological and medical importance (RF 43105, 44118) . . . . .	11,250 00	11,250 00	10,761 00
Research in biochemistry of fatty acids, lipoids, and proteins (RF 43072, 44011, 44086) . . . . .	582 00	3,375.00	2,705.25
Research on surface chemistry of the red blood cell and mechanism of gastric acid formation (RF 43109, 44122) . . . . .	3,000 00	4,000 00	2,878.50
University of Utrecht, Netherlands			
Research in biochemistry of growth substances (RF 39007) . . . . .	17,343.60	.....	.....
University of Wisconsin, Madison			
Research in biochemistry of symbiotic nitrogen fixation (RF 40071)	7,694 34	.....	4,500.00
Research in nutrition (RF 42046).....	5,150 75	.....	2,625.00
Research in immunogenetics (RF 38073, 43041).....	6,347.62	.....	3,750.00
Research in physical chemistry (RF 42048).....	5,770.87	.....	2,500.00
Washington University, St. Louis, Missouri			
Researches in carbohydrate metabolism (RF 41020, 44030).....	2,818.73	5,000.00	2,310 15
Expenses of increased use of its cyclotron (RF 42079).....	10,440 00	.....	.....
Research in general physiology and experimental embryology (RF 43039).....	16,500.00	.....	7,000.00

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NATURAL SCIENCES — <i>Continued</i>	APPROPRIATIONS		1944
	PRIOR YEARS	1944	PAYMENTS
<b>Fellowships</b>			
Administered by The Rockefeller Foundation (RF 38114, 40135, 41114, 42134, 44085, 44140) . . . . .	\$98,108.10	\$70,000.00	\$24,237.79
Brown University, Providence, Rhode Island			
Fellowships in applied mathematics (RF 43023, 44027) . . . . .	12,500 00	20,000 00	17,500 00
National Research Council, Washington, D. C. (RF 39103, 41112, 44112)	227,395 55	335,000 00	22,144 72
<b>General</b>			
Agricultural Program in Mexico			
General expenses (RF 42082, 43022, 44069, 44113) . . . . .	34,794 36	147,800 00	46,549 76
Construction and equipment of experimental laboratory (RF 44070, 44114)	. . . . .	45,000 00	. . . . .
American Institute of Physics, New York City			
Expenses of its War Policy Committee (RF 42089) . . . . .	2,541.11	. . . . .	. . . . .
American Mathematical Society, New York City			
Expenses of International Congress of Mathematics (RF 37108)	5,000 00	. . . . .	. . . . .
China Medical Board, Inc., New York City			
Peiping Union Medical College, China			
Human paleontological research in Asia (RF 36137, 41102) . . . . .	34,809 42	. . . . .	13,450.54
Grants in Aid (RF 38110, 40108, 41087, 41118, 42138, 43123, 44144) . . . . .	258,685 81	125,000 00	108,638.60
National Research Council, Washington, D. C.			
Administration budget, conferences, special studies, committees, and international scientific projects (RF 41111) . . . . .	52,500 00	. . . . .	32,500.00
American Geophysical Union			
General expenses (RF 44053) . . . . .	. . . . .	20,000 00	3,000 00
Royal Society, London, England			
Emergency grant for English scientific journals (RF 43104, 44126) . . . . .	15,050 00	15,050 00	15,010 83

University of São Paulo, Brazil			
Research in physics (RF 42090) . . . . .	\$5,272 32	\$ . . .	\$3,743.96
Former Program			
International Commission for the Polar Year 1932-33, Copenhagen, Denmark			
Equipment and expenses (RF 34132) . . . . .	12,000 00	. . . . .	. . . . .
University of Leiden, Netherlands			
Purchase and endowment of a photographic telescope for the Union Observatory, Johannesburg, Union of South Africa (RF 34100) . . . . .	6,575 61	. . . . .	. . . . .
Yale University, New Haven Connecticut			
Laboratories of Primate Biology. Maintenance (RF 39008, 42037) . . . . .	111,330 11	. . . . .	34,545 07
TOTAL — NATURAL SCIENCES . . . . .	<u>\$2,040,851 96</u>	<u>\$1,090,460 00</u>	<u>\$655,567 06</u>
SOCIAL SCIENCES			
Association of Land-Grant Colleges and Universities			
Committee on Postwar Agricultural Policy and Planning			
General expenses (RF 44052) . . . . .	\$ . . .	\$17,500 00	\$10,200.00
Brookings Institution, Inc., Washington, D. C.			
General program (RF 42060) . . . . .	37,500.00	. . . . .	37,500 00
Canadian Institute of International Affairs, Toronto, Canada			
General budget (RF 42061, 44047) . . . . .	4,306.23	20,000 00	9,008 29
Canadian Social Science Research Council, Montreal, Canada			
Stimulation of social science research in Canada (RF 42076, 44078) . . . . .	11,037 50	20,000.00	12,943.49
Research on the problems of Arctic Canada (RF 43117) . . . . .	7,762 50	. . . . .	6,752.19
Expenses of a study of the Alberta Social Credit Experiment (RF 44079) . . . . .	. . . . .	25,000 00	6,666 77

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	APPROPRIATIONS		1944
	PRIOR YEARS	1944	PAYMENTS
<b>SOCIAL SCIENCES — <i>Continued</i></b>			
Canton of Geneva, Switzerland. Department of Public Instruction			
Graduate Institute of International Studies (RF 38045, 44099).....	\$47,500.00	\$40,000.00	\$20,032.72
Columbia University, New York City			
Study of economic aspects of public finance (RF 42031).....	11,590.62	.....	6,453.32
Study of the theory of public utility rates (RF 43034).....	20,650.00	.....	.....
Cornell University, Ithaca, New York			
Study of civil liberties in wartime (RF 44049).....	.....	18,000.00	4,500.00
Council on Foreign Relations, New York City			
Study groups, research program, and research in problems involved in the peace settlement following the present war (RF 42122, 43115).....	75,800.00	.....	74,908.90
Escola Livre de Sociologia e Política de São Paulo, Brazil			
Support of research and training in the social sciences (RF 43081).....	13,750.00	.....	3,750.00
Fellowships			
Administered by The Rockefeller Foundation (RF 38115, 39114, 42135, 43120, 44141)	89,455.95	50,000.00	4,268.33
Social Science Research Council, New York City (RF 41078, 42078, 44021).....	85,432.06	100,000.00	27,753.67
Foreign Policy Association, New York City. Research program (RF 43068).....	100,000.00	.....	50,000.00
Grants in Aid			
Regular program (RF 40101, 41081, 42093, 43124, 43059, 44145).....	236,241.04	125,000.00	92,519.17
Special fund for study in Latin American countries (RF 41032).....	15,559.76	.....	.....
Special fund for exploration and report on conditions in China (RF 44045).....	.....	25,000.00	2,460.27
Harvard University, Cambridge, Massachusetts			
Graduate School of Public Administration			
General budget (RF 39109).....	10,000.00	.....	5,000.00

Research in social sciences (RF 35086).....	\$42,592.96	\$.	85,494.91
Harvard University and Radcliffe College, Cambridge, Massachusetts			
Research in field of international relations (LS 993).....	18.45		
Institute for Advanced Study, Princeton, New Jersey			
Work in economics (RF 43014).....	70,000.00		52,500.00
Work of American Coordinating Committee of International Studies Conference (RF 40018).....	390.74		Cr. 364.94
Institute of International Affairs, Stockholm, Sweden			
General budget and special studies of postwar organization (RF 43116).....	11,250.00		10,766.91
Institute of Pacific Relations			
American Council, New York City			
General expenses (RF 42124, 43066).....	30,000.00		15,000.00
Pacific Council, Honolulu, Hawaii			
General expenses, research program, and emergency fund (RF 42125, 43067)...	100,750.00		59,750.00
Johns Hopkins University, Baltimore, Maryland			
Study of the government of American trade unions (RF 44048).....		90,000.00	20,025.00
League of Nations, Princeton, New Jersey			
Economic, Financial, and Transit Department			
Research programs (RF 43027, 44023).....	50,000.00	60,000.00	50,000.00
London School of Economics and Political Science, University of London, England			
Emergency fund (RF 39095).....	5,747.65		
Library development (RF 31030).....	9,391.70		
Purchase of land for expansion of school plant (RF 31028).....	8,509.95		
Massachusetts Institute of Technology, Cambridge			
Industrial Relations Section			
Research in the economics of technological change (RF 41042).....	12,500.00		10,000.00
Miami University, Oxford, Ohio			
Expenses of a study by the Scripps Foundation for Research in Population Problems of the influence of population factors upon labor market problems (RF 44110).....		17,380.00	

	APPROPRIATIONS		1944
	PRIOR YEARS	1944	PAYMENTS
<i>SOCIAL SCIENCES — Continued</i>			
National Bureau of Economic Research, New York City			
Support of general programs and special programs of research in finance and fiscal policy (RF 42033, 44020) . . . . .	\$110,000 00	\$550,000 00	\$110,000 00
National Institute of Economic and Social Research of Great Britain, London			
General budget (RF 43082, 44108) . . . . .	48,600 00	121,500 00	24,243 80
National Institute of Public Affairs, Washington, D. C.			
Training of personnel for the federal services (RF 40099, 43055) . . . . .	131,250 00	.	35,000 00
Princeton University, New Jersey			
Budget of Bureau of Urban Research (RF 42062) . . . . .	3,750 00	.	3,750 00
Industrial Relations Section, Research (RF 44046) . . . . .	.	22,500 00	3,750 00
Office of Population Research of the School of Public and International Affairs (RF 44109) . . . . .	.	200,000 00	.. . . .
Royal Institute of International Affairs, London, England			
Research program (RF 43057) . . . . .	48,635 54	.	32,329 08
Social Science Research Council, New York			
Administrative budget (RF 43058) . . . . .	135,000 00	.	30,000 00
Committee on Social Security			
Exploratory studies, conferences, and small projects (RF 40088) . . . . .	2,300 62	.	2,300 62
Conferences and planning (RF 42059, 44077) . . . . .	50,000 00	250,000 00	52,143 24
Expenses of office in Washington to further effective utilization of social science personnel (RF 42017) . . . . .	6,250 00	.	6,250 00
General research projects (RF 31126) . . . . .	83,652 44	.	.
Grants in aid of research (RF 41077) . . . . .	48,500 00	.	10,000 00
Public Administration Committee			
General expenses, exploratory studies, conferences, and small projects (RF 42035) . . . . .	12,500 00	.. .	12,500 00

