

The
Rockefeller Foundation

Annual Report

1943

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¹ Retired September 1, 1944.

² Appointed September 1, 1944.

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, 1943, to December 31, 1943, 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 1943**

PRESIDENT'S REVIEW

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PRESIDENT'S REVIEW

THE YEAR IN BRIEF

DURING 1943 the appropriations of The Rockefeller Foundation amounted to \$7,760,186. The income of the Foundation from investments during the year was \$8,079,164.

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

Public health	\$2,450,000
Medical sciences	1,529,000
Natural sciences	599,000
Social sciences	1,068,000
Humanities	1,055,000
Program in China	108,000

A detailed statement of the appropriations made in 1943 appears at the conclusion of this report, beginning on page 256. Of the money appropriated during the year, 69 per cent was for work in the United States and 31 per cent for work in other countries.

In December 1943 Dr. Charles N. Leach of the Far Eastern field staff of the International Health Division and Mr. C. G. Copley of the Foundation's Manila office returned to America on the exchange ship *Gripsholm*. Both had been interned since the fall of Manila. At that time, the Japanese looted the Foundation's office and destroyed all records. In China, Dr. Henry S. Houghton, director of the Peiping Union Medical College, and Mr. Trevor Bowen, its comptroller, are still imprisoned, and

hope for their early return seems slight. The buildings of the College have been taken over by the military and the greater part of their contents has been removed.

THE DEVELOPMENT OF PENICILLIN

Some fifteen years ago, Dr. Simon Flexner, whose distinguished contributions to medicine had been in pathology, made this prophetic remark: "In my opinion the next great advance in medicine will be in the field of chemotherapy."

How accurate his surmise was is shown by the events of the last few years. Hard on the heels of the sulfonamide drugs has come penicillin, the new medical tool whose potentialities seem to be even greater than its present extraordinary achievements. The story of penicillin deserves a place in this report.

In May 1936 The Rockefeller Foundation received a letter from Dr. H. W. Florey, professor of pathology at Oxford, applying for a grant in aid of \$1,280. Dr. Florey, who was a former Rockefeller Foundation fellow, explained that he was developing a chemical approach to problems of pathology. He had recently added a biochemist to his staff and had engaged a second chemist to join the group in September; the funds were needed to provide laboratory equipment.

The grant was made at once, and seldom has so small a contribution led to such momentous results. For it was this laboratory, this equipment and this group under Dr. Florey that pioneered the clinical use of penicillin.

The existence of penicillin as a curious by-product of the greenish-blue mold, *Penicillium notatum*, had been discovered several years before by Dr. Alexander Fleming working at St. Mary's Hospital in London. Dr. Fleming first recognized its antagonism to bacteria in

1929 when he found that certain bacteria disappeared in the presence of the mold. In a sense the discovery was an accident, but as Pasteur remarked, "Chance favors the prepared mind." Dr. Fleming followed his discovery with various tests of the ability of *Penicillium notatum* to clear up colonies of microbes in a test tube. But no tests had been made of its medicinal value, and Dr. Florey and his associates at Oxford now undertook, as one of their projects, to explore its possibilities in the treatment of human disease.

Toward the end of 1939, with England engaged in a war of survival, Dr. Florey sent the Foundation a brief prospectus of his proposed research, the groundwork for which had been laid in the intervening years. He headed it "A Chemical Study of the Phenomenon of Bacterial Antagonism," and he asked for \$5,000 for a year's support—a sum which was immediately put at his disposal. By the end of 1940 he was able to write the Foundation: "There is good ground for hoping that this substance will be much more effective than the sulfonamides, hence the prosecution of the work is of urgency and importance." And the conservative scientist added: "I don't think I am too optimistic in thinking that this is a very promising line."

A second grant of \$5,000 was made, and in April 1941 Mr. Warren Weaver, head of the Foundation's Division of Natural Sciences, visited Dr. Florey in England. In his diary of the visit Mr. Weaver recorded this observation: "This project, if it were indeed successful, would be more revolutionary than the discovery of the sulfa drugs, and must be recognized as a project of the very highest potential importance. We certainly ought to do all that we can to accelerate its progress."

In July 1941 the Foundation provided a special travel grant to enable Dr. Florey and his associate, Dr. N. C.

that a foundation can aim to do is to put its support in the right place, at the right time. The most that it accomplishes is to expedite the development of ideas which, because of the lack of laboratories or tools or assistance, might otherwise be retarded.

That this function requires knowledge and imagination on the part of foundations is not to be denied. And mistakes are inevitable because human judgment is frail. Perhaps the mistakes are due in considerable degree to lack of what might be called a clairvoyant kind of imagination. So often a new germinal idea runs completely contrary to accepted opinion; it violates all the canons of current scientific thinking. One wonders what would have been the answer of a foundation to Louis Pasteur if he had applied for aid in the development of his strange conception that the process of fermentation and the process of infection are related. Or what assistance from any responsible foundation could Madame Curie have obtained during those years when with her own hands she shoveled tons of pitchblende in that old shed in the Rue Lhomond? To detect genius when it appears, to distinguish between fundamental ideas that are struggling to be born and those that have already safely arrived, to be able to discriminate between the significant and the trivial — this is the difficult, indeed the almost impossible, standard by which those who would assist in extending the frontiers of knowledge must measure themselves.

If this standard is valid, it follows that the proper place for a foundation working at this task is on the frontiers, and not in the settled areas behind. Moreover, frontiers are never stationary; sooner or later they will themselves be settled, and the line will move forward once again. If fundamental research is to be promoted in any of the fields of knowledge, there can be no

consideration of the *status quo*. Facts march. There are no areas of human thinking around which magic circles can be drawn to protect them against possible obsolescence. In physics, chemistry, mathematics, and also in the social sciences, each generation, with new light thrown by better instruments of precision or by more delicate apprehension, corrects the mistakes of its predecessors and makes a few of its own. Hypotheses serve their purpose and are then given honorable retirement when better ones appear. In the field of science, and in human relations as well, the problem is never finally solved; the last word is never said. Knowledge, like life itself, is dynamic and not static. As Professor Whitehead remarked: "No generation can merely reproduce its ancestors. You may preserve the life in a flux of form, or preserve the form amid an ebb of life." An understanding of what might be called the biological inevitability of change, and a broad sympathy with intellectual adventure, must be the basis of any organization whose sincere objective is the extension of knowledge.

PURE RESEARCH AND PRACTICAL NEEDS

In 1920 the Harvard Medical School established as part of its organization a laboratory of physical chemistry under Dr. Edwin J. Cohn. To create such a department in a medical school was a somewhat unusual and imaginative thing to do. This laboratory was to be free to explore those little-developed aspects of physical chemistry which were considered fundamental for the understanding of biological processes. It was clear that these researches would not be at the moment, and could not be for a long time to come, very closely related to the practical problems of sickness and health. But the Harvard authorities had the courage and the wisdom to back a patient, basic, long-range enterprise, and The

Rockefeller Foundation has consistently contributed to its support since 1930, the total contributions to date being in the neighborhood of \$200,000.

The scientific level of the work in this laboratory has been distinguished. But it is certainly true that the work over the first ten or fifteen years was rather abstract and theoretical. Professor Cohn and his colleagues carried out a number of difficult and precise experiments to determine the physical-chemical properties of large protein molecules, especially those that circulate in the blood. As late as 1938 The Rockefeller Foundation, making an appraisal for itself of this project, included in its statement the sentence: "The work has been painstaking, abstruse, and likely only slowly to come to widespread recognition for its essential importance."

This laboratory and this patient effort thus constitute a dramatic illustration of the truth of John Dewey's remark: "It does not pay to tether one's thoughts to the post of usefulness with too short a rope." For when the war came and sudden emergencies arose, it developed that Dr. Cohn's laboratory was in possession of the knowledge and the techniques necessary to solve a very practical and pressing problem. The medical authorities of the American Red Cross and the National Research Council realized that the demand for blood plasma for the relief of the wounded might outrun anything that could be supplied. Confronted by this tremendous need, they questioned if it would be possible to use the plasma of animal blood. And because of his many years of experience with the theoretical studies of blood substances, they turned to Dr. Cohn with their urgent problem.

Remarkable developments have come out of that query. The original question whether or not animal plasma may be safely injected into the human blood stream has not yet been settled; it is still under investi-

gation. But meanwhile, the method of separating animal plasma into its various components has been applied to the processing of human blood, and some of these separated components of human plasma have proved to be of extraordinary value in medicine and surgery. They are already in production, under control of United States Government authorities, and are in use at the fighting fronts, serving our armed forces both in the European and in the South Pacific theatres of war.

One of the plasma components, for example, is albumin, and this blood albumin has proved to be of distinct value in the treatment of shock and other conditions resulting from blood loss. Isolated from the blood, a transfusion unit of albumin occupies less than one sixth the space and about one seventh the weight of a unit of whole plasma. These qualities of compactness and light weight are of obvious value when transport must be made over great distances in small ships, landing barges or by plane. Seven large commercial plants are now in operation under Navy contracts, extracting and packaging the albumin from certain allotments of Red Cross blood.

Another group of plasma components are the clotting factors, certain protein substances which are responsible for the coagulation of blood. In the process of extracting the albumin, these, too, are separated and collected; and a remarkable series of studies at the Harvard laboratory has included experiments with clots, films, plastics and foams formed from the separated fibrinogen and thrombin. Tests of these materials have been made by surgeons in civilian and military hospitals; and in several hundred brain and other neurosurgical operations fibrin artifacts have been used to control hemorrhages, to provide new surfaces for exposed tissue, to join severed organs and for other purposes. These

studies have followed the albumin studies in time, and the clotting substances are not so far advanced in production, but recently contracts have been authorized to two of the albumin processing plants to separate, prepare and package the clotting factors also; and this production is likewise destined for the armed forces.

But there are other components. The plasma contains, for example, whatever antibodies are carried in the blood of the numerous donors, and Dr. Cohn's group have found it possible to segregate and concentrate the antibodies of measles. Clinicians in Philadelphia, Baltimore and Boston tested the use of these concentrates in epidemics in those cities last winter and have reported beneficial results in both the prevention and the treatment of the disease. Large quantities of measles antibodies are now being produced for the armed forces.

Thus, what started as an inquiry into the practicability of using animal plasma as a blood substitute for transfusion purposes, has developed into a program of "mining" blood for its individual substances and for testing these concentrates for therapeutic and prophylactic use. Knowledge gained in a laboratory devoted wholly to problems of pure science has been turned quickly and effectively to meet immediate human needs.

FUNDAMENTAL RESEARCH IN EUROPE

It is gratifying to record that even in the war-shaken countries of Europe fundamental research in the biological and medical sciences has been kept alive. Nothing is known, of course, of the situation in Germany and in most of the occupied countries; but in Great Britain, in Sweden, in Switzerland, and until recently in Denmark, work on basic problems has been prosecuted without serious break.

In relation to many of these projects The Rockefeller

Foundation has been able to be of assistance. Ever since the war started, uninterrupted support has been given, for example, to Svedberg's monumental work on proteins at the University of Uppsala and to Runnström's research in chemical physiology and embryology at the University of Stockholm. Dr. Svedberg is a Nobel prize winner, and the studies of both these men have deep significance for the future. In the earlier days of the war it was possible for the Foundation to get funds to outstanding Danish scholars working at the University of Copenhagen. When these scholars were driven out of Denmark, support was continued for them in Sweden, where they had found refuge.

Similarly, aid to Swedish scholars has been given during the war for research in biochemistry, biophysics and neurophysiology at the Karolinska Institut; for studies in radiology at the Serafimer Hospital; and for work in radioactive substances at the Research Institute of Physics of the Academy of Sciences. In Switzerland the Foundation has made grants to the University of Basel, the University of Zurich and the Eidgenössische Technische Hochschule for research in biochemistry, organic chemistry and plant physiology.

In Great Britain the Foundation's grants — in relatively small amounts — cover a wide range of basic research in biochemistry, biophysics, genetics, organic chemistry, psychiatry, neurology and neurosurgery. This research is under way at Oxford, Cambridge, the University of Sheffield, the University of Edinburgh, the University of Birmingham, the Galton Laboratory and University College, London.

But it is not alone in the biological and medical sciences that these war-weary countries are maintaining the studies and research that look to the future and are thus keeping alive in Europe the high tradition of learn-

ing. In the social sciences as well a great deal of work is being carried on; and since the war began the Foundation has had the privilege of making grants to organizations like the Royal Institute of International Affairs, the London School of Economics and Political Science, the National Institute of Economic and Social Research in London, the Social Studies Research Committee of Oxford, Political and Economic Planning (PEP) — as well as to the Swedish Institute of International Affairs and the Graduate Institute of International Studies at Geneva, Switzerland.

Sums have also been given to the Delegates of the Press of Oxford University for distribution as grants in aid among refugee scholars in England in connection with their research. The reports from Oxford indicate that the research has covered widely diverse fields, such as philosophy, history, mathematics, music, art and law. "I can give an excellent account of the industry, frugality and loyal spirit of those who have received grants," writes Kenneth Sisam, who has been in charge of the fund. "It is a scheme which has enabled scholars who could not take an active part in war work to make a valuable contribution to learning."

That fundamental research can be maintained in countries where the shock of war is ever present, and the lamp kept burning, is in these dark days a refreshing reminder of the power and persistence of creative intelligence.

LABORATORIES AND BARBED WIRE

In spite of this gratifying record, it must not be supposed that fundamental research has continued during the war in anything like the same volume as before. It is in fact today a mere trickle compared with the mighty stream it formerly was. Valuable as it is to keep alive the tradi-

tion of fundamental research, it must nevertheless be admitted that it is not in war but in peace that the advance of knowledge, as distinguished from the application of knowledge, finds its favorable environment. A nation at war has little time or inclination for pure research — the clean, clear urge to gain new knowledge, the sympathetic appreciation of imaginative scholarship even when it seems remote and unrelated. There is a sense in which the practical applications of knowledge are the dividends which pure science from time to time declares. When pure science is even temporarily interrupted, then it is necessary to pay these dividends out of surplus; and obviously this process cannot long continue.

But when peace comes, work can recommence on building up the capital, enlarging the reservoirs of knowledge upon which men have drawn during relatively unproductive years. And this will be possible because wartime barriers will be down and the search for truth can go forward in a free intellectual world. Freedom of intercourse and discussion and the publication of results, not only within a nation but across all boundaries, are essential conditions of fundamental research.

In wartime, science and learning are necessarily partisan, but this is a perversion of their real character. When the war is done, men will again have access to all knowledge, wherever it may be found, and armed guards will no longer protect the secrets of research that might bring health and a better life to the race. Laboratories surrounded by barbed wire are ugly monuments to the intellectual and moral distortion of our times.

For of all the activities of men, science and learning are the most truly international. They alone seem to be capable of transcending the follies and absurdities of national rivalries. The search for truth, the experimental

method, the eager application of new discovery to human ills — these speak in a tongue which meets with universal understanding. These constitute perhaps the strongest link between intelligent people in all countries, no matter what flag flies over their frontiers.