Research in economic history of the United States, the islands, and nearby territory (RF 40116) . . . . .	\$223,125 00	\$	\$16,250 00
Spelman Fund of New York, New York City			
Work in public administration (RF 38049) . . . . .	450,000 00		
Stanford University, Palo Alto, California. Food Research Institute			
Research program (RF 43056) . . . . .	37,500 00		15,000 00
State Historical Society of Colorado, Denver			
Study of the western range cattle industry (1865-95) (RF 44003) . . . . .		64,600 00	12,200 00
Syracuse University, New York. School of Citizenship and Public Affairs			
Training course in public administration (RF 39058) . . . . .	6,000 00		6,000 00
University of California, Berkeley. Bureau of Public Administration			
Study of effects of Japanese migration and resettlement in California (RF 42092)	15,000 00		
University of Chicago, Illinois			
Aid to social science facilities (RF 41041) . . . . .	27,500.00		27,500.00
University of Delaware, Newark, Delaware			
Study of individual income distribution (RF 40117) . . . . .	6,762 50		
University of Louvain, Belgium. Institute of Economics			
General budget (RF 38102) . . . . .	10,600 29		
University of Minnesota, Minneapolis			
Program of training for public service (RF 40035) . . . . .	11,848.00		2,883.00
University of Oxford, England			
Social Studies Research Committee (RF 43028, 44018) . . . . .	11,365.25	22,680 00	22,632 90
University of Pennsylvania, Philadelphia			
Wharton School			
Industrial Research Department. General budget (RF 40047, 44111) . . . . .	22,295 39	175,000 00	19,210.00
Exploratory program of research in distribution (RF 44050) . . . . .		45,000 00	7,500.00
Study of Comparative Economic Development (RF 44051) . . . . .		9,000 00	1,500 00

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	APPROPRIATIONS		1944
	PRIOR YEARS	1944	PAYMENTS
<b>SOCIAL SCIENCES — <i>Continued</i></b>			
University of Southern California, Los Angeles. School of Government Development of program (RF 40124) . . . . .	\$10,000.00	\$ . . . .	\$ . . . .
University of Virginia, Charlottesville. Bureau of Public Administration Program of service and research (RF 39108) . . . . .	3,434 02	. . . . .	1,273 88
Yale University, New Haven, Connecticut. Institute of International Studies Research program (RF 41040, 44022) . . . . .	8,250.00	125,000.00	20,750.00
<b>TOTAL — SOCIAL SCIENCES . . . . .</b>	<b>\$2,631,856 16</b>	<b>\$2,193,160.00</b>	<b>\$1,072,855.52</b>
<b>HUMANITIES</b>			
<b>Studies in Language and Foreign Culture</b>			
American Council of Learned Societies, Washington, D. C.			
Activities of the Joint Committee on Latin American Studies and Handbook of Latin American Studies (RF 44072) . . . . .	\$ . . . .	\$20,000 00	\$5,000 00
Cataloguing American collections of Chinese and Japanese books (RF 37120) .	10,557 50	. . . . .	1,092 89
Committee on Far Eastern Studies (RF 41029) . . . . .	10,405 54	. . . . .	1,030 84
Developing personnel and resources in teaching modern languages (RF 41082, 43008)	56,437 63	. . . . .	. . . . .
Development of a center of English study at the Escuela Normal Superior, Bogota (RF 43007) . . . . .	6,250.00	. . . . .	6,250 00
Preparing materials for Slavic studies in the United States (RF 43099) . . . .	50,000 00	. . . . .	10,000 00
Studies in Chinese history (RF 44006) . . . . .	. . . . .	6,000 00	6,000 00
Work in field of Latin American studies (RF 40097) . . . . .	7,299 48	. . . . .	7,299 48
Brown University, Providence, Rhode Island			
Increasing collections of material on early American history and Hispanic culture (RF 40069) . . . . .	15,165 05	. . . . .	2,663 44

Colegio de Mexico, Mexico City				
Expenses of Center for Historical Research (RF 42095, 44134) . . . . .	\$14,670.00	\$56,520.00	\$14,670.00	
College of Chinese Studies, Peiping, China. General expenses (RF 41007) . . . . .	7,216.10	.....	.....	
Columbia University, New York City				
Visiting lecturer on Japanese cultural history (RF 39093) . . . . .	5,000.00	.....	439.90	
Connecticut College, New London				
Program of instruction in the German language and culture (RF 44014) . . . . .	.....	5,000.00	.....	
Cornell University, Ithaca, New York				
Russian studies (RF 40052) . . . . .	2,750.00	.....	2,000.00	
Slavic studies (RF 43097) . . . . .	25,000.00	.....	7,000.00	
Summer programs in history and culture of the Far East, the British Commonwealth, and Latin America (RF 42010) . . . . .	3,000.00	.....	3,000.00	
Duke University, Durham, North Carolina				
Purchase of books and other documentation in field of Latin American studies (RF 40049) . . . . .	8,000.00	.....	2,500.00	
Grants in Aid				
Special fund for temporary addition of representative Chinese scholars to teaching staffs and projects in United States (RF 44044) . . . . .	.....	60,000.00	13,500.00	
Harvard University, Cambridge, Massachusetts				
Development of Slavic studies (RF 43098) . . . . .	25,000.00	.....	7,043.33	
School of Education. Training of teachers in English (RF 44075) . . . . .	.....	20,000.00	2,500.00	
Institute of Pacific Relations, American Council, New York City				
English translations of source materials on Chinese history (RF 42070) . . . . .	28,365.21	.....	18,208.80	
Library of Congress, Washington, D. C.				
Hispanic Foundation				
Development of the Archive of Hispanic Culture (RF 43061) . . . . .	8,825.00	.....	8,825.00	
Expenses of organizing and developing collections of Slavic materials (RF 43062) . . . . .	6,000.00	.....	6,000.00	
Cataloguing and organization of Slavic materials in the Library (RF 44096) . . . . .	.....	47,800.00	23,900.00	

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	APPROPRIATIONS		1944
	PRIOR YEARS	1944	PAYMENTS
<b>HUMANITIES — Continued</b>			
<b>Studies in Language and Foreign Culture — Continued</b>			
National Institute of Anthropology and History, Mexico City			
Development of its program (RF 40130) .....	\$2,205.36	\$.....	\$.....
Development of teaching and research program and reorganization of library resources (RF 43083) .....	53,225.00	.....	13,625.00
National University of Mexico, Mexico City			
Aid to individual research projects in Center of Philosophical Studies and support of library (RF 44073) .....	.....	15,000.00	.....
Oberlin College, Ohio			
Development of Far Eastern studies (RF 43036) .....	5,000.00	.....	3,000.00
Orthological Institute of China, Yunnan, China			
General budget (RF 40028) .....	26.92	.....	.....
Pan American Union, Washington, D. C.			
Expenses of preparing for use its resources of Latin American newspapers and art materials (RF 43084) .....	20,000.00	.....	12,170.61
Pomona College, Claremont, California			
Development of Far Eastern and Slavic studies (RF 44131) .....	.....	35,000.00	.....
Princeton University, New Jersey			
Development of Far Eastern studies (RF 38029) .....	1,062.52	.....	Cr. 242.77
Royal Ontario Museum of Archaeology, Toronto, Canada			
Teaching and research in Far Eastern subjects (RF 37121) .....	78.11	.....	78.11
Stanford University, Palo Alto, California			
Development of Far Eastern studies (RF 39053) .....	3,300.49	.....	3,300.49
Development of Far Eastern and Slavic studies (RF 44130) .....	.....	75,000.00	.....
Tsing Hua University, Kunming, China			
Development of its program of teaching in humanities (RF 44076) .....	.....	15,000.00	.....

<b>Tulane University, New Orleans, Louisiana</b>			
Purchase of books and other documentation in field of Latin American studies (RF 40051) . . . . .	\$3,600.00	\$.....	\$.....
<b>University of California, Berkeley</b>			
Intensive teaching of Far Eastern languages (RF 42015) . . . . .	12,000.00	. . . . .	12,000 00
Development of Slavic and Far Eastern studies (RF 44129) . . . . .	.....	75,000 00	.....
<b>University of Chicago, Illinois</b>			
Development of Chinese studies (RF 41098) . . . . .	5,547 04	.. . . .	.. . . .
Analysis of the methods of teaching a second modern language (RF 44008) . . . . .		10,000 00	10,000 00
Analysis and evaluation of methods of teaching modern languages (RF 44100) . . . . .		90,000 00	.. . . .
<b>University of Colorado, Denver</b>			
Development of Far Eastern studies (RF 44042) . . . . .	.	20,000.00	2,000 00
<b>University of New Mexico, Albuquerque</b>			
Materials for Latin American studies (RF 42073) . . . . .	15,000 00	.. . . .	5,000 00
<b>University of North Carolina, Chapel Hill</b>			
Purchase of books and other documentation in field of Latin American studies (RF 40050) . . . . .	4,000.00	.. . . .	3,500 00
<b>University of Washington, Seattle</b>			
Development of Far Eastern and Slavic studies (RF 44128) . . . . .	.....	75,000.00	. . . . .
<b>Yale University, New Haven, Connecticut</b>			
Work in Far Eastern studies (RF 42071) . . . . .	2,690 00	.....	2,690 00
<b>North American Studies</b>			
<b>American Council of Learned Societies, Washington, D. C.</b>			
Preparation of a critical history of the Federal Arts Projects (RF 42029, 44007)	15,000 00	7,500 00	10,071.53
<b>Carolina Art Association, Charleston, South Carolina</b>			
Work of Charleston Civic Services Committee (RF 42056) . . . . .	10,250 00	.....	6,500.00
<b>Colonial Williamsburg, Inc., Williamsburg, Virginia</b>			
Compiling an index to the <i>Virginia Gazette</i> for the years 1736 to 1780 (RF 42028)	11,475.44	.....	6,994.27

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HUMANITIES — <i>Continued</i>	APPROPRIATIONS		1944 PAYMENTS	290 THE ROCKEFELLER FOUNDATION
	PRIOR YEARS	1944		
<b>North American Studies — <i>Continued</i></b>				
Cornell University, Ithaca, New York				
Studies of the York State region (RF 42074) .....	\$11,250.00	\$.....	\$4,000.00	
Duke University, Durham, North Carolina				
Expenses of preparing for publication materials in the Brown folklore collection (RF 44101) .....	.....	7,800.00	.....	
Henry E. Huntington Library and Art Gallery, San Marino, California				
Regional studies of the Southwest (RF 43096) .....	50,000.00	.....	10,000.00	
Library of Congress, Washington, D. C.				
American studies (RF 43095) .....	100,000.00	.....	3,000.00	
Michigan State College, East Lansing				
Studies of American and Canadian culture (RF 44041) .....	.....	16,000.00	5,000.00	
Newberry Library, Chicago, Illinois				
Studies in Midwestern culture (RF 44034) .....	.....	25,000.00	8,000.00	
Princeton University, New Jersey				
Study of program in American civilization (RF 44080) .....	.....	12,000.00	6,000.00	
Texas State Historical Association, Austin				
Southwestern history study (RF 42130) .....	12,500.00	.....	5,000.00	
University of Alberta, Edmonton, Canada				
Expenses of organizing and utilizing a collection of materials on the life and tradi- tions of the Province of Alberta (RF 44015) .....	.....	14,350.00	3,495.16	
University of Chicago, Illinois				
Development of a central archive of source materials relating to the early history of the Upper Mississippi Valley and Canada (RF 43069) .....	13,000.00	.....	3,320.00	
University of Kentucky, Lexington				
Studies in Southern history (RF 43031) .....	5,500.00	.....	3,000.00	

University of Minnesota, Minneapolis			
Studies in Northwestern history (RF 43030) . . . . .	\$35,000.00	\$.. . . . .	\$15,000.00
University of Missouri, Columbia			
Program of American history research and teaching (RF 42129) . . . . .	10,000 00	.. . . . .	5,000.00
University of Montana, Missoula			
Studies of the life and traditions of Montana (RF 44016) . . . . .	.....	25,500 00	6,250 00
University of New Brunswick, Fredericton, Canada			
Studies of the history of New Brunswick (RF 44040) . . . . .	.....	8,000 00	1,804 88
University of Oklahoma, Norman			
Preparation of materials on the history and life of the Southwest (RF 44093) . . . . .	.....	25,000.00	5,000 00
University of Saskatchewan, Saskatoon, Canada			
Studies in Western history (RF 43037) . . . . .	12,480 86	... ..	3,045.07
University of Toronto, Canada			
Preparation of a biography of Sir John A. Macdonald (RF 44039) . . . . .	.....	6,500 00	2,934 54
University of Virginia, Charlottesville			
Preparation of a biography of Thomas Jefferson (RF 44033) . . . . .	.....	21,000 00	5,250.00
Western Reserve University, Cleveland, Ohio			
Studies in American culture in the Midwest (RF 44009) . . . . .	.....	20,000 00	10,000 00
Libraries			
American Library Association, Chicago, Illinois			
Canadian Library Council			
Establishing microphotographic and general advisory services for Canadian libraries (RF 42025) . . . . .	17,500.00	.....	.....
Book catalogue of Library of Congress card indexes for foreign distribution (RF 42069) . . . . .	25,000 00	.. . . .	12,500.00
Development of a library school in São Paulo, Brazil (RF 43006) . . . . .	22,500.00	.... ..	5,500.00
Development of a union catalogue of library holdings in Mexico, D.F. (RF 44074) . . . . .	.....	8,500 00	4,250.00
For work of its Board on International Relations (RF 42094, 44005, 44133) . . . . .	15,000 00	92,250.00	34,500.00

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	APPROPRIATIONS		1944
	PRIOR YEARS	1944	PAYMENTS
<b>HUMANITIES — Continued</b>			
<b>Libraries — Continued</b>			
<i>American Library Association — Continued</i>			
Selection and purchase for libraries in war areas of reference books published during the years 1939-43 (RF 44032).....	\$.....	\$100,000.00	\$10,000.00
<i>American Library in Paris, Inc., France</i>			
General budget (RF 40042).....	20,000.00	.....	.....
<i>Association of Special Libraries and Information Bureaux, London, England</i>			
Preparation of a catalogue of periodicals in British libraries (RF 44004).....	.....	56,700.00	6,064.13
<i>Boone Library School, Chungking, China</i>			
General support (RF 44035).....	.....	15,000.00	2,500.00
<i>British Museum, London, England</i>			
To enable the Museum to offer to American libraries, at a discount, subscriptions to the new edition of its Catalogue of Printed Books (RF 30076).....	79,991.48	.....	840.06
<i>National Central Library, London, England</i>			
General operations and maintenance of Bureau of American Bibliography (RF 43086).....	4,463.25	.....	4,446.75
<i>Princeton University, New Jersey</i>			
Index of Christian Art (RF 38100).....	17,000.00	.....	6,000.00
<i>Society of the Friends of the Bibliothèque Nationale, Paris, France</i>			
Printing of the General Catalogue (RF 29089).....	1,000.00	.....	.....
<i>University of Buenos Aires, Argentina</i>			
Expenses of establishing a bibliographical center and an institute of library practice (RF 42128).....	31,434.95	.....	15,716.20
<i>University of Oxford, England</i>			
Development of the Bodleian and other University libraries (RF 31121).....	482,434.81	.....	.....

**Drama, Film, and Radio**

American Film Center, Inc., New York City			
General budget (RF 42131, 44092)	\$25,000 00	\$75,000 00	\$25,000 00
Columbia University, New York City			
Office of Radio Research (RF 41045)	12,500 00	.. ..	7,500 00
Cornell University, Ithaca, New York			
State-wide program in music and drama (RF 40015)	2,565 84	.. ..	.....
Library of Congress, Washington, D. C.			
Development of methods of cataloguing, analyzing, and making available for use the motion pictures deposited with the Library of Congress under the National Copyright Act (RF 43010)	21,250 00		13,750 00
National Film Society of Canada, Ottawa			
General budget (RF 41030, 43063)	9,921 10	.. ..	1,755 57
National Theatre Conference, Cleveland, Ohio			
General expenses and revolving fund to cover royalty fees on plays for non-commercial production (RF 38054)	21 29		.....
Support of activities and projects (RF 40131)	19,316 58		15,000 00
Rocky Mountain Radio Council, Denver, Colorado			
General budget (RF 42072)	7,500 00	.. ..	5,000 00
Smith College, Northampton, Massachusetts			
Development of program in drama (RF 42055)	3,500 00	.. ..	1,750.00
University of Nanking, Chengtu, China			
Department of Educational Cinematography.			
General support (RF 44043)	.. ..	15,000 00	5,000 00
University of North Carolina, Chapel Hill			
Work in drama (RF 42075)	2,504 74		2,504 74
University of Saskatchewan, Saskatoon			
Support of work in drama (RF 44017)	.....	9,750 00	733 23

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HUMANITIES — <i>Continued</i>	APPROPRIATIONS		1944
	PRIOR YEARS	1944	PAYMENTS
<b>Other Subjects</b>			
American Council of Learned Societies, Washington, D. C.			
Expenses of its Committee on the Protection of Cultural Treasurers in War Areas (RF 43060, 43085, 44081) .....	\$15,750.00	\$15,000.00	\$18,750.00
General support (RF 41029, 42024, 43100, 44071) .....	166,520.73	30,000.00	47,181.38
Microfilming projects (RF 41083) .....	93,019.45	.....	21,144.37
Study of the influence of art museums in American life (RF 44094) .....	.....	8,500.00	.....
American Philosophical Association, Middletown, Connecticut			
Study of the function of philosophy in liberal education (RF 43029) .....	1,500.00	.....	1,500.00
American School of Classical Studies, Athens, Greece			
Museum to house objects excavated in the Agora (RF 37089) .....	138,354.94	.....	.....
Harvard University, Cambridge, Massachusetts			
Research in field of criticism and in uses of languages (RF 39018) .....	10,892.04	.....	10,892.04
Humanities Research Council of Canada, Hamilton, Ontario			
Survey of the state of the humanities in Canada and for general support of the Council (RF 44095) .....	.....	8,000.00	902.44
Museum of Modern Art, New York City			
For work of its Educational Project (RF 42096) .....	6,000.00	.....	6,000.00
National Buildings Record, London, England			
Documentation of architectural records (RF 41071, 43033) .....	13,967.05	.....	13,940.25
Princeton University, New Jersey			
School of Public and International Affairs			
Support of program in the humanities (RF 43011) .....	12,500.00	.....	12,500.00
Special microfilming projects in England in connection with the program of the American Council of Learned Societies (RF 41084, 43064) .....	21,876.26	.....	16,598.91