It is a significant symbol of this common link that the astronomers of the world, even in time of war, have defied the boundary lines that sought to prevent the exchange of information dealing with the universe. A new comet discovered by Diamaca, a Roumanian, is reported by radio at Bucharest to the Royal Astronomer of Denmark, and by him to the Observatory of Zurich, and then to the Harvard Observatory. Professor August Kopff of Berlin sends word by way of Copenhagen and Stockholm that a nova of the twelfth magnitude in Aquila has been discovered, and the information is immediately checked in observatories in all countries. Under the auspices of the Department of State, the Harvard Observatory publishes, in mimeographed form, "Astronomical News Notes," which goes by mail, directly and indirectly, to probably all the observatories of the world.

If in the midst of the bitterest conflict in history the discovery of a comet or of a new universe of stars can link together astronomers of warring nations, surely there is hope that when peace comes, the fellowship of research and the common language of science and learning can be a strong base on which to help build a coherent and integrated world.

THE GAMBIAE MOSQUITO COMES BACK

In former issues of this *Review* an account has been given of the successful campaign in Brazil against the dangerous malaria-carrying *Anopheles gambiae* mosquito whose home is in Africa. After high death rates and enormous

suffering, and with great labor and cost, it can be said with confidence that the gambiae species was eliminated from Brazil.

The Foundation was therefore disturbed to receive, during 1943, advices from its representatives in Rio de Janeiro that gambiae mosquitoes, some of them alive, had been found on planes coming from Accra and Dakar in Africa to Natal. Even more disturbing was the news that five live gambiae had been discovered in dwellings near the Natal airport. Incoming planes from Africa are, of course, fumigated both before they leave Africa and before they land in Brazil, but a few mosquitoes were evidently able to stow away safely in the modern, complicated airplanes. When it is realized that a single fertilized gambiae could start a conflagration similar to that which swept north from Natal in the thirties, the danger of the situation becomes apparent.

Thanks to the efforts of the Brazilian and United States authorities, the immediate situation is now in hand. But it poses a problem of larger significance which cannot be evaded. Around the ports of Africa and deep within the hinterland lie the breeding centers of the gambiae. The safety of the Western Hemisphere, which is now within a few hours' flight across a narrow ocean, can no longer be left to the uncertainties of a flit-gun campaign. Modern airplane travel has made old methods and ideas of quarantine completely obsolete. If the Americas are adequately to be protected, the breeding places of gambiae, wherever in Africa or elsewhere they may be found, must be eradicated. The campaign must be carried to the sources of infestation. It can no longer be defensive; it must be offensive.

But the problem, of course, is far broader than gambiae. This newly made world which the airplane has tied together has lost its frontiers. Certainly in the field of

public health they no longer have significance or meaning. No line can be established anywhere in the world which confines the interest of any one country, because no line can prevent the remote from becoming the immediate danger. Whether it is malaria or yellow fever or typhus or bubonic plague or whatever the disease may be, the nations of the world face these enemies of mankind not as isolated groups behind boundary lines but as members of the human race living suddenly in a frightening propinquity.

Public health can no longer be thought of exclusively in national terms. Whether we like it or not, our technologies now confront us with inescapable demands for a new approach. Some kind of regularized international cooperation is essential. Whatever we may think of the League of Nations, its Health Organisation blazed a new trail in the international attack on disease — a trail that must be widened into a firm road. Certainly a service of epidemiological intelligence covering the whole world is an immediate necessity, and many other essential public health activities not only lend themselves to collective approach but can be effectively handled only by that method.

In relation to great scourges like malaria and influenza — as indeed in relation to many other perils — nations today are roped like Alpine climbers crossing a glacier: they survive or perish together.

THE RETURN TO LAGOS

In 1925, after an extensive survey by a commission sent out by The Rockefeller Foundation, a laboratory was built in Lagos, West Africa, for the study of the epidemiology of yellow fever and its relationship to the yellow fever of South America. It was in this laboratory that many of the tangled threads of the story were un-

raveled. It was here, too, that tragedy struck, in the death, through yellow fever, of four brilliant scientists, Dr. Adrian Stokes, Dr. Hideyo Noguchi, Dr. William Alexander Young and Dr. Theodore B. Hayne. They gave their lives — as others did in the Americas — in an attempt to discover the secrets of this dread disease. As we look back on the progress that has been made in twenty years in increasing our knowledge of yellow fever and arming us with tools to control it, we can truly say these men did not die in vain.

When these pioneers started work in Lagos, no protective vaccine had been developed, no laboratory animal susceptible to the disease was known, no viscerotomy method of diagnosis had been devised, no blood tests to determine immunity had been evolved. Moreover, the whole epidemiological concept of the disease, particularly the idea that the *Aedes aegypti* mosquito was its only carrier, was based on foundations which experience and experiment were to prove unsubstantial.

The laboratory at Lagos was abandoned in 1934. It was felt that its work had been done and that other centers could more effectively carry on the research. Because an immunity survey had shown the previous presence of yellow fever in vast sections of the country, all the way from Nigeria eastward to the upper reaches of the Nile, a new laboratory was opened in Entebbe, in Uganda, in 1936. Since that date, this laboratory has been the center of research in yellow fever in Africa, while the New York laboratory and the South American institutes have carried the responsibility in the Western Hemisphere.

But in 1943 it was decided to reopen the Lagos laboratory. The buildings are still standing, and personnel, both American and British, has already been assigned. This laboratory will serve as a center for distributing

yellow fever vaccine to troops and settlements in West Africa and will constitute a consultative service to the government authorities in the British colonies of Gambia, Sierra Leone, the Gold Coast and Nigeria, where yellow fever has long been endemic. Moreover, there are still puzzling questions about this disease for which answers can be found only in a laboratory.

The most striking difference between yellow fever in Africa and yellow fever in South America is that in the former continent it has not yet been possible definitely to prove the existence of the "jungle" type, since in Africa no rural area has yet been found from which the *Aedes aegypti* mosquito is absent. To be sure, suggestive evidence of the presence of jungle yellow fever has been obtained by the workers in the laboratory in Entebbe, who have isolated the virus from wild-caught mosquitoes other than *aegypti*. One of the main objectives of the new program centering at Lagos is to find out whether the jungle variety discovered in South America has its counterpart in West Africa. If this proves to be the case, studies will be made there of the mechanism by which this form of yellow fever is transmitted to man, and this research will be tied in with similar research which is now going forward in South America.

The return to Lagos has a certain symbolic interest for The Rockefeller Foundation, for it was in West Africa, in 1927, that a blood specimen was taken from a black native named Asibi who was sick with yellow fever. This specimen was inoculated into a rhesus monkey which had just been received from India. Asibi recovered, but the monkey died of the disease. All the vaccine manufactured since 1937, both by The Rockefeller Foundation and by government and other agencies as well, derives from the original strain of virus obtained from this humble native. Carried down to the present

day from one laboratory animal to another, through repeated tissue cultures and by enormous multiplication, it has afforded immunity to yellow fever to millions of people in many countries. Wherever today in yellow fever areas the armed forces of the allied nations are stationed, they are protected from the disease by vaccination from this same strain. Through the creative imagination of science, the blood of one man in West Africa has been made to serve the whole human race.

TYPHUS

The International Health Division of the Foundation began laboratory research in typhus in 1940, and soon afterward a field worker was sent to Spain to study on the ground the epidemic active in that country. As the war spread, the work in Spain had to be stopped, but continuous study was given to three new strains of typhus brought back from Spain to the laboratory in New York. Twenty thousand people in Madrid were vaccinated with one of the earlier types of typhus vaccine. But the results were inconclusive. Moreover, two doctors on the staff of the Foundation contracted typhus, although they had been vaccinated with supposedly the most effective type, and the feeling grew that the main defense against this disease must still be the control of its insect vector.

In 1942, therefore, the Foundation, while continuing its laboratory research, switched its main attack to the carrier of the disease: the body louse. A louse laboratory was opened on the East Side of New York; a stock of lice was obtained from a Bowery casualty who had just been admitted to Bellevue's alcoholic ward; and research was begun on two problems: first, the long-range task of unraveling the biology of the louse, and second,

the more immediate question of devising quick and effective means of killing the insects and thus preventing infestation.

The second problem has progressed in a gratifyingly successful manner. A number of substances highly lethal for lice had already been discovered in various laboratories, but they required further testing under field conditions. Tests had been made in the Orlando Station of the Bureau of Entomology of the Department of Agriculture, and the Foundation collaborated by carrying the tests into the more distant field under a variety of social and climatic conditions. The first comprehensive test made by the Foundation was in a conscientious objectors' camp in New Hampshire. Out of a large number of volunteers, eager to cooperate, thirty men were chosen for the three weeks' experiment, each man being infested with 100 lice. Several chemical substances were tested on these men for their power to kill lice, and in general the results already noted in the laboratory were confirmed.

In cooperation with the Mexican health authorities, another test was made in five villages in Mexico, in one of which typhus was present. Technique improved with practice, and it was shown that a village population could be easily and completely sterilized as far as insect typhus carriers were concerned. Lice were effectively controlled and typhus disappeared from the infected village because there was no agent to carry it from one person to another.

In the summer of 1943 the Foundation, with the approval of the Army, sent a typhus team to Algeria where epidemics have recently raged. Two extensive demonstrations of louse control have been undertaken, and as a result a new technique is under development by which

the insecticide is applied to individuals in a way which speeds up the process and makes possible the mass treatment of communities.

In the meantime, laboratory work is continuing on various strains of typhus in the hope of developing an effective vaccine. None of those now in use prevents infection in man, although experience seems to indicate that the attack is milder and the mortality lower in vaccinated persons. On the other hand, certain experimental vaccines have at times conferred a high degree of immunity in animals. The results, however, have not always been reproducible, indicating that there are some factors involved which are not yet clearly understood.

DOCTORS IN UNIFORM

An interesting experiment in improving the morale and performance of medical staffs has been carried on during the year in the Eighth Service Command of the Army. At the suggestion of the Medical Consultant of this area, Colonel Walter Bauer, The Rockefeller Foundation provided medical books, journals and teaching materials for several military hospitals and, in addition, arranged for visits to the hospitals by well-known teachers of medicine, surgery and psychiatry.

For thousands of doctors, military service has proved an adventure, punctuated by periods of frustration, bewilderment or boredom. In many an instance leaving a life crowded with work he could do in his own way, the physician has found on entrance into the Army that the prescribed methods of procedure were apparently formal and rigid, and that at times there was little to do. If one third of war is waiting, the medical corps has its share, too, of that experience.

The hospitals of the Army have consequently had to

face the problem of maintaining professional morale; and Colonel Bauer believed that teaching is the best way of arousing the interest of physicians in the quality and quantity of their work. As an experiment in one Service Command area it was decided to try out the hypothesis that military hospitals could carry on satisfactory graduate teaching.

Though adequate for routine purposes and ordinary usage, the libraries of many station and general hospitals in military areas would scarcely satisfy the demands of a teaching unit. An appropriation for books and journals for a dozen centers was therefore made by the Foundation to enlarge the immediate resources for reference and study. Provision was also made for mimeographed case histories and microscopic and lantern slides of interesting cases, prepared especially for their teaching value by the Massachusetts General Hospital.

But the core of the project was the arrangement for visits to the medical personnel of the hospitals by competent specialists from civilian life — not as platform lecturers, but on a more intimate and informal basis. Their teaching is by example rather than precept. They address themselves to patients and doctors, not to diseases. Making ward rounds, examining individual patients, discussing special cases, conversing with small groups at meals, the visiting civilian physicians, many of whom have been the teachers in medical schools of the doctors now in uniform, call forth a measure of response and participation which they could not elicit as platform speakers.

Eager as was the demand at first for lecturers, the results from the more informal approach have exceeded expectations, and the increased interest of the physicians in the problems presented by their soldier patients has

shown itself not only in better care of the patients but in better morale among the doctors.

The visiting civilian physicians record two interesting impressions of their experiences in the camps: first, that in point of diagnostic facilities, laboratory tests and technical equipment, American medicine as revealed in this sampling is at a very commendable and satisfactory level; second, that medical education in the United States has produced many M.D.'s but not enough doctors capable of handling human beings, capable of understanding the role of emotions and thoughts in disease, capable of listening so wisely to the patient's story of his life and his trouble that diagnosis can be made without large quantities of laboratory tests.

The work in the Eighth Service Command was supported as an experiment. If it reaches the stage of a demonstration of valid and useful procedure applicable to other Service Commands, the Foundation's contribution will have attained its end.

FRANKENSTEIN

The supreme question which confronts our generation today — the question to which all other problems are merely corollaries — is whether our technology can be brought under control. Is man to be the master of the destructive energies he has created, or is he to be their victim? Will this physical power which he already possesses and these new forces which are now within his grasp be employed to serve the race in constructive ways, or will they be a Frankenstein monster that will slay its own maker? In brief, has man the wisdom and the ethical and spiritual powers to control the forces which he has himself let loose?

If science were standing still, if no new powers were to be added to those already in man's possession, the

problem might eventually find solution. But, of course, the idea is fanciful. We are merely at the beginning of progress in our technologies. New powers and weapons are just around the corner, powers and weapons which the utmost wisdom could scarcely be trusted to use aright — airplanes larger and more deadly than those now employed, explosives capable of far-flung destruction beyond anything we dream of at the moment.

Twenty years ago, in an article which he entitled "Shall We Commit Suicide?", Mr. Winston Churchill summed up the situation in these prophetic and eloquent paragraphs:

"It is established that nations who believe their life is at stake will not be restrained from using any means to secure their existence. It is probable — nay, certain — that among the means which will next time be at their disposal will be agencies and processes of destruction wholesale, unlimited, and perhaps, once launched, uncontrollable.

"Mankind has never been in this position before. Without having improved appreciably in virtue or enjoying wiser guidance, it has got into its hands for the first time the tools by which it can unfailingly accomplish its own extermination. That is the point in human destinies to which all the glories and toils of men have at last led them. Death stands at attention, obedient, expectant, ready to serve, ready to shear away the peoples *en masse*; ready, if called on, to pulverize without hope of repair what is left of civilization. He awaits only the word of command. He awaits it from a frail, bewildered being, long his victim, now — for one occasion only — his Master."

This, then, is the problem — far more immediate and acute today than it was twenty years ago. It cannot complacently be left to time to solve. We cannot count on geologic ages for the development of methods of social control. What we do in this generation and the next may well decide the kind of civilization, if any, which is to dominate the globe for centuries to come.

We now have it within our power to tear the world to pieces whenever passion and emotion call the tune. We must hope that we have it within our power, too, although the opportunity may slip from our grasp not soon to be regained, to make this Frankenstein creature which we have built, the servant and not the master of the people.

Nobody can be sure of the formula by which this end can be achieved. All that we know is that it will take knowledge and wisdom almost beyond what seems available at the moment. We must draw on all the resources to which access can be had — spiritual resources, educational resources, the contributions of the humanities and the social sciences, the fellowship of scholars, the common hopes of people in all countries, the ties that bind the human race together across boundary lines. And we must be fearless in our devising, ready to cast out intolerance and partisan advocacy, unafraid of new plans for cooperative action, even when they run counter to traditions and techniques which have long been cherished. For the peril we face is real and immediate, and we need the boldness, the adaptability and the buoyant faith of the pioneers if we are to meet it.

THE SOCIAL SCIENCES

Toward the ultimate goal of bringing man's violence and his capacity for destruction within the limits of social control, no one organization can do more than make a humble contribution. The Rockefeller Foundation has given support over the years to many institutions and agencies working in the field of the social sciences and the humanistic studies on problems of human relationship. This work is primarily a search to discover and define the facts and values which give meaning to life and furnish the patterns of conduct.

In the social sciences in 1943 support was continued to such organizations as the Council on Foreign Relations, the Foreign Policy Association and the Institute of Pacific Relations, and to their counterparts in Canada, Great Britain, Switzerland, Sweden and Australia. A continuing grant was made, too, to the Economic, Financial and Transit Department of the League of Nations, which, in the period between the wars, studied the painful efforts toward reconstruction and is now working on the problems of the restoration of economic life after this war. Similarly, appropriations were made to the Food Research Institute at Stanford University, to the work in economics at the Institute for Advanced Study at Princeton, to the New School for Social Research, to the Social Science Research Council, to the Escola Livre de Sociologia e Política in São Paulo, Brazil, and to other institutions and universities.

For many years The Rockefeller Foundation has been interested in promoting the exchange of ideas in the fields of medicine, public health and the physical and social sciences. To this end the Foundation has frequently invited to the United States the outstanding leaders in these fields in other countries — doctors, scientists, laboratory workers and experts in various subjects. In the last year or two its guests have included, among others, Sir Wilson Jameson, Chief of the Health Services of Great Britain; Dr. Edgar Adrian of Cambridge University, the well-known specialist in brain injuries; Geoffrey Crowther, Acting Director of the National Institute of Economic and Social Research in England; Arnold Toynbee of the Royal Institute of International Affairs; and Sir Hector Hetherington, Vice Chancellor of the University of Glasgow.

Similarly, it has been the practice of the Foundation over many years to send American scholars and scien-

tists abroad, either for study and research, or for conferences with the members of their own professions. Thus, within the last year or two the Social Science Division of the Foundation invited a number of experts to visit Latin America, including Carl O. Sauer, geographer of the University of California; Earl J. Hamilton, economic historian of Duke University; Melville J. Herskovits, anthropologist of Northwestern University; and Robert B. Hall, geographer of the University of Michigan.

In 1943 Sir William Beveridge, author of "Social Insurance and Allied Services" (The Beveridge Report), came to the United States as the guest of the Foundation. His report had opened up innumerable technical questions of the greatest complexity, and his visit was welcomed in this country by government officials, students and many others interested in the problem of social security.

The Rockefeller Foundation is not an advocate of any doctrine or theory, whether in medicine or the social sciences. It has nothing to promote. In bringing distinguished scholars like Sir William Beveridge to America, or in sending America's distinguished scholars abroad, it is interested only in the exchange of ideas and experience out of which increasing knowledge and wisdom may grow.

SLAVIC STUDIES

The last few years have brought a notable improvement in American resources, in both personnel and materials, for a better understanding of the Far East and Latin America. But this improvement, together with wartime demands for specialized knowledge, has drawn attention to the scantiness of our resources for understanding

other great world areas, notably the Islamic and Slavic regions.

With the world closely knit together by the advance of technology, every country has an inescapable obligation to be intelligent about its newly found neighbors. Without any definite intentions to build a world like this, we suddenly find ourselves living on each other's doorsteps. We do not have to approve of everything our neighbors do, but we face the necessity of living close together in the same world with them; and if we remain ignorant about them — how they think and live and what social and cultural purposes motivate them — the distrust and suspicion which ignorance always creates will in the end inexorably lead to a new catastrophe. No intelligent man can ever again say about any political event or social process in any part of the world: "This is nothing that need interest me."

With this point of view in mind, The Rockefeller Foundation, early in 1943, asked a distinguished group of American specialists in Slavic languages, literature, history and political science to consider the steps that might be taken toward the development in the United States of a better understanding of the Slavic world in general, and of the Soviet Union in particular. The personnel of this group came from the leading universities of the country. The report which they presented, after careful study, has formed the basis of the Foundation's program in this field during the year.

To begin with, a survey and reappraisal of printed materials in American libraries was indicated, as a means of remedying existing deficiencies. The Library of Congress, with a grant from the Foundation of \$12,000, is now at work on this project. In the second place, the product of Soviet scholarship in the humanities over the

last twenty-five years is available only to the few people who can read Russian. To meet this situation, in part at least, a grant of \$50,000 was made to the American Council of Learned Societies for the translation of important books and articles.

The third step had to do with the need for grammars and readers in Russian and other Slavic languages. Nearly ten years ago, the Foundation pioneered in developing intensive courses in the Russian language, and the success of these courses, compressed within periods ranging from ten to eighteen weeks, has been amply demonstrated at a number of universities, particularly Harvard and Cornell. Experience has shown the need for new aids to learning, including not only grammars and readers, but also contemporary materials that assist a student in gaining command of a practical vocabulary and an introduction to the life and culture of the country. Among other needs, too, are a guide to the literature of the field, for students and others new to it, and texts dealing with subjects hitherto neglected by scholars writing in English, as, for example, the economic geography of the Soviet Union. To cover these needs two Foundation grants of \$25,000 each, available over a five-year period, were made to Cornell and Harvard, with agreement between the institutions on a division of responsibility that will avoid duplication of effort.

The fourth step — a frankly experimental one — was a grant of \$10,000 to Cornell University to enable it to pioneer in providing an undergraduate course dealing with the life, history, literature, economics and international relations of the Soviet Union. The course constituted an educational innovation of considerable significance, and undoubtedly opens up new and promising possibilities for the organization of similar courses on other world areas.

Nearly thirty years ago John Erskine wrote a book called "The Moral Obligation To Be Intelligent." That title could well be the motto of this generation as it faces the new propinquity of the modern world.

THE PROTECTION OF A CULTURAL HERITAGE

The progress of the war, particularly in the Mediterranean area, is exposing historic monuments, works of art, books, manuscripts and other cultural treasures to peril such as they have not faced in any other war in two thousand years. High explosives and incendiary bombs, indiscriminately used or employed without detailed knowledge of the targets, can in a few brief moments wreak more damage than all the calculated destruction which the armies of the Goths and the Vandals could accomplish in years. Each generation is the temporary trustee of the riches handed down from the past. The Acropolis in Athens, the monasteries of the Balkan countries, the churches in Rome, the paintings in Florence, the vast architectural and artistic wealth of all Italy — these treasures are an important portion of our cultural heritage. They are as much a part of the present as the poetry of Shakespeare or the music of Beethoven; and if through our fault they are not also a part of the future, posterity will brush aside any explanation which this generation can make. The Caliph Omar achieved a dubious immortality when his troops burned the library at Alexandria; and the Fourth Crusade — a "holy crusade" — is remembered today only because it resulted in the destruction of the priceless art of Constantinople.

A year ago the American Council of Learned Societies appointed a Committee on the Protection of Cultural Treasures in War Areas. With grants from The Rockefeller Foundation for the salaries of secretaries, research workers and draftsmen, work was begun on a series of

maps which show in bold relief the location in each city in the war areas of libraries, museums, galleries, palaces, churches and other monuments. This activity has been coordinated with the work of the "monuments officers" of the American Army — men experienced in art and archeology and assigned to the fighting fronts. The appointment by the Department of State in August 1943 of a Commission for the Protection and Salvage of Artistic and Historic Monuments — five of whose members were already on the committee of the American Council of Learned Societies — made it possible to form a single working group in which the latter organization became the operating agency of the official body. The official body has no project funds of its own but serves as a link between the working committee and the government.

The maps upon which the committee is working are supplied to bombing headquarters in the war areas in advance of military operations. Maps of cities ahead of the advancing battle front have been hurried to completion and in some instances have been flown from Washington to the Mediterranean area in a matter of hours. At this writing, 165 maps have been furnished of Italian cities and towns, including those of Sicily and Sardinia. Forty of the 55 maps of Greek sites have been finished, all of the Albanian, Bulgarian and Yugoslav maps, and 80 of the 150 planned for France. The mapping of Holland and Denmark is complete, that of Belgium is well along, and work has started on Czechoslovakia, Austria and Hungary.

How these maps are received is well described in the following message from a monuments officer:

"They (the maps) have all come through, happily, and have been placed just where they belong and in the right hands. How rarely does this happen in wartime. The information is in the best

possible form — neither too detailed nor too little. As a matter of fact the whole post is most enthusiastic over your performance — the British most of all. You have done a superb job!”

The maps are being prepared at the Frick Art Reference Library in New York, the ordinary activities of this museum having been temporarily suspended, and the building and its staff placed at the service of the committee. In addition, space at the Metropolitan Museum of Art in New York — as well as its photographic facilities for reproducing maps and other drawings — has been made available. Services are being contributed by individual scholars, and by libraries, museums and other institutions. The maps represent the collaboration of many authorities; several distinguished refugee scholars have assisted in identifying the location of important objects and collections; and it is doubtful if ever before such detailed information has been compiled on so many centers of European culture.

That in the midst of so bitter a war this activity should receive the wholehearted cooperation of our military authorities is a matter of supreme satisfaction. Even so, tragic losses are bound to occur and have already occurred — losses which can never be replaced. With all our attempts to limit its destructiveness, modern warfare is a force out of control.

LATIN AMERICAN FELLOWSHIPS

In 1943, 107 young men and women of Latin American countries studied on fellowships provided by The Rockefeller Foundation. Some of the appointees continued from 1942; 46 were new fellows who began their studies in 1943. The Latin Americans constitute the largest current group in the Foundation's fellowship program, which in other lands has suffered a drastic wartime shrinkage.

In the last prewar year, 1939, there were 151 fellows from the United States, 141 from Europe, 47 from Latin America. The figures for 1943 are 58 from the United States, 4 from Europe, 107 from Latin America.

Although this change is a consequence of the war's interruption of normal life in Europe and the United States, it also reflects a trend in inter-American cultural relations which may be expected to carry over into the postwar years. It is a trend which should bring Latin Americans to the universities, research centers and other institutions of the United States and elsewhere in increasing numbers, just as it sends North Americans and Europeans to the rich fields of archeology, ethnology, history, geography, linguistics and other interests which invite research in Latin America.

But Foundation fellowships for Latin Americans are no novelty. As early as 1916, just three years after the Foundation was chartered, a commission was sent to South America to survey the opportunities for medical education and public health work. Brazil seemed to offer the most important field for cooperation, and among the measures reported by the commission was the recommendation that a professorship of preventive medicine be established at the São Paulo Medical School and that fellowships be provided for promising young Brazilian medical students, to enable them to take postgraduate training in the United States. The first fellow was appointed in 1917, two more in 1918; for the next dozen years the annual selections from Brazil never fell below two, and in 1922 and 1927 they mounted to fifteen and twelve respectively.

Meanwhile, other countries had received appointments: Salvador in 1919; Colombia, Costa Rica, Mexico and Puerto Rico in 1920; Guatemala, Nicaragua and Paraguay in 1921. By 1921 the Latin American fellow-

ship roll totaled 22 men, some of whom had already completed the two or three years of postgraduate study and returned to their homelands. There they became public health physicians and administrators, medical teachers and researchers. Many of the current crop of fellows are students of former fellows who today are outstanding leaders in their home countries.

A comparison of the 1943 program with that of twenty years ago finds public health and medicine still the dominant interests, but they no longer occupy the entire stage. Of the 107 fellowships active this year, 53 are in public health, 25 in medicine, 18 in the natural sciences and 11 in the humanities.

Reviewing the fellowship appointments through the years, one finds that the field of public health has claimed 328 Latin American fellows, medicine 112, the natural sciences 22, the humanities 32 and the social sciences 7 — a total of 501. The fellows have come from nineteen countries. Their fellowships represent a total expenditure of \$1,345,842, and the distribution is shown in the following table:

LATIN AMERICAN FELLOWSHIPS: 1917-1943

Argentina	\$134,368
Brazil	349,657
Chile	77,590
Colombia	73,043
Costa Rica	28,493
Cuba	23,473
Ecuador	19,014
Guatemala	33,958
Haiti	43,272
Honduras	5,436
Mexico	179,326
Nicaragua	31,076
Panama	47,804
Paraguay	8,154

Peru	80,553
Puerto Rico	92,026
Salvador	24,349
Uruguay	12,742
Venezuela	81,508
	<hr/>
TOTAL	\$1,345,842

It is perhaps unnecessary to stress the point that these fellowships have been awarded solely on the basis of merit. No other considerations, political or otherwise, have influenced the decisions. The Foundation has been interested in giving students of exceptional promise and quality an opportunity to continue their studies in institutions where they could gain the greatest benefit. Whether those institutions were in the United States or in Europe or in Latin American countries other than their own has been immaterial in the plans of the Foundation. In other words, the primary concern has been the training for leadership in the advance of knowledge, regardless of boundary lines or other extraneous considerations.

SCHOLARSHIP IN THE ARGENTINE

Dr. Bernardo Houssay of the University of Buenos Aires is one of the world's distinguished physiologists. Not only is he a great scientist; he is also a great teacher who has left his mark on a new generation of scholars in the Argentine and in all of Latin America as well. Over a number of years The Rockefeller Foundation has had the privilege of making grants for his research and of sending students to his laboratory from other countries, including the United States.

In October 1943 Dr. Houssay, with 150 eminent Argentine citizens, many of them university teachers, signed a petition to the government asking for "effective

democracy and American solidarity," and pleading for "freedom of assembly and of the press." The reply of the Argentine government was the dismissal from their posts of all those signing the petition who held "public office or official positions, whether paid or honorary or of whatever nature." The reason given was — to quote the decree — "that it is not permissible for officials or employees of the state, who are obliged to set an example of respect and loyalty, to arrogate to themselves powers which conflict with administrative ethics and public morals." Inasmuch as the universities and educational institutions of the Argentine are under government control, Dr. Houssay and many of his associates were immediately dismissed from their professorships.

Barred from the institute which was his for more than twenty years, Dr. Houssay is continuing research in a small laboratory established for him by an Argentine foundation. The Rockefeller Foundation has made a grant for equipment and supplies and for stipends to several young scientists who wish to work with him.

In this connection it may not be inappropriate to quote two or three sentences from a former issue of this *Review*: "Disinterested research cannot survive in an atmosphere of compulsion and repression. It withers under the efforts of governments to impose uniform ideologies and to circumscribe in the interests of a dominant regime the area of intellectual liberty. . . . It is only in an atmosphere of freedom that the lamp of science and learning can be kept alight. . . . It is only free men who dare to think, and it is only through free thought that the soul of a people can be kept alive."

APPLICATIONS DECLINED DURING 1943

During 1943 the Foundation was obliged to decline a total of 920 applications for financial aid, as compared

with 1,121 in 1942. 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 1943 may be classified under the following headings: conferences and meetings, 7; continued aid to projects, 15; cures, remedies, investigations of theories and inventions, 48; development of educational and cultural institutions and projects, 126; European refugees, 28; fellowships, travel and training grants, 200; local institutions (including hospitals, theatres, libraries, museums and churches), 86; personal and medical aid, 87; postwar planning, 41; public health projects, 13; publication projects, 49; research projects, 152; miscellaneous, 68.

REPORT OF THE SECRETARY

SECRETARY'S REPORT

THE members and trustees of The Rockefeller Foundation during the year 1943 were:

Walter W. Stewart, *Chairman*

Winthrop W. Aldrich
Chester I. Barnard
Karl T. Compton
Harold W. Dodds
Lewis W. Douglas
John Foster Dulles
Raymond B. Fosdick
Douglas S. Freeman
Herbert S. Gasser, M.D.