Stanford University, Palo Alto, California. School of Humanities			
Development of program (RF 42058) . . . . .	\$23,750 00	\$ . . . . .	\$5,466.66
Vanderbilt University, Nashville, Tennessee			
Support of program in the humanities (RF 43071) . . . . .	5,625.00	. . . . .	5,625.00
Wesleyan University, Middletown, Connecticut			
Support of program in the humanities (RF 43070) . . . . .	5,000.00	. . . . .	2,500 00
Fellowships and Grants in Aid			
Fellowships			
Administered by The Rockefeller Foundation (RF 41116, 42136, 43121, 44083, 44142) . . . . .	86,264 85	75,000 00	53,991 36
Special fellowship fund for postwar development of personnel in the United States (RF 44132) . . . . .	.	100,000 00	. . . . .
Grants in Aid (RF 40100, 41095, 42141, 43032, 43125, 44146) . . . . .	272,215.48	125,000 00	153,478.40
<b>TOTAL — HUMANITIES</b> . . . . .	<u>\$2,397,773 09</u>	<u>\$1,547,670 00</u>	<u>\$895,492 06</u>

PROGRAM IN CHINA

Associated Boards for Christian Colleges in China, New York City			
Emergency grants to private foreign universities and colleges in China (RF 44036) \$ . . . . .		\$50,000.00	\$50,000 00
Chinese Mass Education Movement, Peipai, Szechwan			
General budget (RF 44037) . . . . .	.	15,000 00	15,000 00
Fellowships — Foreign and Local (RF 40044, 41037, 42041, 43021, 44038) . . . . .	51,005 59	7,500 00	6,681.11
Grants in Aid (RF 40044, 41037, 42041, 43021, 44038) . . . . .	59,495 44	7,500 00	8,091 48
Nankai University, Institute of Economics, Shapingpa, Chungking			
General budget (RF 44037) . . . . .	.	15,000.00	164.78

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	APPROPRIATIONS		1944
	PRIOR YEARS	1944	PAYMENTS
<b>PROGRAM IN CHINA — Continued</b>			
National Council for Rural Reconstruction, Peipei, Szechwan			
General budget (RF 42041).....	\$500.00	\$.....	\$.....
University of Nanking, Chengtu, Szechwan			
Department of Agricultural Economics (RF 44037).....		15,000.00	7,500.00
Yenching University, Chengtu, Szechwan			
College of Public Affairs			
General budget (RF 40044, 41037, 44037).....	4,093.52	15,000.00	10,000.00
<b>TOTAL — CHINA PROGRAM.....</b>	<b>\$118,094.55</b>	<b>\$125,000.00</b>	<b>\$97,437.37</b>
<b>MISCELLANEOUS</b>			
American Library Association, Chicago, Illinois			
Committee on Aid to Libraries in War Areas			
Selection and purchase or microfilming of American scholarly journals for institutions, chiefly in Europe and Asia (RF 43094, 44138).....	\$70,000.00	\$70,000.00	\$70,000.00
History of The Rockefeller Foundation (RF 37037).....	861.50	.....	825.69
New School for Social Research, New York City			
Administration of grants to European refugee scholars (RF 42098, 43065, 44082) ..	12,844.23	11,800.00	13,777.39
Royal Society, London, England			
Microfilm apparatus to facilitate the circulation of current foreign periodicals (RF 41096).....	1,887.90	.....	27.51
Special Research Aid for European Scholars (RF 39092).....	3,342.40	.....	.....
<b>TOTAL — MISCELLANEOUS.....</b>	<b>\$88,936.03</b>	<b>\$81,800.00</b>	<b>\$84,630.59</b>

ADMINISTRATION AND SCIENTIFIC SERVICES

Scientific Services				
1941		\$4,924 34	\$.....	\$3,500.00
1942		8,299 18	.....	5,643.05
1943		39,086.58	.....	7,120 79
1944		552,091 00	3,675 00	529,604 29
1945		.....	559,736 00	.....
General Administration				
1941		9,685 51	.....	.....
1942		3,174 42	.....	2,238 30
1943		22,718 45	.....	11,954.10
1944		241,368.00	12,706 66	241,872.70
1945		.....	231,580 00	.....
TOTAL -- ADMINISTRATION		\$881,347 48	\$807,697 66	\$801,933.23
		\$16,369,873.57		
Less				
Unused balances of Appropriations allowed to lapse				
	The Rockefeller Foundation	\$712,219.75		
	International Health Division	236,008 59	948,228.34	
GRAND TOTALS		\$15,421,645.23	\$10,298,957.66	\$6,687,489 26

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REFUNDS ON PRIOR YEAR CLOSED APPROPRIATIONS

American Library Association, Chicago, Illinois . . . . .	(RF 42107)	\$25 83
American Psychiatric Association, New York City . . . . .	(RF 42008)	1,421.12
Columbia University, New York City . . . . .	(RF 38026)	2,859 02
	(RF 38030)	2,692.19
Duke University, Durham, North Carolina . . . . .	(RF 40076)	12.39
Encyclopaedia of the Social Sciences, New York City . . . . .	(RF 32114)	1,163.10
Geneva Research Center, Switzerland . . . . .	(RF 38095)	808 87
Grants in Aid. Natural Sciences, 1936. . . . .	(RF 36079)	235 93
Harvard University, Cambridge, Massachusetts . . . . .	(RF 42018)	446 90
Library of Congress, Washington, D. C. . . . .	(RF 41066)	12 53
	(RF 41069)	1,936 74
Massachusetts Institute of Technology, Cambridge. . . . .	(RF 42043)	1,660 16
Medical Administration Service, Inc., New York City. . . . .	(RF 43001)	128 40
Minnesota. Influenza Studies . . . . .	(IH 41045)	135.36
National Committee on Maternal Health, New York City . . . . .	(RF 42009)	23.23
New School for Social Research, New York City . . . . .	(RF 40013)	185 25
Pacific Northwest Council of Education, Spokane, Washington . . . . .	(RF 40123)	12,377 61
Rumania. Scarlet Fever . . . . .	(IH 38030)	53 85
United Engineering Trustees, Inc., New York City . . . . .	(RF 41108)	9 74
University of California, Berkeley. . . . .	(RF 39059)	940 49
University of Cambridge, England. . . . .	(RF 42117)	.62
University of Edinburgh, Scotland. . . . .	(RF 42120)	168 33
University of Minnesota, Minneapolis. . . . .	(LS 933)	1,100 00
Yale University, New Haven, Connecticut. . . . .	(RF 42127)	1,524 25
		<hr/>
		\$29,921.91
		<hr/>

INTERNATIONAL HEALTH DIVISION  
DESIGNATIONS DURING 1944, UNPAID BALANCES AS AT DECEMBER 31, 1943  
OF PRIOR YEAR DESIGNATIONS, AND PAYMENTS THEREON DURING 1944

	PRIOR DESIGNATIONS	1944 DESIGNATIONS	1944 PAYMENTS
<b>CONTROL AND INVESTIGATION OF SPECIFIC DISEASES AND DEFICIENCIES</b>			
<b>Diphtheria</b>			
Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health			
1942-46 (IH 42005, 43010) . . . . .	\$7,102 87	\$ . . .	\$1,991 75
<b>Infective Hepatitis</b>			
<b>Near East</b>			
Hebrew University, Jerusalem, Palestine			
1943-45 (IH 42016, 43025) . . . . .	15,089 44	10,000.00	9,105 24
<b>United States</b>			
<b>California</b>			
1943-45 (IH 42016, 43024) . . . . .	9,700.00	8,500.00	6,769 69
<b>Intestinal Parasites, Including Hookworm</b>			
Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health			
1943-44 (IH 42023, 43026) . . . . .	1,001.35	4,000.00	2,204 95
<b>Malaria</b>			
<b>Caribbean Area</b>			
<b>Haiti</b>			
1942-43 (IH 42018) . . . . .	318.51	.....	40.31
<b>Trinidad and Tobago</b>			
1942-45 (IH 42012, 43004, 44011) . . . . .	17,038 43	21,770 00	12,536.51
<b>Europe, Africa, and Near East</b>			
<b>Egypt</b>			
1944-45 (IH 44013) . . . . .	.....	5,000.00	20.33

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	PRIOR DESIGNATIONS	1944 DESIGNATIONS	1944 PAYMENTS
<b>CONTROL AND INVESTIGATION OF SPECIFIC DISEASES AND DEFICIENCIES -- Continued</b>			
<i>Malaria -- Continued</i>			
Far East			
China			
1942-44 (IH 41062, 43058).....	\$26,619.36	\$.....	\$10,107.89
Mexico			
Studies			
1943-45 (IH 42058).....	19,714.10	.....	5,310.59
South America			
Brazil			
<i>Anopheles gambiae</i> control			
1941-43 (IH 40033, 41083).....	14,563.85	.....	.....
<i>Anopheles gambiae</i> survey (Brazil and West Africa)			
1943-44 (43021, 44012).....	2,500.00	5,000.00	2,267.33
British Guiana			
1943-44 (IH 42026, 43029).....	3,233.72	4,500.00	2,735.65
Peru			
1943-45 (IH 42027).....	32,275.18	.....	16,742.59
United States			
Chemotherapy studies			
General fund			
1941-44 (IH 40065).....	4,000.00	.....	.....
Harvard University, Cambridge, Massachusetts			
1941-45 (IH 40065, 43028).....	4,980.64	6,000.00	6,124.06
Florida			
1941-45 (IH 41004, 41027, 41061, 42024, 43027, 43048).....	23,051.80	22,780.00	9,200.87