Walter S. Gifford
William I. Myers
Thomas I. Parkinson
Thomas Parran, M.D.
John D. Rockefeller, 3rd
Robert G. Sproul
Arthur Hays Sulzberger
Harold H. Swift
George H. Whipple, M.D.

The officers of the Foundation were:

Walter W. Stewart	<i>Chairman of the Board of Trustees</i>
Raymond B. Fosdick	<i>President</i>
Thomas B. Appleget	<i>Vice-President</i>
Alan Gregg, M.D.	<i>Director for the Medical Sciences</i>
Warren Weaver	<i>Director for the Natural Sciences</i>
Joseph H. Willits	<i>Director for the Social Sciences</i>
David H. Stevens	<i>Director for the Humanities</i>
Wilbur A. Sawyer, M.D.	<i>Director, International Health Division</i>
Norma S. Thompson	<i>Secretary</i>
Edward Robinson	<i>Treasurer</i>
George J. Beal	<i>Comptroller</i>
Thomas M. Debevoise	<i>Counsel</i>
Chauncey Belknap	<i>Associate Counsel</i>
Vanderbilt Webb	<i>Associate Counsel</i>

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.

William I. Myers

Thomas I. Parkinson

Walter W. Stewart

The following served as scientific directors of the International Health Division of the Foundation during 1943:

Charles H. Best, M.D.

Eugene L. Bishop, M.D.

Ernest W. Goodpasture, M.D.

Kenneth F. Maxcy, M.D.

Harry S. Mustard, M.D.

Thomas M. Rivers, M.D.

The Director of the Division

MEETINGS

Regular meetings of The Rockefeller Foundation were held on April 7 and December 1, 1943. 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 1943 and a statement of its Principal Fund follow.

SUMMARY OF APPROPRIATIONS ACCOUNT

FUNDS AVAILABLE		FUNDS APPROPRIATED	
Balance from 1942. . .	\$ 3,077,926	Appropriations	
Income for 1943.	8,079,164	Public Health.	\$ 2,450,000
Gift from Mr. Eugene Havas	3,350	Medical Sciences. . .	1,529,040
Unexpended balances of appropriations allowed to lapse and refunds on prior year grants.	978,819	Natural Sciences. . .	599,150
		Social Sciences. . . .	1,068,130
		Humanities.	1,055,410
		China Program. . . .	108,000
		Miscellaneous.	81,800
		Administration	
		Scientific Serv-	
		ices.	552,091
		General.	241,368
			<hr/>
			\$ 7,684,989
		Authorization for later appropriation by the Executive Committee.	75,197
			<hr/>
			\$ 7,760,186
		Balance available for appropriation in 1944.	4,379,073
			<hr/>
	<hr/>		<hr/>
	\$12,139,259		\$12,139,259
	<hr/>		<hr/>

PRINCIPAL FUND

Book value, December 31, 1942.	\$145,891,089
Add:	
Unused balance of appropriations of April 5, 1939, re- turned to Principal Fund.	32,067
	<hr/>
	\$145,923,156
Less:	
Amount by which the proceeds of securities sold, re- deemed, or exchanged during the year failed to equal the ledger value.	762,822
	<hr/>
Book value, December 31, 1943.	\$145,160,334
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INTERNATIONAL HEALTH DIVISION

INTERNATIONAL HEALTH DIVISION

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INTERNATIONAL HEALTH DIVISION

INTRODUCTION

DURING 1943 the public health activities of The Rockefeller Foundation took two directions. On the one hand The Rockefeller Foundation continued its regular program of strengthening the control of infectious diseases through field and laboratory work at places where such work was still possible and where the men to conduct it were still available. On the other hand, through a special war agency, The Rockefeller Foundation Health Commission, it carried on a program aimed at facing the health emergencies inherent in devastating war. The regular program is part of a systematic, long-range development of public health on a world-wide basis. The Commission activity is a realistic effort to cooperate with governmental and other agencies in health maintenance during wartime and in the speedy resurrection of health safeguards and health agencies in areas where war has passed.

One of the earliest objectives in the regular program has been the development of permanent governmental health agencies on a sound and scientific basis. In the United States the Foundation played a part in bringing adequate health service to the much neglected rural population. Following the early hookworm control activities numerous county health departments with full-time health officers and employees were established with assistance from The Rockefeller Foundation. In 1934, as social security funds became available for this purpose, the program was taken over by the United States Public Health Service. Health departments are still being developed with assistance from the Founda-

tion in many places, including China, Mexico, and several countries in South America.

The greater part of the regular program of The Rockefeller Foundation, however, has been directed against a few of the major diseases in the public health field such as malaria, yellow fever, typhus, and influenza. The general setup has always included laboratory work aimed at discovering the best ways to combat these diseases, but emphasis has been placed on field research and demonstrations aimed at adapting control measures to local conditions and seeing to it that the pipe line from the scientific front to the homes of the people whose health is at stake remains unbroken and at all times under safeguard.

On succeeding pages there is given a brief account of the activities of The Rockefeller Foundation Health Commission on various disease fronts. This is followed by a summary of the work in the regular program as conducted in the laboratory and in the field. For a more detailed report on this same work of special interest to the health officer and professional public health worker the reader is referred to the Annual Report of the International Health Division to be published separately later in the year.

THE ROCKEFELLER FOUNDATION HEALTH COMMISSION

Profiting by experiences during the First World War, the Foundation after the outbreak of the present conflict lost no time in setting up an emergency Health Commission to deal with the acute public health problems that are the inevitable accompaniment of battle. Activities of this Commission since its organization in 1940 have been both varied and widespread.

At first, emphasis was on disease prevention and nutritional deficiencies in France and Spain, but the rising tide of war soon made it necessary to withdraw from continental Europe. As war itself quickly spread over the world, there came urgent calls from various places all the way from North Africa to the Burma Road for the type of service that the Commission was prepared to give. Before long, Commission members, drawn from the International Health Division staff or from universities, were taking part in such diverse activities as the Oxford Nutrition Survey of England under food restrictions, studies of typhus control through louse extermination in Mexico and North Africa, and the preparation and distribution of yellow fever vaccine for the fighting forces of the United States and Great Britain.

In 1943 the Health Commission's program included work on typhus, nutrition problems, and yellow fever. Studies of infectious diseases in a United States Navy training station and of respiratory diseases and jaundice in the Army also received support. In India aid was given on a small scale for malaria control experiments, training courses in sanitation problems for Army technicians, purchase of supplies — mostly malaria equipment — for the Far East, and the operation of a blood bank.

In connection with typhus fever, and in anticipation of future military and civilian needs, the Commission conducted louse control studies, testing new insecticides and attacking the problems involved in reducing the louse incidence of a community. Tests were first carried out in a conscientious objectors' camp in New Hampshire. Later, in cooperation with the Mexican health authorities, it was arranged to conduct an anti-typhus

program in several small Mexican towns. When the investigation was completed, Mexican personnel, familiar with the procedure, continued typhus prevention studies in other towns, using promising new insecticides developed by the Bureau of Entomology of the United States Department of Agriculture.

The most recent scene of the Health Commission's typhus and louse control studies is North Africa. In April 1943 arrangements were completed for sending a typhus study team to North Africa to organize and conduct field demonstrations and experiments in an area where louse-borne typhus is prevalent. The objectives were to test the newest methods of louse control in the field and to establish an organization and build up a fund of experience for use later as epidemics occur. Members of the team, directed by Dr. Fred L. Soper, staff member of the International Health Division, are Dr. William A. Davis, also a staff member, who had conducted the studies in Mexico; Dr. Floyd S. Markham, Assistant Professor of Bacteriology, Ohio State University; and Dr. Louis A. Riehl, entomologist in the United States Department of Agriculture. The operations centered at the Pasteur Institute in Algiers. Effective methods of control involved large-scale demonstrations in the civilian population. Efforts were concentrated on the testing of methods for keeping persons and their clothing free of lice by the systematic application of chemical powders.

Nutrition work in England has been a part of the Health Commission's program since October 1, 1941, when a grant was made for the Oxford Nutrition Survey, which is carried on in cooperation with the Ministry of Health and under the general direction of Sir Wilson Jameson, the Chief Medical Officer. The purpose of this

work is to test, develop, and apply all reasonable methods of assessing the state of human nutrition, and to provide training in their use. This is being accomplished by the study of groups representing different age, professional, and economic levels, patients from hospitals, and persons who submit to experimentally induced deficiencies.

Special subjects which have been under investigation are the effect of vitamin feeding in a factory group, the relation between nutrition and TNT poisoning, the effects of yeast feeding in children, fluorosis, and the results of an experimental deficiency of vitamin A.

One of the techniques used by the Oxford group is that of the Mobile Team, which, using Oxford as a base, visits different types of communities, making quick clinical examinations, laboratory tests, and dietary samplings. This phase of the work is directed by Dr. A. P. Meiklejohn, of the Health Commission. In the spring of 1942 a typical community in the once "depressed areas" of South Wales was examined. Next came a typical North Midlands industrial community, and a recent survey covered Dundee, Scotland.

Acute respiratory diseases, including the common cold, influenza, and all types of pneumonia, constitute the largest and most serious group of infections in the Armed Forces. The Rockefeller Foundation Health Commission has given aid to the Commission on Acute Respiratory Diseases of the Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the Army, to make possible a complete, continuous study of all aspects of acute respiratory diseases. This Commission started full-time work in August 1942 at three institutions — the Johns Hopkins School of Hygiene and Public Health, University of Michigan School

of Public Health, and the Thorndike Memorial Laboratory in Boston City Hospital, and subsequently centered its work at Fort Bragg. In addition to clinical, epidemiological, and laboratory studies, field investigations have been conducted at three Army camps. Since July 1943 this work has been carried on entirely with government funds.

The Health Commission has concentrated its efforts against yellow fever on the manufacture and distribution of vaccine. During the year ending June 30, 1943, approximately 7,500,000 doses of vaccine were distributed to the United States Navy, to various parts of Africa, to India, Colombia, Great Britain, the Spanish Government, the Connaught Laboratories in Canada, and the Firestone Rubber Plantations in Liberia. In the spring of 1942 preliminary evidence indicated that a jaundice-producing agent was present in some specimens of apparently normal human serum used as a protective colloid in the manufacture of the vaccine. Human serum is now omitted entirely. Since the Vaccine Laboratory was established late in 1940 in space made available by the Rockefeller Institute, over 24 million doses of yellow fever vaccine have been made. As more and more persons in the armed forces are immunized, it is expected that the demand for vaccine will diminish. At present there are over 6 million doses in stock, and vaccine manufacture in 1944 will, in all likelihood, be on a comparatively small scale.

As noted in former reports, the Health Commission has helped prepare for the manufacture of yellow fever vaccine at the South African Institute for Medical Research in Johannesburg and at the King Institute, Guindy, Madras. Aid was given to enable representatives of these institutions to come to New York and

study the techniques of large-scale production of yellow fever vaccine at the International Health Division Laboratories. A grant was also given to the South African Institute to cover the cost of equipment and supplies. This equipment has now arrived safely in South Africa.

In October 1942 The Rockefeller Foundation Health Commission was invited to contribute toward the expenses of a study of infectious diseases at a Navy training station during the period ending December 31, 1943. The Navy undertook this project on the recommendation of the National Research Council in order that certain fundamental observations and experiments on the spread and control of infectious diseases among naval recruits might be made. Work is carried on at the Bainbridge Training Station, Maryland, and directed by Lieutenant Commander Francis F. Schwentker under the general supervision of Captain Thomas M. Rivers. Preliminary investigations were made in New York during an outbreak of scarlet fever at a naval station. Attention centered on methods of controlling the outbreak and the possible use of aerosols to prevent air-borne cross infections. At the Bainbridge Training Station a study was undertaken to determine the exact incidence of streptococcal disease, discovering especially those cases not severe enough to require hospitalization and therefore not ordinarily recorded in morbidity statistics. It was desired to learn the types of streptococci involved in an outbreak, the possible relation between the type of organism and the kind of streptococcal disease it caused, and the extent of distribution of the various streptococcal types among normal men. A fairly accurate picture has been constructed of the streptococcal situation at Bainbridge during the winter 1942-1943,

and two possible methods have been put forth for preventing streptococcal outbreaks. Efforts are now directed toward the development of control methods which will prevent the dispersion of bacteria-laden dust into the air; improvement of methods for sterilizing dishes and eating utensils; and the possible use of type specific streptococcal vaccines. Work is also under way on a test for anti-bacterial immunity.

The occurrence of jaundice early in 1942 among military personnel vaccinated against yellow fever resulted in an investigation under orders of the Surgeon General of the Army by the Commission on Tropical Diseases of the Board for the Investigation and Control of Influenza and Other Tropical Diseases in the Army. Members of The Rockefeller Foundation Health Commission participated in this study. Jaundice was first observed in March 1942 in California, where a rapid preliminary field survey, begun on March 22, 1942, and terminating the following May 21, was carried out. A comprehensive report on the findings of this survey has been submitted for publication in *The American Journal of Hygiene*. The Health Commission continued the laboratory work begun in California as a part of the jaundice investigation. The program has included field investigations, experiments with chick embryos and small animals, and studies on horses and swine. The most immediate aims are to find a readily available and susceptible small experimental animal, and to isolate a causative factor from suspected lots of serum or vaccine or from the blood or tissues of jaundiced persons.

LABORATORY WORK IN NEW YORK CITY

The International Health Division of The Rockefeller Foundation in a central laboratory in New York

City devoted considerable time to the preparation and distribution of yellow fever vaccine. During the year 9,016,800 doses of vaccine were prepared and 4,957,400 doses distributed as follows:

United States Navy	2,524,800
United States Army	620,000
Great Britain	49,400
West Africa	641,200
East Africa	750,000
South Africa	100,000
Colombia, South America	242,600
Canadian Government	15,800
Spanish Government	10,000
Miscellaneous	3,600
Total	4,957,400

No ill effects from the use of the vaccine were reported.

Several other projects closely related to the use of the vaccine were under investigation. One was a long-term project concerning the duration of immunity following vaccination. With a very large number of the members of the armed services immunized there will be an excellent opportunity to determine the duration and degree of immunity more accurately as time goes by. Observations in Brazil and Colombia have shown that immunity lasts ordinarily for four years and perhaps longer. However, the large-scale vaccination of the armed forces began only somewhat over two years ago, but tests so far carried out on their sera indicate that the immunity has remained fully effective for the period so far covered. Studies on this subject will be continued.

Another project under study, also related to yellow fever vaccine, concerned the keeping qualities of the vaccine itself. To date approximately 500 lots of serum-free yellow fever vaccine have been made. From each

lot a small number of ampoules have been set aside and stored in an ordinary icebox. Careful virus measurements on these reserve samples are being carried out at frequent intervals and the results compared with the original titration data. The results so far indicate that the vaccine has excellent keeping qualities and may be stored at ordinary icebox temperature for two years, or possibly longer, without loss of its immunizing property. If it is found that the loss of virus titer during storage proceeds at a rather slow rate, as results to date indicate, such information will be of great value in determining a late expiration date for the vaccine. This will result in a great economy for organizations using it, obviating the necessity of replacing stocks every year.

In addition to the preparation of yellow fever vaccine and problems directly related to it, studies on the behavior of the virus itself were continued. These consisted chiefly of observations on the behavior of the virus in tissue cultures which have now been in progress for over ten years. During this period of cultivation under artificial conditions several changes affecting the nature of the virus have been observed. It is fortunate that these shifts have occurred because a variant resulting from such a change made possible human immunization through vaccination. However, the factors responsible for these changes need further study, as thus far it has not been possible to reproduce them at will.

The Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the U. S. Army and its Influenza Commission have asked laboratory personnel to investigate influenza and other acute respiratory diseases that might occur in Army camps from New England through Virginia. Besides the study of materials such as nasal washings and sera of acutely

ill persons in Army camps, the laboratory personnel participated in extensive vaccination experiments using concentrated vaccine containing killed viruses of influenza A and B. In previous years vaccine used for such experimental studies was prepared in the International Health Division Laboratories. During 1943, however, the Influenza Commission of the Army secured the necessary vaccine from commercial laboratories under government contract. However, the methods used for the preparation of this vaccine had been worked out largely in the Laboratories of the International Health Division.

Although similar vaccinations had been carried out in previous years, no results could be obtained because of the absence of epidemic influenza. An extensive outbreak of influenza occurred toward the end of 1943, which was shown to be due to influenza A virus. The epidemic affected groups where vaccination had been carried out. Careful clinical studies were conducted on both vaccinated and unvaccinated persons in the same units. The results indicated that there was at least a 75 per cent reduction in the incidence among the vaccinated as compared with the unvaccinated controls. These observations offered overwhelming evidence that the principle of prophylactic vaccination against influenza is essentially sound and valid. It also indicated that further improvements in the quality of the vaccine must be effected in order to secure a still greater degree of protection. This will be one of the major problems of the coming year.

Other studies in influenza included an investigation of the physical and chemical properties of influenza virus itself, studies of its antigenic structure, and the development of more sensitive and delicate methods for

the detection of the presence of the virus and measurement of its antibodies.

Investigations in typhus were conducted along two parallel lines. One concerned the study of typhus infection and the means of preventing it in experimental animals, using cotton rats chiefly. Considerable effort was devoted to development of methods for more accurate and sensitive measurement of typhus immune substances in the blood serum of persons who had recovered from an attack of typhus, or more particularly those who had received various available types of typhus vaccine.

The possibility of chemotherapy in typhus was also investigated, and two drugs were discovered which had some curative effect on typhus infection in experimental animals. Whether these drugs will have any effect in modifying the course of the disease in man is not yet known.

A second line of investigation was a study of the typhus vector, the body louse, and ways and means of controlling it. Of a large number of insecticides tested, several were found to have a definite effect in killing lice as well as rendering eggs infertile. Early in 1943 a new compound, dichlor diphenyl trichloroethane, now commonly known as DDT, was tested by the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture and found highly effective. This compound was made available to the International Health Division for study. Ways and means of applying powders containing this compound on a large scale for delousing in the field were studied. A method by which the louse powders could be applied without the subject disrobing was considered desirable. A commercially available dusting apparatus, driven either by an electric

or by a gasoline motor, showed promise, but by the close of the year practical application in the field had not been accomplished.

Studies of experimental chemotherapy in malaria were continued but on a smaller scale than heretofore. Toward the end of the year two drugs synthesized in the Chemistry Department of Harvard University under the direction of Professor Louis F. Fieser were found to give considerable promise. They proved effective against malaria parasites in birds. Neither drug was toxic. Both are insoluble in water and therefore difficult to administer. Although highly effective in birds when given in food, in man they were found to undergo decomposition in the gastro-intestinal tract and to appear in the circulating blood in a modified form which had lost its antimalarial properties. The problem will be continued with emphasis on making the drugs more soluble and more readily absorbed in unmodified form.

DISEASE CONTROL

YELLOW FEVER

Twenty years ago the Foundation began to support yellow fever studies in Brazil. Since that time it has provided over 4½ million dollars for this long-range program of yellow fever investigation carried out in cooperation with the Government of Brazil. Present contributions go toward support of the yellow fever laboratory and the study of jungle yellow fever. The Government provides an equivalent amount in support of the laboratory and research program, and in addition maintains the control work of the National Yellow Fever Service.

In 1932 a discovery of the first order was made by

Dr. Fred L. Soper, an International Health Division staff member, and his colleagues when they proved that yellow fever was epidemic in a rural Brazilian community in the absence of *Aedes aegypti*, the traditional vector. Their work gave proof of the existence of a previously unsuspected entity, "jungle yellow fever," which explained the persistence of the virus between urban epidemics. Soon after this discovery an epidemic of jungle yellow fever spread through parts of southern Brazil in which suitable forest existed, finally burning itself out and disappearing. The danger that the virus may reappear and the whole sequence be repeated after a longer or shorter period is always present. This epidemic wave of disease, which, from 1934 to 1940, went up through the forests, occurring only in the summer and attacking mostly males who had contact with the forest during the daytime, raised a series of puzzling questions which are now under intensive investigation. There is no satisfactory hypothesis as to how the virus maintains itself in the cooler and drier months of the year — the period of four to six months in which no fatal human cases were observed. The mechanism by which the virus was able to move such large distances so rapidly is also unknown. The present plan of attack is to learn everything possible about the life habits of various vertebrates, about their susceptibility to yellow fever virus, about their blood-sucking ectoparasites, and finally, about the ability of their ectoparasites and the prevalent mosquitoes to transmit yellow fever virus. Ecological studies of mammals, birds, and arthropods, therefore, constitute a major part of the yellow fever work in Brazil.

Considerable attention was given also to improve-

ment in the technique of preparing yellow fever vaccine; to the degree and duration of immunity produced by vaccination; virus studies; investigation of the usefulness of the baby white mouse as a new susceptible laboratory animal; and examination of the 25,000 or more liver specimens collected each year by the Viscerotomy Section of the National Yellow Fever Service.

Another South American country with which the Foundation has cooperated in yellow fever control and investigations over a period of years is Colombia, where the Ministry of Labor and Hygiene has received aid since 1934. A basic part of the program is the routine collection of liver specimens by viscerotomy for diagnostic purposes. During 1943 this service turned up several cases of yellow fever in two well-known endemic areas of Colombia. Each case was thoroughly investigated in the fields from an epidemiological viewpoint. Mass vaccination was continued in various parts of the country to protect individuals and to block off the spread of the virus. Extra funds were provided by the Foundation in 1943 to meet the cost of shipping serum-free yellow fever vaccine from New York to Colombia and distributing it there and in neighboring countries until the Bogotá laboratory can begin to manufacture this modified type of vaccine.

As in Brazil, the long-term biological and ecological studies in Colombia aiming to throw light on the mysterious ways of jungle yellow fever are perhaps of first importance. These observations center on the sylvan fauna near Villavicencio. Here again the research group is confronted with numerous problems. *Haemagogus*, suspected as the chief vector of the region — its dispersion and life-span; the ecology of mammals which in-

habit the forest zones of the insect vectors; the location of the reservoir of yellow fever virus between epidemics — these are some of the subjects under investigation.

As early as 1918 the Foundation aided various governments of Central America and the West Indies in maintaining yellow fever control programs. This participation lasted until 1926. Ten years later aid was again given in this region, this time for making protection test surveys as part of a general study of yellow fever distribution. Recently the Foundation made available a small sum for use in the Republic of Panama east of the Canal Zone. As immunity surveys gave strong evidence that this area, adjacent to Colombia, is one of endemic jungle yellow fever, a viscerotomy service has been organized and careful attention is being given to the diagnosis of liver specimens for signs of yellow fever. The vaccination program was extended in this area in 1943 and an intensive *Aedes aegypti* control campaign was carried on by the government in the city of Panama.

Patterned after the early work of the Yellow Fever Service in Brazil, which exterminated *Aedes aegypti* from Brazilian cities, is the cooperative program aided by the Foundation in British Guiana since 1939. To provide protection against the spread of yellow fever, which might be introduced from the highlands, a campaign is gradually extending over the entire coastal region. About two fifths of the Colony's population now receive the benefits of this program. Special services are at work lowering the premise indices of *aegypti* in Georgetown, where the local system of water collection encourages breeding.

Foundation support of yellow fever work in Peru

began in 1933 with the organization of a viscerotomy service; vaccination and anti-aegypti measures were added later. Here also the attempt is to eliminate aegypti from the coast, as well as from the Amazon basin, and to keep yellow fever from spreading from the interior across the mountains. Impetus has been given to the work in Peru by an active road-building program which is bringing the jungle area in close communication with the coast. Quite apart from air services, Lima can now be reached in one day from points in the interior. This development has accelerated vaccination work and resulted in the establishment of new viscerotomy posts.

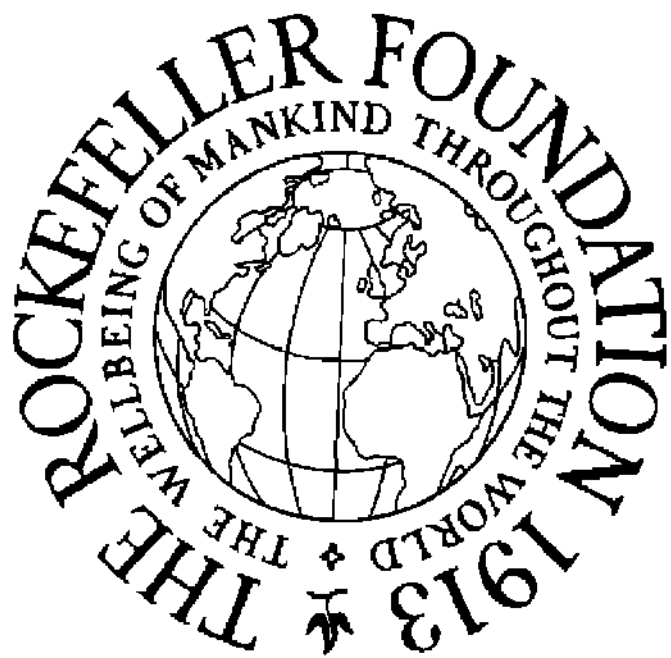
The severe and extensive yellow fever epidemic of 1932 in the eastern lowlands of Bolivia was the immediate stimulus for the initiation of cooperative work between the Bolivian Ministry of Health and The Rockefeller Foundation. This joint effort has succeeded in eradicating aegypti-carried yellow fever and in greatly limiting jungle yellow fever through mass vaccination of non-immune population. Specimens sent in by forty-five viscerotomy posts during the first half of 1943 were all negative. The vaccination program is extending as rapidly as difficult transport permits and has now covered about three fourths of the area involved in the jungle yellow fever problem of Bolivia.

In Africa the Foundation is attacking yellow fever on two fronts — at Entebbe, Uganda, in East Africa, and in Nigeria, West Africa. Activities at Entebbe date back to 1937, when the Yellow Fever Research Institute was established there. The Uganda Government contributes toward the support of the work and the Government of the Belgian Congo provides laboratory space at Stanley-

ville. Field investigations and laboratory research here have become increasingly important from the military standpoint.

Until late in 1940 the main problem of the Yellow Fever Research Institute was the isolation of yellow fever virus. This was accomplished during investigation of an epidemic in the Nuba Mountains, Anglo-Egyptian Sudan, when two strains were isolated. This epidemic provided convincing proof that the yellow fever in Central Africa is in no way different from yellow fever in West Africa or South America. Following discovery of the virus, epidemiological studies were intensified. Investigations were begun in the Bwamba forest of Uganda in March 1942 to determine what factors are responsible for transmission of the virus. The study has made good progress. Much of the work during 1943 was conducted inside the uninhabited forest where the only means of travel is on foot and all equipment must be carried by porter. A preliminary survey of the whole forest area and large-scale mosquito catches in six localities have been completed.

A protection test survey of Central and East Africa which has been in progress for some time is now in its final stages and many of the findings have already been made available to the governments concerned in Africa, as well as to the Government of India and to the Interdepartmental Committee on Yellow Fever Control in London. The pronouncement of the London Committee concerning the boundaries of the endemic area in Africa is based largely on evidence provided by the survey findings. In relation to the field investigations, laboratory studies have been continued on the role of various mosquitoes and wild animals in the epidemiology of yellow fever.



Photograph Excised Here

Sailing vessel off the coast of Panama
with mosquito-proof water containers.



Photograph Excised Here

Typhus work, Naples, Italy.

In 1943 a new outpost of yellow fever research was opened with headquarters and laboratory at Lagos in Nigeria. Field studies will touch areas of the British colonies, Gambia, Sierra Leone, and the Gold Coast as well as Nigeria. The project, a joint undertaking of the International Health Division and the British colonial governments, is a return to an old field, for Nigeria and the Gold Coast were the scene of much work accomplished by the Foundation's West African Yellow Fever Commission from 1925 to 1934. The new station will conduct research in the nature of yellow fever as found in the region, to determine whether the jungle variety of the disease discovered in South America has its counterpart in West Africa. If so, studies will be made to work out the mechanism of its transmission to man. The laboratory will serve as a distributing center for yellow fever vaccine to troops and settlements in West Africa and will provide British government units with a consultative service on problems of yellow fever control.

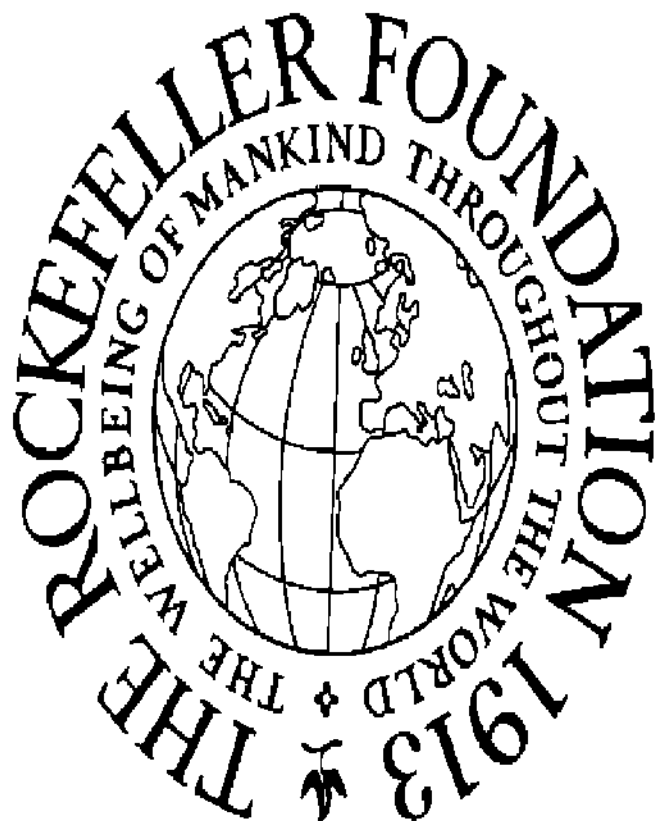
MALARIA

The attack on malaria was one of the Foundation's earliest activities in the field of public health and some encouraging results have been obtained. International Health Division members have emphasized the importance of concentrating on the single anopheline species most responsible for malaria in a certain locality. In Europe they have pointed out the roles played by variants of what had previously been considered a single species, and in this way have clarified the epidemiological picture. Valuable observations have been made on the nature of malaria induced for therapeutic purposes, and pioneer work has been inaugurated in the search for new drugs against malaria. The most striking



Photograph Excised Here

Minnesota State Department of Health,
work on influenza virus.