University of Chicago, Illinois 1943-46 (IH 42025, 43051).....	\$573.21	\$6,000.00	\$1,708.99
<b>Mental Hygiene</b>			
Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health 1943-45 (IH 42028).....	8,390.12	.....	3,395.66
<b>Nutrition</b>			
<b>Canada</b>			
University of Toronto 1941-47 (IH 41016, 43019).....	17,213.13	.....	3,383.43
<b>Mexico</b>			
1942-45 (IH 41078, 43020).....	36,862.18	.....	13,556.91
<b>United States</b>			
Duke University, Durham, North Carolina 1944-45 (IH 44009).....	.....	10,000.00	.....
<b>North Carolina</b>			
1943-45 (IH 43012-13, 44001).....	44,158.50	9,450.00	19,523.30
<b>Tennessee (In cooperation with Vanderbilt University, Nashville)</b>			
1942-46 (IH 40075, 41075, 42009, 43002).....	65,583.79	.....	24,702.75
<b>Vanderbilt University, Nashville, Tennessee</b>			
1941-42 (IH 40074).....	3,566.46	.....	2,305.83
<b>Rabies</b>			
<b>Alabama</b>			
1943-44 (IH 42030, 43003).....	42,000.00	.....	27,962.47
<b>Respiratory Diseases</b>			
<b>Influenza studies</b>			
<b>California</b>			
1942-45 (IH 41044, 42031, 43030, 44008).....	26,312.08	36,500.00	21,791.03

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	PRIOR DESIGNATIONS	1944 DESIGNATIONS	1944 PAYMENTS
<b>CONTROL AND INVESTIGATION OF SPECIFIC DISEASES AND DEFICIENCIES — <i>Continued</i></b>			
<b>Respiratory Discases — <i>Continued</i></b>			
<b>Influenza studies — <i>Continued</i></b>			
Minnesota			
1943-45 (IH 42032, 43031).....	\$9,395.35	\$13,820.00	\$14,049.45
Ohio State University, Columbus			
1942-44 (IH 41071) . . . . .	9,753.75	.....	414.21
University of Michigan, Ann Arbor			
1941-46 (IH 40069-70, 43016).....	19,160.52	.....	6,331.52
Respiratory Virus Research			
Argentina			
1940-45 (IH 39024, 40017)....	5,693.12	.....	3,363.44
Study of Respiratory Infections			
Columbia University, New York City			
1941-43 (IH 41003) . . . . .	6,265.46	.....	4,792.65
Syphilis			
Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health			
1941-45 (IH 40067-68).....	29,704.92	.....	3,493.11
North Carolina			
1942-45 (IH 42008, 42033, 43015)....	14,643.64	.....	8,780.89
Tuberculosis			
Tennessee			
1943-45 (IH 42034, 43032).....	5,625.00	7,500.00	7,201.50
Typhus Fever			
China			
1944 (IH 43022).....	12,000.00	..	6,000.00

Yellow Fever

Africa

Central and East Africa

1943-44 (IH 42039, 43037) . . . . .

\$27,876 08      \$39,000.00      \$31,667 08

West Africa

1943-44 (IH 42021) . . . . .

28,700 00      .. .      19,924 72

Caribbean Area

Central America and West Indies

1943-44 (IH 42060) . . . . .

9,000 00      .. . . .      . . . .

Panama

1941-45 (IH 41017, 42011, 43035) .. . . .

3,084 90      2,000 00      509.06

South America

Brazil

Investigations

1943-44 (IH 42037, 43036) .. . . .

17,377 28      75,000 00      67,267 95

Studies of jungle yellow fever

1941-44 (IH 41031, 43054) .. . . .

5,833.94      .....      2,252 45

British Guiana

1943-44 (IH 42035, 43033) . . . . .

710.36      4,050.00      2,164 79

Colombia

1943-44 (IH 42036, 43034) . . . . .

16,785.73      66,000.00      52,237 44

Peru

1943-47 (IH 42038) . . . . .

60,016 93      .....      12,491.23

Other Studies

Collection and testing of wild animals for use in the study of diseases of public health interest

1942-44 (IH 42050) . . . . .

37,121 92      .....      576.70

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	PRIOR DESIGNATIONS	1944 DESIGNATIONS	1944 PAYMENTS
<b>CONTROL AND INVESTIGATION OF SPECIFIC DISEASES AND DEFICIENCIES — Continued</b>			
<i>Other Studies — Continued</i>			
Sanitation Research			
India			
1943 (IH 42040)	\$209.73	\$.....	\$.....
Statistical analyses of records of certain specific diseases			
1940-45 (IH 39047)	434.00	.....	.....
LABORATORIES OF THE INTERNATIONAL HEALTH DIVISION			
1943-44 (IH 42041, 43038)	77,410.03	180,000 00	225,563.78
STATE AND LOCAL HEALTH SERVICES			
State Health Services			
Canada			
Manitoba			
Division of Industrial Hygiene			
1943-45 (IH 42042, 43017)	7,500 00	...	1,885.72
Division of Local Health Services			
1942-46 (IH 42002)	5,851 28	.....	1,173.44
Division of Vital Statistics			
1941-44 (IH 39005)	1,544 63	.....	.....
New Brunswick			
Division of Nutrition			
1944-47 (IH 43003)	11,250 00	.....	.....
Ontario			
Emergency recruitment of public health personnel			
1941-44 (IH 41015)	4,855 02	.....	.....

Prince Edward Island			
Provincial Laboratory			
1944-48 (IH 38035)	\$15,300 00	\$.	\$.
Quebec			
Division of Health Education			
1943-45 (IH 42056)	7,742 18		2,257 82
Caribbean			
Leeward and Windward Islands			
Engineering survey			
1944 (IH 44010)		1,000.00	
Far East			
China			
Szechwan Provincial Health Administration			
1944 (IH 43041)		20,000 00	20,000 00
Mexico			
Public Health Administration			
1942-44 (IH 41064)	4,051 27		2,375.69
South America			
Bolivia			
Division of Endemic Diseases			
1942-47 (IH 41085, 42043)	122,988 15		4,652.24
Ecuador			
Division of Epidemiology and Control of Endemic Diseases			
1943-44 (IH 42064)	16,570 51		8,092 06
National Institute of Hygiene			
Department of Epidemiology and Control of Endemic Diseases			
1944-45 (IH 43040)		19,200 00	4,990 60
General support			
1941-46 (IH 41025, 43006)	22,974.18		11,314 20

	PRIOR DESIGNATIONS	1944 DESIGNATIONS	1944 PAYMENTS
<b>STATE AND LOCAL HEALTH SERVICES — Continued</b>			
State Health Services—Continued			
South America—Continued			
Peru			
National Institute of Hygiene. General support 1945-49 (IH 44015) . . . . .	\$ . . . . .	\$171,600.00	\$ . . . . .
National Ministry of Health. Division of Diagnostic Laboratories 1944 (IH 43056) . . . . .	. . . . .	4,535 00	1,961.33
Survey and study of state and local health services 1944 (IH 44005). . . . .	. . . . .	3,385 00	1,185.56
United States			
California			
Virus Diagnostic Laboratory 1943-44 (IH 42052, 43039) . . . . .	5,400 00	7,000 00	3,319 26
Mississippi			
Coordinated School-Health-Nutrition Service 1942-46 (IH 42007, 43011). . . . .	43,520.44	. . . . .	13,451.59
New York City			
Department of Health. Statistical Service 1945-49 (IH 44014) . . . . .	. . . . .	28,800 00	. . . . .
North Carolina			
Public Health Education and School Health Service 1939-47 (IH 38034, 43014). . . . .	30,052.73	. . . . .	3,177.96
South Carolina			
Public Health Education and School Health Service 1944-45 (IH 44002). . . . .	. . . . .	3,590 00	. . . . .

Local Health Departments

Canada

British Columbia

1936-47 (IH 36021, 38024) . . . . . \$16,958 50 \$ . . . \$1,035 55

Manitoba

1944-47 (IH 44003) . . . . . 12,300 00 . . .

Nova Scotia

1942-46 (IH 41077, 42055) . . . . . 54,700 00 . . . 13,002 66

Quebec

1938-43 (IH 38025) . . . . . 1,800 78 . . . 225 94

Caribbean Area

El Salvador

1943-44 (IH 42062) . . . . . 8,000 00 . . . 266 52

Europe

Finland

1940 45 (IH 40012, 40079) . . . . . 18,748 85 . . . . .

Far East

India

Bengal

1939-45 (IH 38011, 43023) . . . . . 13,445 60 . . . . . 5,449 26

Bombay

1939 44 (IH 38097) . . . . . 9,968 23 . . . . . 1,409 14

Mexico

1936-46 (IH 40026, 41065, 41079, 43052-53) . . . . . 20,136.69 63,800 00 11,810 44

South America

Chile

1942-47 (IH 42013 14) . . . . . 52,935.25 . . . . . 12,242 63

Uruguay

1943-44 (IH 43005) . . . . . 2,200.00 . . . . .