Photograph Excised Here

Determination of
calcium in foods,
School of Hygiene,
University of
Toronto.

accomplishment to date was the banishment of *Anopheles gambiae*, an effective malaria vector, from Brazil and presumably from the Western Hemisphere. All these steps forward, together with the general decrease in malaria in the United States and the improvement in insecticides, are helping to raise the standard of malaria work.

A new complication has arisen in the last few years with the increased air traffic between Africa and South America. The numbers of *gambiae* found on planes arriving in Brazil indicate that certain African airports are heavily *gambiae*-infested. This development puts a great responsibility on those charged with disinsecting transatlantic planes in flight and on arrival. The Foundation has assigned one of its staff members to Brazil to investigate and confer on the *gambiae* problem with Brazilian Government officials and United States military authorities. It is hoped that measures insuring adequate and prompt control will follow and that the reintroduction of *gambiae* to Brazil will be prevented.

In the meantime the Foundation continues its regular program in the field and laboratory, assisting in control programs in the United States, Central and South American countries, and China, and endeavoring to add to the basic knowledge necessary for more effective malaria prevention.

Control. — A Bureau of Malaria Control with which the Foundation is cooperating was organized as a Division of the Florida State Board of Health in 1941. The scope of the Bureau's program includes malaria surveys, assistance to local health authorities in initiating and conducting control programs, and cooperation with military authorities and the United States Public Health Service in developing and supervising malaria control

in defense areas. New products designed for spray killing adult mosquitoes are under continual testing.

The malaria problem in Haiti requires drainage of the coastal swamp and adjacent agricultural lands through new outlets to tidewater. A malaria survey and incidental anopheline studies completed there in 1941 turned up considerable evidence against *Anopheles albimanus* as the local vector of malaria. The chief result of the findings was the organization within the Health Department of a Malaria Bureau which has been carrying out control demonstrations with assistance from the International Health Division. Records show that the incidence of malaria among school children is steadily decreasing.

During a period of four years observations have been made along the coastal region of British Guiana below high tide on the incidence of malaria and the occurrence and biology of *Anopheles* in relation to certain meteorological, chemical, and physical factors. Special studies by a consultant sanitary engineer proved that malaria control cannot be accomplished in this region by land drainage alone; the vast amount of water in canals and ditches is necessary, as the Colony's agriculture depends upon it. A severe drought which began in September 1938 and heavy rainfall beginning in December 1942 enabled malariologists to make observations under these extreme conditions. During the drought *Anopheles darlingi*, the principal vector, disappeared completely and the three other species practically disappeared. Since the rains began there has been a steady increase in numbers of *Anopheles* and in malaria incidence. During this unusual cycle detailed records were kept on the breeding areas to ascertain the acidity and salinity of the water, depths of water

collections, color and turbidity of water, kinds and amount of vertical and horizontal vegetation, kind of canal, ditch, rice field or flood fallow, amount of shade, and velocity of wind over waters. These records are now undergoing analysis. A field laboratory has been established in the outskirts of Georgetown for further observations on the biology of the local *Anopheles*.

The malaria program in Trinidad and Tobago was undertaken in 1941 when two staff members were assigned to supervise a malaria and anopheline survey and corollary studies. Trinidad and Tobago now have a Malaria Bureau which operates a diagnostic service, conducts surveys, and supervises malaria control activities. With extensive malaria and anopheline surveys completed, special attention is given to a study of bromeliads, in which one of the most important anophelines of Trinidad breeds, and to their destruction through the use of poison sprays. Other studies now in progress relate to the ecology and adult habits of *Anopheles aquasalis*. The malaria study staff maintains close relations with military authorities in Trinidad, and training facilities are provided for government and military personnel.

Control work in Peru, aimed at complete extermination of the vector *Anopheles pseudopunctipennis*, first from the Lurin Valley and then successively from the other valleys on the coast of Peru, went forward during 1943, and progress was made in spite of such difficulties as verruga in the upper end of the valley, transportation and drainage troubles, marked seasonal changes in water levels and rainfall, and scarcity of labor. An important part of the work at this stage is the accumulation of data which will furnish a more complete outline of the problem in these valleys.

Bolivia, the fourth largest country in South America, is a region of great natural contrasts, where it is possible to go in a short time from country whose mountain peaks are covered with perpetual snow and whose agriculture is pastoral and precarious, to a subtropical, low elevation climate in the Yungas, where bananas, coffee, and other semi-tropical and tropical plants grow abundantly. The warm temperate areas are infested with certain preventable diseases which hold back agricultural development. Work against yellow fever, as noted on page 69, has been successfully under way for a number of years. In 1942 malaria control, an even more serious problem, was added to the program, and in 1943 work was begun in the Yungas of the Province of La Paz and in the valleys of Mizque and Cochabamba. In the Cochabamba Valley an epidemic occurred in 1940-1941, invading the city of Cochabamba itself. The average infection in the valley is 15 per cent, although it is much higher in certain sections. The malaria problem in Bolivia is unusually complex and will involve new variations of methods used in other parts of the world. Drainage is useless as the anophelines in the Yungas breed in running water, not in swamps and marshes. A good start has already been made in training personnel, making spleen and blood parasite indexes, and inspecting areas to localize anopheline breeding places.

On the other side of the world malaria studies and a control demonstration are making headway in China. The Malaria Laboratory established in Chungking in 1942 and supported by the Foundation is conducting malaria surveys to determine the principal vector and the incidence of malaria in various districts, and to train personnel. Control work has been started where the incidence is highest.

Research. — In addition to the work of the International Health Division Laboratories in testing new chemical compounds for their efficacy against malaria parasites, The Rockefeller Foundation is supporting malaria research in the Station for Malaria Research of the Florida State Board of Health; at Harvard University under the direction of Professor L. F. Fieser; and at the University of Chicago under Dr. W. H. Taliaferro.

The Florida program has included the colonization of two indigenous species of anopheline mosquitoes. Studies have been conducted on malaria parasites and their relation to human and invertebrate hosts, and on the characteristics and properties of malaria immunity. In the course of the study program an invaluable file of more than 1,200 case histories of induced malaria infections has been accumulated and studied. The Station carries a heavy teaching load and is making a substantial contribution to the war effort, instructing military classes, furnishing the Army Medical School with large quantities of blood smears and infected mosquitoes for teaching purposes, and advising military authorities on malaria problems. At the request of the Surgeon General of the Army a study of the effectiveness of atabrine in the suppressive treatment of malaria has been undertaken.

The chemotherapy studies at Harvard in the Department of Chemistry are directed principally toward the synthesis of antimalarial compounds. A systematic program for elaborating derivatives is in progress and as new substances are developed they are tested by the International Health Division Laboratories. Certain compounds have shown definite promise. Professor Fieser and his staff are also providing louse-killing

compounds for testing in connection with typhus control. These investigations are coordinated with government work under the Committee for Medical Research.

Research at the University of Chicago to which the Foundation contributes is concerned with malaria of lizards and birds. In addition to carrying out important research of its own the Chicago staff maintains and supplies to other laboratories species and strains of avian malaria which have peculiar characteristics in relation to life history, immunology, and histopathology.

INFLUENZA AND OTHER RESPIRATORY DISEASES

The Foundation's interest in acute respiratory diseases dates back to 1927 when a program of field research was first undertaken. In 1935 the Foundation broadened its program to include the investigation of influenza. This work now centers in the Laboratories of the International Health Division in New York. A brief account of the research under way here is given on page 63. In addition, investigative centers for laboratory experiment and epidemiological study were supported in California, Minnesota, Michigan, Ohio, and Buenos Aires, Argentina.

California's health department has a research group actively engaged in studying influenza as it occurs in California and vicinity, in developing an efficient method of influenza immunization, and in cooperating with military authorities on the Pacific Coast in the investigation of respiratory diseases. The Foundation has contributed to the support of this group since 1939. An original objective was achieved in 1943 when a virus laboratory service was established with assistance from the International Health Division as part of the State laboratory. The California group have developed a

method of concentrating active or formalized inactive influenza virus by precipitation with alum. They have isolated two new suspected etiological agents from cases of so-called atypical pneumonia and have discovered that sulfathiazole inhibits certain of the psittacosis-like viruses in mice.

Influenza of the North Central States is the special province of an influenza laboratory established as a part of the Minnesota Department of Health and supported by the Foundation since 1937. Dr. E. R. Rickard became director of this program in February 1943. This group is prepared to conduct clinical and epidemiological studies, isolate virus strains by inoculating throat washings into animals or eggs, examine acute and convalescent serum specimens, test influenza vaccines, and try out the use of immune serum administered intranasally. For a good part of the year it concentrated on identifying strains and perfecting techniques for virus isolation and serum examination. Studies on the inoculation of embryonated eggs with untreated and unfiltered throat washings revealed that influenza virus could be easily isolated. During the latter part of 1943 this laboratory cooperated in the work of the Influenza Commission of the Board of Epidemic Diseases in the Army.

Research in the University of Michigan School of Public Health, formerly supported at New York University College of Medicine, relates to etiology and method of infection in respiratory diseases, and immunity with special reference to influenza. Dr. Thomas Francis, Jr. directs investigations concerned with factors effecting immunity to influenza, active and passive intranasal immunization, the pathogenesis of influenza

B, and the distribution of psittacosis-like infection in birds. A long-term study of the effect of age upon the response of mice to infection with the influenza virus is in progress.

In 1942 the Foundation added another project to its influenza program when aid was given to Ohio State University for cooperative influenza studies by the Department of Bacteriology and the Department of Medicine, under the direction of Dr. N. Paul Hudson. Dr. Hudson and his associates are investigating single and mixed infections (influenza virus with secondary invaders) in mice and monkeys, with special reference to the effect of vitamin deficiencies on susceptibility, and serological and hematological changes in vitamin-deficient monkeys. Considerable work has been done on the relationship of B-avitaminosis to susceptibility to infection.

In order to accumulate information about influenza as it occurs in South America the Foundation made an appropriation in 1940 to enable the Bacteriological Institute at Buenos Aires to organize a Virus Laboratory for the investigation of respiratory virus diseases. Attention is directed primarily to influenza in the Argentine, where both A and B influenza occur and favorable conditions exist for comparing the clinical and epidemiological characteristics of the two diseases. Experiments are under way on the protection of mice exposed to active vaporized virus by the intranasal administration of immune serum.

NUTRITION

A comparatively new part of the International Health Division's program is its interest in nutrition. Chemical

research in this subject has long received emphasis in the Natural Sciences Division of The Rockefeller Foundation, but it was not until 1938 that technical knowledge and personnel were considered sufficient to warrant the support of nutrition studies in relation to public health. In that year a nutrition program was approved which proposed to evaluate nutrition in a number of communities, determine the causes of deficiencies, and formulate remedial measures.

In April 1939 exploratory studies were undertaken in relation to Vanderbilt University, Tennessee, under the direction of Dr. John B. Youmans, and in 1940 similar work began at Duke University, North Carolina, under Dr. D. F. Milam. Field studies, laboratory investigations, and clinical examinations were made in order to determine the nature and extent of the nutrition problem in the respective areas. Techniques developed by these two study groups have been used in the last few years for surveys of other regions. The two states involved are gradually taking over activities of these groups and aid is now given in each case to the state health department for extensive nutrition surveys and demonstrations in cooperation with the universities. Survey findings provide a basis for expanding existing health and education facilities to include nutrition and the related problems of medical and dental care, environmental sanitation, and correction of physical defects. Similar work going forward in Mississippi is mentioned in the section of this Report on Aid to State and Local Health Services.

Separate appropriations are given to the North Carolina State Board of Health for establishing a Division of Nutrition. Operating through State and local nutri-

tion committees the director of this project takes an active part in promulgating a wider knowledge of nutrition values and in encouraging people to improve dietary practices and to produce and preserve adequate and proper foods. A biological laboratory has been organized in the State Health Department for the analysis of blood specimens.

Outside of the United States, cooperative nutrition projects are under way at the Toronto School of Hygiene, where Dr. E. W. McHenry is in charge, and in Mexico. A main line of investigation emphasized at Toronto is vitamin research. The purposes are to appraise the state of nutrition in selected population groups, to test diagnostic procedures for determining human dietary deficiencies, and to train personnel in the field of nutrition. Surveys have been made of secondary school children and groups of industrial workers, and a shortened method of calculating nutritive values has been developed.

Early in 1943 a nutrition study was completed in a suburb of Mexico City which has both urban and rural populations and a variety of economic groups. The basic problems appear to be subclinical deficiencies and sub-optimal states of nutrition. A well-planned, long-range program in food analysis, especially for vitamin content, is the first step in laying a solid foundation for scientific nutrition work in Mexico. With regard to the practicality and usefulness of techniques for evaluating nutritional status, results of this study indicate that the most valuable information is obtained from examination of skin, eyes, mucous membrane, and the nervous system. Work in Mexico is continuing with a study of under-privileged groups.

A brief account of nutrition investigations in England sponsored by The Rockefeller Foundation Health Commission is given on page 56.

OTHER DISEASES

Typhus

A major interest of the International Health Division of special importance during the war is the investigation of typhus fever. In 1915 The Rockefeller Foundation helped finance through the American Red Cross a Sanitary Commission to control typhus fever in Serbia, where as many as 9,000 new cases were occurring daily. This early outbreak was quickly brought under control. The Foundation's present typhus program was set up in 1940 in the hope of preventing such epidemics during this war and of accumulating more basic knowledge regarding the disease and methods of prevention. Intensive investigations concerning studies of typhus infection and control of the vector, described on page 64, are going on in the New York Laboratories of the International Health Division.

Further laboratory work is supported in China. Funds were made available in 1943 to the National Health Administration for studies in Free China where typhus is endemic in several of the southwestern provinces. The work centers in Kweiyang and is directed by Dr. H. Wei and Dr. P. Y. Liu, former Foundation fellows who had long association with Dr. Hans Zinsser and his colleagues in Peiping and Boston. At present emphasis is on studies of rickettsial strains and the preparation and testing of vaccines.

Field work, to devise simple and inexpensive methods for keeping communities continuously louse-free and

therefore non-infectible by typhus, is sponsored by The Rockefeller Foundation Health Commission.

Infective Hepatitis

Stemming partly from episodes in the large-scale use of yellow fever vaccine as a result of the war is the Foundation's present interest in infective hepatitis. For some time scattered cases of this disease have been observed following inoculation with convalescent serum or vaccines containing human serum and also after blood transfusions. In view of the importance of blood transfusion and yellow fever vaccination in wartime the investigation of jaundice is considered particularly timely.

Epidemiological investigations and the search for a susceptible experimental animal are two immediate phases of a program undertaken in cooperation with the Department of Public Health of California. Immunological studies and attempts to reduce the resistance of readily available laboratory animals by dietary, chemical, or physical means are under way. Jaundice studies in the United States are somewhat hampered by the scarcity of cases, so that the Foundation has also given support to Hebrew University, Jerusalem, Palestine, for a study of seasonal jaundice occurring among military and civilian populations of the Near East. Dr. I. J. Kligler, Head of the Department of Hygiene and Bacteriology, has begun study of the epidemiology of the disease, as well as laboratory investigations devoted to etiology. A considerable volume of information is already at hand and a promising start has been made in the investigation of similar and possibly related diseases in certain domestic animals.