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	PRIOR DESIGNATIONS	1944 DESIGNATIONS	1944 PAYMENTS
<b>PUBLIC HEALTH EDUCATION</b>			
Schools and Institutes of Hygiene and Public Health			
Canada			
University of Toronto			
1940-48 (IH 39004, 42053, 43009, 43018).....	\$53,581.52	\$.....	\$11,153.04
Europe			
Spain			
National Institute of Hygiene, Madrid			
1941-44 (IH 40024).....	5,603.11	.....	.....
Turkey			
School of Hygiene, Ankara			
1940 (IH 39059).....	1,680.61	.....	.....
Far East			
China			
National Institute of Health			
1944 (IH 43043).....	.....	25,000.00	22,754.48
India			
All-India Institute of Hygiene, Calcutta			
1944-45 (IH 43057).....	.....	4,800.00	2,314.75
Philippine Islands			
Institute of Hygiene, Manila			
1941-44 (IH 41026).....	10,000.00	.....	.....
South America			
Brazil			
São Paulo Health Center			
1943-44 (IH 42045, 43042).....	6,890.90	5,500.00	6,639.75

Chile			
School of Public Health			
1943-48 (IH 42063, 43055) ..	85,000 00	865,000 00	89,402 98
United States			
Harvard University, Cambridge, Massachusetts. School of Public Health			
Department of Nutrition			
1942-46 (IH 41070)	70,000 00	...	26,282 60
Department of Sanitary Engineering			
1940-47 (IH 40004, 43009) ...	17,125 00		7,105 34
Johns Hopkins University, Baltimore, Maryland			
School of Hygiene and Public Health			
Developmental aid 1940-49 (IH 40008, 43049)	27,750 01	137,500 00	18,383 30
Field training and study area 1942-49 (IH 41066, 43050).	12,850 84	60,420 00	11,700 98
Schools of Nursing			
Canada			
University of Toronto			
1943-45 (IH 42054)	5,121.09	.....	2,251 23
Europe			
Portugal			
Escola Tecnica de Enfermeiras, Lisbon			
1943-47 (IH 42047, 43044, 44016) ...	7,114.74	21,250 00	8,945 68
Spain			
Madrid School of Nursing			
1941-43 (IH 40020) ..	20,000.00	.....	.....
South America			
Argentina			
National University of the Littoral, Rosario			
1942-47 (IH 42019-20) ..	15,339 35	.....	390 58

	PRIOR DESIGNATIONS	-1944 DESIGNATIONS	1944 PAYMENTS
<b>PUBLIC HEALTH EDUCATION — Continued</b>			
<b>Schools of Nursing — Continued</b>			
<b>South America — Continued</b>			
<b>Brazil</b>			
University of São Paulo			
1941-44 (IH 41084).....	\$21,136.28	\$.....	\$6,452.12
<b>Colombia</b>			
National Superior School of Nursing, Bogotá			
1943-47 (IH 42061).....	50,000 00	.....	1,067 71
<b>Ecuador</b>			
School of Nursing, Quito			
1943-47 (IH 42065).....	19,535.00	.....	4,249.70
<b>Venezuela</b>			
National School of Nursing, Caracas			
1942-46 (IH 41023) ..	12,574 44	.....	27.88
<b>Fellowships, Travel of Government Health Officials and Teachers of Public Health, and Training of Health Workers</b>			
1938-44 (IH 37076, 38077, 39060, 41021, 41059, 42048, 43045).....	144,483 06	200,000.00	174,924.45
<b>Other Training</b>			
<b>Caribbean Area</b>			
British West Indies training station, Jamaica			
1942-45 (IH 42017, 44004).....	9,439.11	7,735 00	5,454.43
<b>Mexico</b>			
Training station			
1942-44 (IH 41067).....	2,833 19	.....	1,555.47
<b>FIELD SERVICE</b>			
<b>Field Staff</b>			
1943-44 (IH 42049, 43046)			
Salaries.....	14,621.74	452,000.00	434,428 62

Commutation . . . . .	\$11,929 80	\$50,000 00	\$42,970 93
Travel .. . . . .	62,129 24	160,000 00	144,952 93
Medical examinations . . . . .	639 72	1,000 00	490 90
Field equipment and supplies . . . . .	3,087 26	4,000 00	1,745 71
Pamphlets and charts . . . . .	21 89	13,000 00	7,635 32
Express, freight, and exchange . . . . .	840 59	1,000 00	416 72
Insurance and retirement . . . . .	27,516 19	57,000 00	50,116 74
Bonding . . . . .	433 92	1,000 00	733 21
Field Offices			
1943-44 (IH 42051, 43047)			
Canada . . . . .	194 90	2,250 00	23 00
Caribbean Area (Havana) . . . . .	1,038 96	8,500 00	8,235 85
Far East . . . . .	1,762 49	8,545 00	6,827 09
Mexico . . . . .	537 87	1,200.00	1,155.92
South America			
Argentina . . . . .	1,730.13	9,000.00	6,960.21
Bolivia . . . . .	3,189 06	5,500 00	2,356.75
Brazil . . . . .	1,281 26	7,000 00	451.25
São Paulo . . . . .		550 00	546 41
Chile . . . . .	430 05	4,000 00	3,949.99
Peru . . . . .	1,746.74	6,000.00	4,798.84
Miscellaneous . . . . .	500 00	500 00	270 43
Director's Fund for Budget Revisions (IH 41027, 44006) . . . . .	706 93	5,000 00	.....
Director's Fund for Miscellaneous Expenses (IH 43001) . . . . .	951.80	... ..	309 09
Exchange Fund (IH 33077) . . . . .	21,521 44	.. ..	.....
<b>Total . . . . .</b>	<b>\$1,996,015 90</b>	<b>\$2,196,330 00*</b>	<b>\$1,838,282 09</b>

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\*The Foundation appropriated \$2,200,000 for the work of the International Health Division during 1944, the undesignated balance of \$1,670 00 being allowed to lapse as of December 31, 1944

TRANSACTIONS RELATING TO INVESTED FUNDS

SECURITIES PURCHASED

\$1,000,000	(Canadian) Dominion of Canada, 2nd Victory Loan 3s/52-54 @ 103.05 C.F., or C \$1,030,500.00, converted @ 10.4855517 average discount. . . . .	\$922,446.39
500,000	Chicago & Northwestern Ry. 1st & Gen. Mtg. Ser. A, 4s/89 @ 87.22 . . . . .	436,106.25
4,500,000	USA Treasury Bonds, dated June 26, 1944, 2s/6/15/52-54 @ par. . . . .	4,500,000.00
6,600,000	USA Treasury Bonds, dated Dec. 1, 1944, 2s/12/15/52-54 @ par. . . . .	6,600,000.00
7,000,000	USA Treasury Notes, Ser. C dated Dec. 1, 1944, 1¼s/47 @ par. . . . .	7,000,000 00
6,000,000	USA Treasury Certificates of Indebtedness, Ser. A-1945 dated Feb. 1, 1944, 7/8s/2/1/45 @ par. . . . .	6,000,000 00
		\$25,458,552 64

SECURITIES RECEIVED THROUGH EXCHANGE

\$2,000,000	USA Treasury Certificates of Indebtedness Ser. B-1944, dated April 1, 1944, 7/8s/45, received in exchange for \$2,000,000 USA Treasury Certificates of Indebtedness Ser. B-1944, dated April 15, 1943, 7/8s/44 . . . . .	\$2,000,000 00
2,250,000	USA Treasury Certificates of Indebtedness Ser. D-1945, dated May 1, 1944, 7/8s/45, received in exchange for \$2,250,000 USA Treasury Certificates of Indebtedness Ser. C-1944, dated May 1, 1943, 7/8s/44 . . . . .	2,250,000 00
3,000,000	USA Treasury .90% Notes Ser. C, dated Dec. 1, 1944, due Jan. 1, 1946, received in exchange for \$3,000,000 USA Treasury Certificates of Indebtedness Ser. G-1944, dated Dec. 1, 1943, 7/8s/44 . . . . .	3,000,000 00
		\$7,250,000 00

ADDITIONS TO LEDGER VALUE

Interest increment on USA Savings Bonds Defense Ser. F (12 year appreciation bonds):		
\$67,500	(Maturity value) dated May 1, 1941, due May 1, 1953 . . . . .	\$877 50
67,500	(Maturity value) dated Jan. 1, 1942, due Jan. 1, 1954 . . . . .	607 50
67,500	(Maturity value) dated July 1, 1942, due July 1, 1954 . . . . .	472 50
135,000	(Maturity value) dated Jan. 1, 1943, due Jan. 1, 1955 . . . . .	675 00
		\$2,632 50
		\$32,711,185 14