Hookworm

Hookworm studies at Johns Hopkins School of Hy-

giene and Public Health have been supported almost continuously since 1925. Studies directed by Dr. W. W. Cort and Dr. G. F. Otto are conducted both in the laboratories at Baltimore and in an endemic hookworm area in southeastern Georgia. Until 1939 attention was given exclusively to the host-parasite relations of the dog hookworm *Ancylostoma caninum*. It was found that repeated small doses of infective hookworm larvae will produce in dogs an almost complete immunity to very heavy infections, and that this immunity is related to diet. At present, work on the relation of dietary deficiencies to immunity in dogs is continuing, but major emphasis is on a study of the human disease with the objective of discovering whether the mechanism of immunity is similar to that in dogs. Certain differences have already been observed.

Diphtheria

While diphtheria has not yet been a major health problem during this war, there has been a distinct increase in incidence during the past year in many large cities. Dr. Martin J. Frobisher, Jr., is continuing diphtheria investigations which have been supported by the Foundation at the Johns Hopkins School of Hygiene and Public Health since 1941. During the past two years, three contributions have been made: the first, a negative finding, to the effect that the widely publicized work on the clinical and epidemiological significance of so-called gravis and mitis strains of *Corynebacterium diphtheriae* was largely erroneous; second, a simpler method, using chicks instead of rabbits, has been developed for testing the virulence of diphtheria strains; and third, new methods in chicks, rats, and mice are supplanting the old procedures of standardizing diph-

theria toxin, toxoid, and antitoxin. Interesting studies are now in progress that relate to the role antibacterial immunity may play in resistance to diphtheria and to the part streptococci and other bacteria may play synergistically in the production of severe illness.

Syphilis

The Foundation began the study of syphilis in 1937 when Dr. Thomas B. Turner, then a staff member of the International Health Division, was assigned to the Johns Hopkins School of Hygiene and Public Health to organize a study of syphilis in the Eastern Health District of Baltimore, undertake a laboratory program, and organize courses in syphilis control for public health students. When Dr. Turner became Professor of Bacteriology in the Johns Hopkins School of Hygiene and Public Health, he continued to supervise these studies, but later when he joined the Army, it was necessary to discontinue the laboratory activities in syphilis except those relating to the preservation of spirochetes. Epidemiological studies in the Eastern Health District were continued under the direction of Dr. E. Gurney Clark. These have included the collection of basic data regarding incidence, prevalence, and trend of syphilis; evaluation of serological tests; a study of syphilis data in relation to socio-economic factors; and surveys of Negro children at intervals in an effort to determine an attack rate during the intervening period.

Findings of the Johns Hopkins urban syphilis study afford a good basis of comparison with those of a rural project in North Carolina administered by the State Health Department with assistance from the Division and under the direction of Dr. John J. Wright. The City-County health district of Durham and the Tri-

County health district of Orange, Chatham, and Person Counties comprise the study area, and excellent venereal disease facilities are available in the City Health Department of Durham. Work in North Carolina includes investigation of sources of infection and testing the effectiveness of control measures. The prevalence of syphilis among pregnant women, incidence among military selectees, and the comparative merits of the general public health nurse and the specialized male follow-up workers as epidemiological agents in syphilis control are some of the subjects that have been investigated.

Tuberculosis

Designed to provide a basis for a sound tuberculosis control program in a rural area, a tuberculosis study in Williamson County, Tennessee, has been supported by the Foundation since 1931. Such a program requires accurate knowledge of the prevalence of the disease and the risks of attack and death for the various population groups. Some of the subjects which have received special attention are the clinical course and bacteriology of the disease, pathological conditions among immediate case contacts, effective means of case-finding, the relation between childhood tuberculosis and subsequent breakdown in adult life, and social and economic factors of the tuberculosis problem. During this twelve-year period an increasing volume of valuable records has been accumulating and many articles have been published. Under the guidance of Dr. R. S. Gass, director of the study, an extension of the program has been developed to provide state-wide tuberculosis measures calling for a Government expenditure of over \$300,000. Future investigations will not be limited, as in the past, to members of the household, but will include all parents and

family members regardless of residence. Tuberculin testing and X-ray examination of infants, young children, and school children, and a study of the development of tuberculosis among males of military age are continuing.

Rabies

A rabies study was organized in 1936 by the Alabama State Board of Health with support of the Division to acquire additional knowledge on the epidemiology of this disease, including investigation relating to immunity, as a basis for the development of control methods. Due to improvement in the technique of experimentation and a better understanding of the problems related to rabies, the Alabama laboratory is now reaching a high degree of efficiency. It has satisfactorily demonstrated the prophylactic value of the vaccination of dogs against rabies and prepared a standard test virus which induces rabies in a high proportion of inoculated dogs within the incubation period of naturally infected animals. Furthermore, an avian strain of "fixed" rabies virus has been developed by serial passage in baby chicks. Two large experiments are now in progress, one a study of the comparative immunizing potency and stability of various types of vaccine used in immunizing dogs, and the other a study of vaccine treatment after exposure to rabies virus. New methods of testing rabies virus for potency using mice as the experimental animal are resulting from the work.

Mental Hygiene

The Foundation's program of mental hygiene in connection with public health has had to be greatly curtailed during the war on account of loss of personnel.

One project, the Johns Hopkins School of Hygiene and Public Health study, continues on a reduced scale. All phases of the work have been terminated with the exception of a study carried on with the infant welfare service of the Eastern Health District, requiring the full-time services of a psychologist and the part-time services of a clinical psychiatrist. While the mental hygiene study of Williamson County, Tennessee, was discontinued in 1942 due to the entry of the director into the Navy, progress continues to be made in the analyses of data which had been collected.

AID TO STATE AND LOCAL HEALTH SERVICES

The development of efficient, official health agencies may in a sense be considered the culmination of all public health activities. These agencies are the delivery point at which the benefits from new and better methods of safeguarding health are made available to the people. The establishment and promotion of state and local health departments has always been a fundamental and most important part of the Foundation's public health program. At present no state aid is given to European countries, but health departments in the United States, Canada, South America, and China continue to receive support, and local agencies are aided in Canada, Central and South America, and India.

STATE SERVICES. — When government funds became available for state health services in the United States, the Foundation cut down its expenditures for this purpose until in 1936 no grants of this type were being given. However, at the present time three projects in the United States are receiving aid. In cooperation with

Quebec Provincial Department of Health.



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Above: Demonstration booth of the
Division of Tuberculosis.

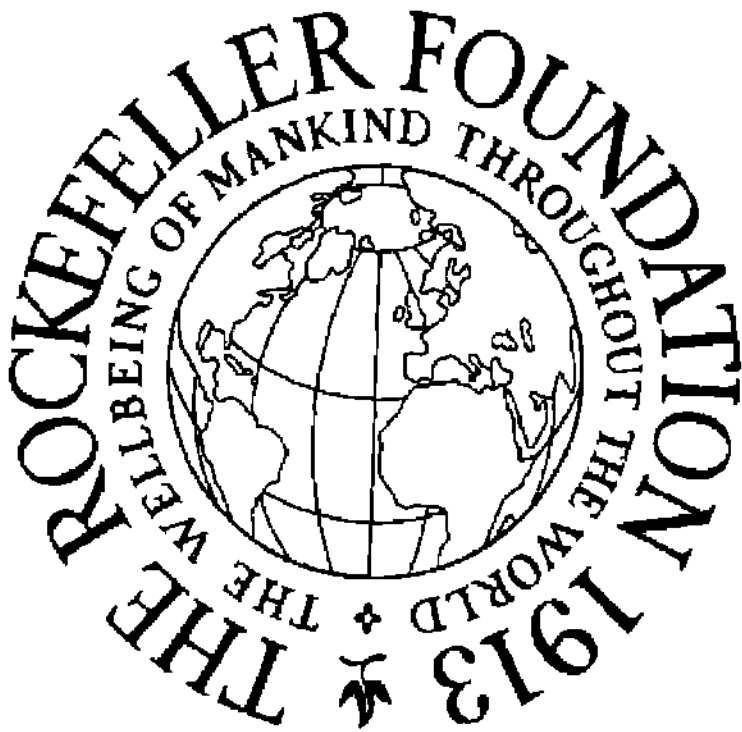
Below: Well-baby clinic.



Photograph Excised Here

the General Education Board the Foundation is helping establish a coordinated school-health-nutrition service as a joint activity of the State Board of Health and the State Department of Education in Mississippi. A similar program in North Carolina, also supported by the General Education Board and the International Health Division, has for its objective the integration of the State Boards of Health and Education in the development of a unified school-health service to include health education, physical education, public health supervision, nutrition, and mental hygiene. A new grant in 1943 went to the State of California for support of a virus diagnostic laboratory.

A large part of the aid under State Health Services goes to health departments and special divisions in Canada. Manitoba receives aid for its Division of Local Health Services, which supervises the operation of existing full-time health districts and stimulates the establishment of new units; and for a recently organized Division of Industrial Hygiene, necessitated by a sharp increase in Manitoba's industrial activity since the beginning of the war. A plan for emergency recruitment of public health personnel designed to meet the present critical shortage of health officers, sanitary engineers, and public health nurses is supported in Ontario. New Brunswick was given a grant in 1943 for the organization of a Division of Nutrition with a medical director in charge. Its primary purpose will be to cooperate with agencies interested in nutrition, such as the Departments of Agriculture and Education, in formulating and conducting a unified nutrition program to educate the public in providing and consuming a balanced diet. Surveys have been planned, the first of



Photograph Excised Here

University of Michigan School of Public Health.

which may be a study in Madawaska County where there is an unusual incidence of blindness. Cooperative aid was given to Quebec in the establishment of a Division of Health Education.

In South America the Foundation is helping to complete the organization of the National Institute of Hygiene, Guayaquil, Ecuador, through the establishment of a Department of Epidemiology and Control of Endemic Diseases. The National Institute began work in 1942 and has already made progress. The program of its new Department includes the study and control of yellow fever, malaria, hookworm, and yaws. The same population groups are involved in all control measures and the facilities, personnel, and equipment are shared as far as possible. Training of personnel for all sections is under way and the Section of Yellow Fever has started field work. The danger that the aegypti-infested coast of Ecuador may be infected through the rapidly improving communications with the Amazon Basin has given urgency to this part of the program. Activities include serum surveys, viscerotomy service, vaccinations, and anti-larval work.

Also in 1942 the Government of Bolivia created a Special Service of Yellow Fever, Malaria, and Hookworm in the National Department of Health to undertake the investigation and control of these great endemic diseases. Typhus fever and plague are also important health problems in Bolivia and eventually may be included in the scope of an enlarged endemic diseases service. Measures against yellow fever and malaria are described in the sections of this Report under those headings. The hookworm control program has begun in the northern part of Santa Cruz. Most of 1943 was

devoted to training of personnel. The work consists of treatment of infected persons and educational measures aimed at better sanitation.

The Szechuan Provincial Health Administration in China became operative in May 1939. Besides organizing health centers and training personnel it directs investigations and demonstrations conducted by the Institute of Infectious Diseases, the Nutrition Laboratory, the Division of Mental Hygiene, and the Departments of Chemistry and Pharmacology, Maternity and Child Health, Health Education, Sanitary Engineering, and Nursing. Most of the Foundation's contribution is used for the Institute of Infectious Diseases which has maintained its staff on a full-time basis in spite of emergency conditions. In addition to routine activities and special studies in bacteriology, parasitology, and entomology, field investigations of certain epidemic diseases are undertaken. During 1943 the clinical section of the Institute treated cases of diphtheria, smallpox, cerebrospinal fever, typhus fever, lobar pneumonia, and dysentery. More and more emphasis is given to the training of specialists and health officers in epidemiology and to problems of wartime importance.

LOCAL SERVICES. — In 1942 a staff member of the International Health Division was invited to make a survey of health organization in Nova Scotia. Findings of the survey, published along with recommendations, have resulted in the Halifax District Health Department, particularly needed now because of the importance of this port in the war effort. Support was continued through 1943 to the Trois Rivières City Health Unit in Quebec, which now has well-established ma-

ternal and infant welfare clinics, sanitary supervision of water supplies, sewage disposal systems, milk pasteurization plants, and tuberculosis control work.

Aid to local health departments in Mexico has been continuous since 1928. At the present time funds are given to six local health departments for health units or training stations. Two health demonstrations in the Federal District receive support, as well as three regional health districts, the purpose of which is to demonstrate the value of full-time, trained, resident health personnel and to give instruction to the staffs of state and local health departments. Pioneer services supported by the Foundation through fundamental training in the practical details of health work have had much influence on the development of the present School of Public Health in Mexico City, its associated training station in Tacuba, and a new program begun in 1943 for elementary training of over 500 physicians and 800 nurses now working in government health services in small cities, towns, and rural regions.

The Health Department of El Salvador received a grant in 1943 for the establishment of a Division of Local Health Organization which is proceeding with the organization of three new health units. Another new grant went to Uruguay for making a preliminary survey and establishing a demonstration health unit in the town of Florida. In Chile a health center in Quinta Normal, a section of Santiago, which offers a well-rounded health program and a career in public health to full-time trained personnel, has received support since 1942.

The only local health projects outside of the western hemisphere still receiving Foundation support are the Singur and Sirur health units in India, which carry on standard health unit activities, including research in

sanitation, malaria control, immunization against cholera, smallpox vaccinations, anti-plague measures, maternity and child welfare work, field training, and health educational activities.

PUBLIC HEALTH EDUCATION

Success in developing health departments depends to a great extent on the number and quality of trained persons available for full-time service. The Rockefeller Foundation has pioneered in public health education by setting up schools for the postgraduate training of specialists, schools for public health nurses, and training stations offering short courses or practical experience. Through fellowships and training grants to individuals it has built up a body of well-trained former fellows who probably represent the most lasting and effective investment of the Foundation in the health field, for its other projects depend for their ultimate influence largely on the understanding and diligence of these workers. After the war they will enable the reconstruction of health services in Europe to proceed more rapidly and on a more solid basis than was possible after the last war. In the United States and Canada the Division continues to send many fellows to the schools it has aided and to assist and utilize them in the furtherance of its objectives.

Currently receiving support are the University of Michigan, Johns Hopkins School of Hygiene and Public Health, the Harvard School of Public Health, the University of Toronto, the Institute of Hygiene, São Paulo, Brazil, the School of Public Health in Chile, and the National Institute of Health in China. Chile's School of Public Health was created in June 1943. Schools of nursing at Skidmore College, the University of Toronto,

the National School of Nursing in Caracas, Venezuela, the National University of the Littoral, Rosario, Argentina, the Escola Técnica de Enfermeiras in Lisbon, Portugal, and new schools in Quito, Ecuador, and São Paulo, Brazil, all receive aid under the Foundation's program of cooperation in the field of nursing. The International Health Division is also organizing and supporting a training station in Jamaica for public health personnel in the British West Indies and helping to train key personnel through its fellowship program.

FELLOWSHIPS

The International Health Division in 1943 directed the studies of 123 individuals to whom it had granted fellowships. The number includes 53 new fellows, 2 who were on fellowship for a second time, 57 whose studies began in 1942 and continued into 1943, 9 who began in 1941, and 2 who began in 1940. Of the 123 fellowships, 74 were held by physicians, 31 by nurses, 14 by sanitary engineers, 2 by vital statisticians, 1 by a nutritionist, and 1 by a man studying the manufacture and control of biological products. The summary table below shows the main subjects of interest of the group.