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SECURITIES SOLD		TOTAL PROCEEDS	LEDGER VALUE
\$64,000	Burlington, Cedar Rapids & Northern Ry. Cons. 1st Mtg. 5s/34 @ 24.699	\$15,807 67	\$65,000.00
500,000	Chicago & Northwestern Ry. 1st & Gen. Mtg. Ser. A, 4s/89 @ 103.748	518,741 66	436,106.25
200,000	Chicago, St. Louis & New Orleans R.R. Cons. Mtg. 3½s/51 @ 83.95	167,900 00	132,000.00
700,000	Cleveland, Cincinnati, Chicago & St. Louis Ry. Gen. Mtg. 4s/93 @ 97.45	682,150 00	587,250.00
287,000	Cleveland Short Line Ry. 1st Mtg. 4½s/61 @ 109.3	313,691 06	272,650.00
32,250	Erie R.R. 1st Cons. Mtg. Ser. B, 4s/95 @ 105.189	33,923 68	28,057.50
550,000	Kansas City Southern Ry. Ref. & Imp. 5s/50 @ 82.334	452,838.31	462,000 00
926,000	Lake Shore & Michigan Southern Ry. 1st Mtg. 3½s/97 @ 90.41	837,197.00	805,620 00
331,250	Missouri-Kansas-Texas R.R. Prior Lien Ser. A, 5s/62 @ 71.199	235,849.97	260,031.25
331,250	Missouri-Kansas-Texas R.R. Prior Lien Ser. B, 4s/62 @ 60.199	199,412 47	213,656 25
350,000	National Railways of Mexico Prior Lien S.F. 4½s/57 @ 12.075	42,262.50	45,500 00
1,125	National Railways of Mexico Sec. 6% Notes Ser. A for coupons due Jan. 1, 1914, due Jan. 1, 1933 @ 12.072	135.81	663.75
849,000	Northern Pacific Ry. Ref. & Imp. Ser. A, 4½s/2047 @ 64.22	545,227.31	722,896.02
333,000	Reading Co. Gen. & Ref. Ser. A, 4½s/97 @ 97.78	325,608.42	313,852.50
6,600,000	USA Treasury Bonds 2s/49-51 @ 101.656	6,709,312.50	6,603,868.92
3,000,000	USA Treasury Certificates of Indebtedness Ser. A-1944, 7/8s/44 @ 100.0549	3,001,647.96	3,000,000.00
6,000,000	USA Treasury Certificates of Indebtedness Ser. A-1945, 7/8s/45 @ 100.0517	6,003,105.78	6,000,000 00
47,857.50	United States of Mexico Class A Certificates for interest in arrears, due Jan. 1, 1968 @ 1/10th of 1%	47.86	2,632.16
94,500	United States of Mexico Class B Certificates for interest in arrears, due Jan. 1, 1968 @ 1/20th of 1%	47.25	472.50

TREASURER'S REPORT

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TRANSACTIONS RELATING TO INVESTED FUNDS — *Continued*

	TOTAL PROCEEDS	LEDGER VALUE
<b>Securities Sold — <i>Continued</i></b>		
5,000 Shares Atchison, Topeka & Santa Fe Ry. 5% Non-cum. Pfd. @ \$95.83 per share.....	\$479,127.73	\$491,250.00
4,062 Shares Atlanta, Birmingham & Coast R.R. 5% Pfd. @ \$74.90 per share.....	304,243.80	381,828.00
225,000 Shares Buckeye Pipe Line Co. Cap. (No par) @ \$8.234 per share.....	1,852,721.53	2,652,962.62
2,500 Shares Cleveland Arcade Co. Cap. @ \$124.90 per share.....	312,250.00	246,555.56
638 Shares Cleveland Trust Co. Cap. @ \$195.90.....	124,984.20	122,641.62
13,200 Shares Consolidated Edison Co. of New York, Inc. Com. @ \$25.102 per share.....	331,347.21	597,444.19
1,200 Shares Erie R.R. Ser. A, 5% Pfd. @ \$51.446 per share.....	61,735.77	39,000.00
10,499 Shares Missouri-Kansas-Texas R.R. 7% Cum. Pfd. Ser. A, @ \$15.75 per share.....	165,360.29	440,772.00
5,740 Shares Pere Marquette Ry. 5% Pfd. @ \$47.866 per share.....	274,753.34	285,048.76
35,900 Shares Standard Oil Co. (New Jersey) Cap. (Par \$25) @ \$55.024 per share.....	1,975,367.21	1,088,709.15
	<u>\$25,966,798.29</u>	<u>\$26,298,469.00</u>
<b>SECURITIES REDEEMED</b>		
86,000 Laclede Gas Light Co. Ref. & Ext. Mtg. 5s/45 @ par.....	\$6,000.00	\$6,142.78
15,000 Phelps Dodge Corp. Conv. Deb. 3½s/52 @ 103.....	15,450.00	16,289.15
186,200 Provident Loan Society of New York Certificates of Contribution @ par.....	186,200.00	186,200.00
	<u>\$207,650.00</u>	<u>\$208,631.93</u>

SECURITIES SURRENDERED IN EXCHANGE AND REDUCTION IN LEDGER VALUE:

\$2,000,000	USA Treasury Certificates of Indebtedness Ser. B-1944, dated April 15, 1943, 7/8s/44, exchanged for \$2,000,000 USA Treasury Certificates of Indebtedness Ser. B-1944, dated April 1, 1944, 7/8s/45 .....	\$2,000,000.00	\$2,000,000.00
2,250,000	USA Treasury Certificates of Indebtedness Ser. C-1944, dated May 1, 1943, 7/8s/44, exchanged for \$2,250,000 USA Treasury Certificates of Indebtedness Ser. D-1945, dated May 1, 1944, 7/8s/45 .....	2,250,000.00	2,250,000.00
3,000,000	USA Treasury Certificates of Indebtedness Ser. G-1944, dated Dec. 1, 1943, 7/8s/44, exchanged for \$3,000,000 USA Treasury .90% Notes Ser. C, dated Dec. 1, 1944, due Jan. 1, 1946 .....	3,000,000.00	3,000,000.00
	Payment of \$30.62 per \$1,000 bond received on account of principal re: \$274,000 Kansas City, Ft. Scott & Memphis Ry. Ref. Mtg. 4s/36 .....	8,389.88	8,389.88
	Payment of \$2.00 per share on account of distribution on 68,351 shares The Middle West Corp. Cap. Stock (Par \$5) .....	136,702.00	136,702.00
		\$7,395,091.88	\$7,395,091.88
		\$33,569,540.17	\$33,902,192.81

TREASURER'S REPORT

	DEFICIENCY
Amount by which the proceeds of securities sold or redeemed during the year failed to equal the ledger value.....	\$332,652.64
Registration fee re: Sale of National Fuel Gas Co. Capital Stock (No par) .....	494.45
	\$333,147.09
Less: Liquidating dividend of \$28.00 per share on 220 shares Chehalis & Pacific Land Co. Cap. (Par \$10) .....	6,160.00
	\$326,987.09

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TRANSACTIONS RELATING TO INVESTED FUNDS — *Concluded*

## AMORTIZATION OF PREMIUM PAID ON PURCHASE OF SECURITIES:

\$6,600,000	USA Treasury Bonds 2s/49-51.....		\$681.78	
3,000,000	USA Treasury Certificates of Indebtedness, Ser. G-1944, 7/8s/44.....		2,991.72	
6,000,000	USA Treasury Notes, Ser. A-1947, 1 <sup>3</sup> / <sub>8</sub> s/47.....		8,768.28	\$12,441.78

## RECONCILIATION

Ledger value of securities, December 31, 1943.....		\$163,790,389.05
Purchased.....	\$25,458,552.64	
Received through exchange.....	7,250,000.00	
Additions to ledger value.....	2,632.50	32,711,185.14
		<u>\$196,501,574.19</u>
Sold.....	\$26,298,469.00	
Redeemed.....	208,631.93	
Surrendered in exchange and reduction in ledger value.....	7,395,091.88	
Amortization.....	12,441.78	33,914,634.59
		<u>\$162,586,939.60</u>
Ledger value of securities, December 31, 1944.....		<u>\$162,586,939.60</u>

SCHEDULE OF SECURITIES ON DECEMBER 31, 1944

BONDS

NAME	PAR	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
American Telephone & Telegraph Co. Conv. Deb. 3s, Sept. 1, 1956 . . . . .	\$67,500	110	\$74,250 00	122 875	\$82,940 63
Canada, Dominion of, 2nd Victory Loan 3s, Mar. 1, 1952-54	C \$1,000,000		922,446 39		917,500 00
Canada, Dominion of, 3rd Victory Loan 1½s, May 1, 1946	C \$1,000,000		900,501 18		\$97,500 00
Chicago City & Connecting Rys. Coll. Trust 5s, Jan. 1, 1927 (C/D) . . . . .	\$1,305,000	52	678,600 00	13 25	172,912 50
Chicago, Milwaukee, St. Paul & Pacific R.R. Conv. Adj. Ser. A 5s, Jan. 1, 2000 . . . . .	1,785,200	36 85	657,819 58	17 75	316,873 00
Chicago Rys. Co. 1st 5s, Feb. 1, 1927 (C/D) (25% paid — 500 bonds @ \$750 each) . . . . .	375,000	96	360,000 00	69.	258,750 00
The Chicago, Rock Island & Pacific Ry. 1st & Ref. 4s, April 1, 1934 . . . . .	3,345,000	68.79	2,301,182 55	50 5	1,689,225 00
Cleveland Short Line Ry. 1st 4½s, April 1, 1961 . . . . .	213,000	95	202,350 00	109 5	233,235 00
Erie R.R. 1st Cons. Ser. B 4s, Jan. 1, 1995 . . . . .	234,000	87.	203,580 00	105.125	245,992.50
Imperial Chinese Government Hu Kuang Rys. S.F. Loan of 1911 5s, June 15, 1975 . . . . .	\$189,000		321,300 00		151,200 00
Kansas City, Fort Scott & Memphis Ry. Ref. 4s, Oct. 1, 1936 (274 bonds @ \$969 38). . . . .	\$265,610 12	96.45	256,172.76	80.25	213,152 13

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## BONDS — Continued

NAME	LEDGER VALUE			MARKET VALUE	
	PAR	PRICE	TOTAL	PRICE	TOTAL
The Laclede Gas Light Co. Ref. & Ext. 5s, April 1, 1945...	\$194,000	102.38	\$198,616.63	100.	\$194,000.00
Morris & Essex R.R. 1st Ref. 3½s, Dec. 1, 2000.....	175,000	82.75	144,812.50	68.5	119,875.00
Northwestern Elevated R.R. 1st 5s, Sept. 1, 1941.....	500,000	70.	350,000.00	16.25	81,250.00
Pennsylvania R.R. Gen. Ser. A 4½s, June 1, 1965.....	1,500,000	98.25	1,473,750.00	119.	1,785,000.00
Phelps Dodge Conv. Deb. 3½s, June 15, 1952.....	69,100	108.59	75,038.59	105.25	72,727.75
Philadelphia & Reading Coal & Iron Co. Ref. S.F. 5s, Jan. 1, 1973 (10% paid — 167 bonds @ \$900 each).....	150,300	93.61	140,701.42	82.25	123,621.75
St. Louis-San Francisco Ry. Prior Lien Ser. A 4s, July 1, 1950	1,510,000	72.74	1,098,350.00	49.5	747,450.00
St. Louis-San Francisco Ry. Cons. Ser. A 4½s, March 1, 1978	2,500,000	14.2	355,000.00	39.875	996,875.00
Standard Oil Co. (New Jersey) 25 year Deb. 3s, June 1, 1961	15,000,000	98.	14,700,000.00	105.375	15,806,250.00
United States of America Treasury Certificates of Indebted- ness 7/8%:					
Series B, due Apr. 1, 1945.....	2,000,000	100.	2,000,000.00	100.0349	2,000,698.00
Series D, due May 1, 1945.....	2,250,000	100.	2,250,000.00	100.0471	2,251,059.75
United States of America Treasury Bonds:					
<i>Int.</i> <i>Dated</i> <i>Due</i>					
2% — May 15, 1942 — Sept. 15, 1949-51.....	380,000	100.	380,000.00	101.6875	386,412.50
2% — Apr. 15, 1943 — Sept. 15, 1950-52.....	6,000,000	100.	6,000,000.00	101.21875	6,073,125.00
2% — Sept. 15, 1943 — Sept. 15, 1951-53.....	5,000,000	100.	5,000,000.00	100.71875	5,035,937.50

2% — June 26, 1944 — June 15, 1952-54 . . . . .	\$4,500,000	100	\$4,500,000 00	100.4375	\$4,519,687.50
2% -- Dec. 1, 1944 — Dec. 15, 1952-54 . . . . .	6,600,000	100.	6,600,000 00	100 3125	6,620,625 00
2½% — May 5, 1942 — June 15, 1962-67 . . . . .	6,000,000	100	6,000,000.00	100.78125	6,046,875 00
2½% — Oct. 20, 1941 — Sept. 15, 1967-72 . . . . .	500,000	100	500,000 00	100 625	503,125 00
United States of America Savings Bonds Defense Series F (12 year appreciation bonds):					
Due May 1, 1953 — Maturity value . . . . .	67,500	76 7	51,772 50	76 7	51,772 50
Jan. 1, 1954 — " " . . . . .	67,500	75 4	50,895 00	75 4	50,895 00
July 1, 1954 — " " . . . . .	67,500	74 9	50,557 50	74 9	50,557 50
Jan. 1, 1955 — " " . . . . .	135,000	74 5	100,575 00	74 5	100,575 00
United States of America Treasury Notes:					
Series C due Jan. 1, 1946 — 90% . . . . .	3,000,000	100	3,000,000 00	100.0393	3,001,179.00
Series A due Sept. 15, 1947 — 1½% . . . . .	6,350,000	100.41	6,376,304 82	100 75	6,397,625.00
Series C due Sept. 15, 1947 — 1½% . . . . .	7,000,000	100	7,000,000 00	100 1875	7,013,125 00
<b>TOTAL BONDS</b> . . . . .			<b>\$75,274,576 42</b>		<b>\$75,209,604.51</b>

## PREFERRED STOCKS

NAME	SHARES	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
Bethlehem Steel Corp. (Delaware) 7% Cum. . . . .	400	\$129 07	\$51,629 47	\$127.50	\$51,000.00
Chicago City & Connecting Rys. Participation Certificates (No par) (C/D) . . . . .	17,530	1.00			1 00
Consolidated Edison Co. of New York, Inc. \$5 Cum. (No par)	13,333	91 75	1,223,302 76	107.75	1,436,630 75
International Harvester Co. 7% Cum. . . . .	40,000	115.00	4,600,000 00	180 00	7,200,000 00
Standard Oil Co. (Ohio) 5% Cum. . . . .	15,000	101.00	1,515,000 00	109.25	1,638,750.00
United States Steel Corp. 7% Cum. . . . .	6,600	133.86	883,462 50	135.75	895,950 00
<b>TOTAL PREFERRED STOCKS. . . . .</b>			<b>\$8,273,395 73</b>	<b>.....</b>	<b>\$11,222,331.57</b>

## COMMON STOCKS

NAME	SHARES	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
American Telephone & Telegraph Co. Cap.	5,400	\$181.67	\$981,002 50	\$163 625	\$883,575 00
The Buckeye Pipe Line Co. Cap. (No par)	107,763	11 79	1,270,627 60	10 00	1,077,630 00
Central National Bank of Cleveland (Par \$20)	8,482	32 11	272,397 43	31 00	262,942 00
Chehalis & Pacific Land Co. Cap. (Par \$10)	220		1 00		1 00
Chicago City & Connecting Rys. Participation Certificates (No par) . . . . .	10,518		1 00		1 00
Consolidated Edison Co. of New York, Inc. (No par)	9,000	45 26	407,348 31	24 625	221,625 00
Consolidated Natural Gas Co. Cap. (Par \$15)	105,970	26 57	2,815,622 90	31 75	3,364,547 50
Consolidation Coal Co. Rights to purchase common stock	5,875			2 50	14,687 50
Continental Oil Co. (Delaware) Cap. (Par \$5)	60,627	11 15	676,125 70	32 00	1,940,064 00
Eureka Pipe Line Co. Cap. (Par \$50)	12,357	45 00	556,065 00	28 00	345,996 00
International Nickel Co. of Canada, Ltd. (No par)	30,600	65 14	1,993,253 40	29 00	887,400 00
Interstate Natural Gas Co. Inc. Cap. (No par)	33,763	14 96	505,042 25	31 00	1,046,653 00
Kennecott Copper Corp. Cap. (No par)	33,100	59 78	1,978,731 03	37 375	1,237,112 50
Middle West Corp. Cap. (Par \$5)	68,351 92	7 75	529,729 22	11.00	751,871 12
National Fuel Gas Co. Cap. (No par)	381,018	7 75	2,952,889.50	11 125	4,238,825.25

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COMMON STOCKS — *Concluded*

NAME	SHARES	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
National Transit Co. Cap. (Par \$12.50) .....	126,481	\$12.70	\$1,606,308.70	\$13.25	\$1,675,873.25
Ohio Oil Co. (No par) .....	94,684	35.37	3,349,446.50	18.125	1,716,147.50
Phelps Dodge Corp. Cap. (Par \$25) .....	37,600	52.72	1,982,151.40	26.00	977,600.00
Southern Pipe Line Co. Cap. (Par \$10) .....	24,845	6.25	155,281.25	9.25	229,816.25
South West Pennsylvania Pipe Lines Cap. (Par \$10) .....	8,000	34.28	274,237.86	28.75	230,000.00
Standard Oil Co. of California Cap. (No par) .....	60,967	17.25	1,051,680.75	38.125	2,324,366.88
Standard Oil Co. of Indiana Cap. (Par \$25) .....	691,140	28.90	19,973,946.00	33.75	23,325,975.00
Standard Oil Co. (New Jersey) Cap. (Par \$25) .....	1,013,400	30.33	30,732,386.66	56.25	57,003,750.00
Standard Oil Co. (Ohio) (Par \$25) .....	135,648	24.83	3,368,602.52	48.25	6,545,016.00
Union Tank Car Co. Cap. (No par) .....	240,000	6.69	1,606,087.97	30.00	7,200,000.00
Wilson Realty Co. Cap. ....	591		1.00		
<b>TOTAL COMMON STOCKS</b> .....			<b>\$79,038,967.45</b>		<b>\$117,501,475.75</b>

SUMMARY	LEDGER VALUE	MARKET VALUE
Bonds .....	\$75,274,576.42	\$75,209,604.51
Preferred Stocks .....	8,273,395.73	11,222,331.75
Common Stocks .....	79,038,967.45	117,501,475.75
	<u>\$162,586,939.60</u>	<u>\$203,933,412.01</u>

**SQUIRES & COMPANY**  
CERTIFIED PUBLIC ACCOUNTANTS  
101 PARK AVENUE, NEW YORK  
*ACCOUNTANTS' CERTIFICATE*

TO THE BOARD OF TRUSTEES OF  
THE ROCKEFELLER FOUNDATION:

We have examined the balance sheet of The Rockefeller Foundation as of December 31, 1944, and the statements of transactions during the year ended December 31, 1944, and balances at that date, in funds, appropriations and investment securities. Our examination was made in accordance with generally accepted auditing standards applicable in the circumstances and, without making a detailed audit of the transactions, included such inspections and tests of the accounting records and supporting evidence and other procedures as we consider necessary.

The accounting records are maintained on a cash basis and do not give effect to income accrued but not received, or to expenditures made in the field and not reported at the close of the year, and the accompanying statements are on the same basis.

In our opinion, the accompanying balance sheet and statements relating to funds, appropriations, transactions in securities and list of investment securities held present fairly, on the foregoing basis, the position of The Rockefeller Foundation at December 31, 1944, and the results of its financial activities for the year ended that date, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

SQUIRES & COMPANY

NEW YORK, N. Y., March 24, 1945.



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