<i>Classification</i>	<i>Numbers</i>
Public Health Administration	64
Public Health Nursing	25
Public Health Laboratory	2
Sanitary Engineering	12
Vital Statistics	2
Miscellaneous	18
	—
	123

Thirty-six fellows came from the United States; 18 from Canada; 12 from Chile; 11 from Mexico; 9 from

the British West Indies; 6 from Venezuela; 5 from Brazil; 4 each from Argentina and Ecuador; 2 each from China, Haiti, India, Panama, Peru, the Philippines, Salvador, and Uruguay; and 1 each from British Honduras and Colombia.

Of the 123 fellows whose programs were directed in 1943, 119 studied at 13 educational institutions in the United States and Canada. One Chinese fellow spent his fellowship in India and three fellows were assigned to field studies in non-academic organizations. For the second year, a group of the Division's Spanish-American fellows attended a preliminary eight-weeks' course at Johns Hopkins University before the start of the regular session. This period was given for the purpose of training and improvement in English.

During the year 14 "special fellowships" were given to form a special group studying nutrition at the Harvard School of Public Health, in view of the probable usefulness of such a group in postwar reconstruction. The group consists of four physicians (holding reserve commissions in the U. S. Public Health Service), four public health nurses who have had unusual breadth of previous experience, and one highly trained nutritionist.

In addition to fellowships, the Foundation administered fifty-two travel and training grants in 1943. These were given to experienced health officials from the following countries: United States, 14; Mexico, 9; Canada, 7; China, 6; British West Indies, 5; Great Britain, 3; Argentina, Ecuador, and India, 2 each; Colombia and Iran, 1 each. Fourteen grants were for the development of public health activities, 9 for malaria studies and control, 8 for public health nursing, 7 for nutrition studies, 3 for venereal disease investigations, 2 each were for work in the fields of mental hygiene, yellow fever, and

the preparation of Kahn antigen, and 1 each for studies of tropical diseases, soil sanitation, water treatment, the organization of public health laboratories, and the bacteriological group of Salmonellas. Travel and training grants are given to encourage exchange of views and provide health officials with an opportunity for study of new techniques.

THE MEDICAL SCIENCES

THE MEDICAL SCIENCES STAFF

During 1943

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THE MEDICAL SCIENCES

IN THE main the work of the Division of Medical Sciences in 1943 relates directly or indirectly to the war: of twenty-three major grants six are directed to research with little or no bearing upon military medicine or the changes in civilian medicine brought about by the war, and none of these six was a new undertaking.

Of the other sixteen, nine were for the benefit of the teaching or application of psychiatry, which experience has again shown, in this war as in World War I, to be of an importance unanticipated by laymen and most physicians. The youngest doctors going into the Army and Navy have come from several schools now possessing adequate teaching in psychiatry but this cannot be said of many of the older men in service. The dearth of teachers in psychiatry is serious, and the need for support of departments of psychiatry remains urgent.

Eight projects are designed to meet acute needs arising directly from the war — in civilian life or in military medical activities.

From none of the major projects supported in 1943 may it be presumed that there will be no carry-over or aftereffect in the postwar period; indeed in several instances the rapid changes taking place at present, quite apart from their urgent wartime aspects, offer chances for immediate reform not previously possible.

Together with the necessity for doing new things in new ways it has been essential to be prepared for unpredictable emergencies and unforeseen opportunities, in a manner which recalls the Chinese symbol for *crisis*,

in which are fused the symbol for *danger* and the symbol meaning *opportunity*.

PSYCHIATRY, NEUROLOGY, AND ALLIED SUBJECTS

HARVARD MEDICAL SCHOOL

PSYCHIATRY

The Rockefeller Foundation has a long-standing interest, dating back to the first grant in 1934, in the development of teaching and research in psychiatry at Harvard under the direction of Dr. Stanley Cobb. During the past ten years the Harvard Medical School has developed an active psychiatric service at the Massachusetts General Hospital. Started at a time when most general hospitals excluded psychiatric patients and possessed no resident psychiatrists as consultants or teachers, the Massachusetts General Hospital psychiatric service has shown the value of bringing psychiatry into close touch with the rest of clinical medicine.

Since the beginning of the war the accelerated medical school course and the presence of graduate students from the School of Public Health and the Army have necessitated increased teaching activities. At the same time new stimulus has been given to research work. Projects undertaken in connection with the war provide abundant and varied case material. An investigation for the Committee on the Selection of Aviation Pilots of the National Research Council furnished an opportunity to examine carefully 150 unusually healthy and normal young men. Aside from the significant contribution made to pilot selection, this work has established a baseline of great value with which to compare neurotics and patients with functional disorders.

The group at Harvard feel that they are approaching a good psychological and medical description of "neu-

rosis." Work with the spirogram and the electroencephalogram; studies of oxygen utilization, muscular tension, and the threshold of pain in psychoneurotic patients; examination of the various levels of consciousness, the rate of speech reactions, responses to certain stimuli, grief and depressive reactions — these and other investigations, together with clinical observations, indicate that "neurosis" is too broad a term and should be split into two subgroups: roughly, those who react excessively with their autonomic nervous systems, and those whose reaction is less than normal. Hysteria forms a group by itself with no especial relation to autonomic activities; the symptoms are often "pseudo-neurotic."

In ten years of work at the Massachusetts General Hospital the Harvard group has made definite progress in bringing a psychological point of view to medicine and surgery, improving and shortening methods of psychotherapy, and teaching students and interns the sort of psychiatry needed by every practitioner of medicine. The Rockefeller Foundation in 1943 contributed \$96,000 to this program.

McGILL UNIVERSITY
PSYCHIATRY

The Rockefeller Foundation has taken an active interest in the development of medicine at McGill University since 1921. Grants have been made for general endowment of the Faculty of Medicine, for endowment, construction, and equipment of a building devoted to neurology and neurosurgery, and for research in surgery, neurology, physiology and pathology of the nervous system, endocrinology, epilepsy, and psychology. The present five-year grant of \$150,000 will be used for development of the Department of Psychiatry.

McGill has had an excellent Neurological Institute since 1934. It has been felt that the work in neurology would benefit by the presence of a psychiatric department. Army authorities in Canada are urging the importance of psychiatry. The time is ripe for the development of adequate teaching in this field, strengthened by association with a well-organized hospital unit. A fifty-bed hospital structure near the Medical School laboratories has been given to the Royal Victoria Hospital. This unit was opened on September 1, 1943, as a small university psychiatric clinic, under the management of the Royal Victoria Hospital. Dr. Donald Ewen Cameron has been appointed the Professor of Psychiatry. The clinic will operate in close collaboration with the Protestant Hospital at Verdun, a large mental hospital in one of Montreal's suburbs.

The new department is equipped and staffed to provide treatment for in-patients and out-patients; to train medical students in the symptoms, implications, significance, and treatment of mental difficulties in adults and in children; to teach student and graduate nurses the principles and practice of psychiatric nursing; and to give instruction in psychiatry to students of psychology, social work, occupational therapy, law, theology, and other subjects.

NEW YORK UNIVERSITY
PSYCHIATRY

In October 1942 the New York University School of Medicine took over the medical direction of the Psychiatric Division of Bellevue Hospital and Dr. Bernard Wortis, Professor of Psychiatry, became the director of the psychiatric service. Thanks to the generosity of Mr. Lucius Littauer this department has permanent

full-time status. The Foundation in 1943 appropriated \$50,000 toward the support of teaching and research in this Division.

Bellevue's psychiatric service is housed in a separate building with a bed capacity of 630 and an average of 30,000 admissions annually. It has clinical and laboratory facilities for comprehensive research and post-graduate training in medical-legal psychiatry, children's psychiatric problems, psychosomatic problems, and neurosurgery and neurology. Approximately 700 children under thirteen years of age are sent annually to the Children's Psychiatric Ward by various agencies and by courts and parents. Two wards are devoted to adolescents and two to patients with psychosomatic problems. Cases of selected deficiency syndromes in chronic alcoholism and neurological and neurosurgical patients are available for study. The neurosurgical traumatic service is very active and there is an abundance of case material in brain tumors, traumatic spinal cords, and injuries to peripheral nerves.

Bellevue is especially well equipped to make valuable contributions in the field of medical-legal psychiatry. It has jurisdiction over a clinic in the Court of General Sessions, and over 2,000 prisoners a year are cared for in its prison wards for male and female psychiatric patients. The need for research and training in this field is great and Bellevue's facilities are unique.

JOHNS HOPKINS UNIVERSITY
PSYCHIATRY

Since July 1, 1933 the Foundation has appropriated a total of \$339,100 to Johns Hopkins University for its Department of Psychiatry, formerly under the direction of Dr. Adolf Meyer and now headed by Dr. John C.

Whitehorn. Research supported by the Foundation grants has dealt with psychobiological problems, conditioned reflexes, and psychiatric disturbances in children.

In the Psychobiological Laboratory, Dr. Curt Richter, studying the relationships between bodily disorders and their psychological counterparts in behavior, has experimented with the effects of endocrine substances and of artificially produced dietary deficiencies on the behavior of animals. Extensive investigations have been made of the self-selection of diets as a guide to nutritional needs or deficiencies.

Dr. Horsley Gantt, one of the half dozen exponents in the United States of Pavlov's studies in the conditioned reflexes of animals, has in increasing measure applied Pavlovian methods to the diagnosis of mental diseases in human beings. In connection with shock therapy and its effect on the tissues of the brain, a study was recently completed on the effect of metrazol convulsions on conditioned reflexes in dogs. Ways of measuring by the technique of conditioned reflexes the causes of some types of nervous breakdown also received attention in 1943.

Treatment, studying, and teaching from cases of psychiatric disorders in children are carried out in the Children's Psychiatric Service under the direction of Dr. Leo Kanner. The Service has working contacts with social agencies, schools, recreation centers, and juvenile courts.

¶ In 1943 the Foundation's contribution for use over a five-year period was \$190,000.

AMERICAN PSYCHIATRIC ASSOCIATION PSYCHIATRIC NURSING

In July 1942 Mrs. Laura W. Fitzsimmons, under the

auspices of the American Psychiatric Association, began a survey of mental hospitals in the United States and Canada, to appraise the present status of nursing services for patients who are mentally ill. Mrs. Fitzsimmons has visited some fifty hospitals, establishing contacts with leaders in nursing education and studying the loss of all types of hospital personnel, the proportion of nurses to patients, the hospitals operating nursing schools, the courses for attendants, and the standards of such schools and courses. Her visits have been enthusiastically received and her advice sought in regard to improving present educational programs and setting up new ones.

More than half the hospital beds of the nation, in time of peace, are occupied by mental patients. Because of the war the problem of inadequacy of nursing personnel, both in quantity and quality, is probably greater than ever before. One institution whose staff under normal conditions included seventy-two registered nurses now has only thirty-eight. Another has dropped from fifty-eight to twenty-two, which means that each of the twenty-two nurses has an average of ninety-three patients to attend. The situation with regard to psychiatric nursing had been by no means exemplary before the war and there have always been great differences in the quality of care given by different institutions. Some hospitals have one registered nurse for every five or six patients while the ratio in one hospital is one nurse to 2,864 patients. The average for state institutions is one registered nurse to 124 patients.

It has been too little realized generally that the quality of the care of mental patients, like any other commodity, is to a great extent commensurate with the price paid. In the past an efficient administration of

mental hospitals was considered to be one which kept costs at a minimum. The survey revealed one state hospital in which the per capita cost had been brought down to \$14.88 per month. In the same state the cost per capita for inmates of the state penitentiary is \$21.89.

Even though the number of patients in mental hospitals is undoubtedly increasing, the supply of well-trained personnel has been steadily decreasing. Some institutions have no training program at all for attendants; others give long, involved courses stressing superfluous subjects. Many states now give no training in psychiatric nursing. There has been a tendency to discontinue basic schools of nursing in mental hospitals, and postgraduate courses are nearly non-existent. The facts with regard to this group of workers are now under study and it is proposed to work out a course advantageous to the employee, the hospital, and the patient.

The Foundation supported this survey in 1942, and in 1943 gave a further grant of \$20,000 for the work of the Association's Committee on Psychiatric Nursing. Part of the present grant will be used for compiling further information. Attention will then be given to utilizing the information obtained. Although conditions for progress are not at their best in wartime, it is evident that the war has accentuated the difficulties and made corrective measures increasingly desirable.

JUDGE BAKER GUIDANCE CENTER

Last year The Rockefeller Foundation gave an appropriation to the Judge Baker Guidance Center of Boston for beginning and maintaining during 1943 a psychiatric service for very young children. Under the auspices of this twenty-six year old organization

devoted to increasing knowledge and improving treatment of mental and emotional problems in childhood, The Children's Center was opened in Roxbury, Massachusetts, in January 1943. Work at the Center is now well under way, with nurses, teachers, and psychiatrists studying infants and preschool children and assisting parents to correct conditions affecting their children's health. During the first six months of operation 259 requests for this type of help were received. The Center not only affords the best conditions under which to give day supervision to children whose mothers cannot care for them adequately, but also offers special help, through individual treatment and participation in normal group activities, to children in need of educational and therapeutic guidance. Mothers receive advice and education even when no direct therapy is given to the child.

The need for such a service has long been recognized by medical and social agencies. Emotional conflicts and strain often appear as early as the first or second year of a child's life and the earlier therapeutic work is begun the better. In contrast with other child guidance clinics which operate on an appointment basis and are modelled after hospital out-patient departments, the Center has emphasized an approach better suited to the needs of very small children. Experienced psychiatrists feel that they cannot adequately appraise the personality of a young child whom they see only occasionally in strange surroundings. At the Center the child is observed among a group of contemporaries where he can play happily and reveal his attitudes toward children and adults. As the friendliness and informality of the nursery school pervade the whole house, he is quick to feel at home in whatever room the therapist may see him. These con-

ditions constitute the best medium for study and often for therapy. It is one of the Center's conditions of acceptance that the mother spend the first few days at the Center in order to facilitate the adjustment of her child and that she spend a part of that time in the nursery group itself. This provides a unique opportunity to observe the mother-child relationship and establishes the mother's trust in the Center.

The setup of The Children's Center offers unusual opportunities for training and teaching students in the various fields of child care. Not only is it possible to observe the behavior of a group of children ranging from infancy through the preschool years, but the large number of cases studied provides rich material revealing the emotional growth of young children and the beginnings of the conflicts which lead to neurosis and delinquency. Teaching programs are offered for professional people, social workers, nursery school teachers, and volunteers and students in child care. The Center is also in a position to send workers into congested war industrial areas to establish simpler types of day nurseries or play groups.

Perhaps one of the most important contributions of this Center is that it serves to fix attention of psychologists, teachers, and psychiatrists upon the earliest and most formative years, which have as yet received so little intimate study. The Foundation followed up its appropriation of last year with a grant of \$17,000.

AMERICAN ASSOCIATION OF PSYCHIATRIC SOCIAL WORKERS PERSONNEL INFORMATION

As in the field of psychiatric nursing, so in psychiatric social work there has been an acute shortage of per-

sonnel during the last few years. Yet there has been no single central group concerned with the redistribution of available personnel and the encouragement of new personnel through expanded training facilities. The present grant of \$8,200 to the American Association of Psychiatric Social Workers is to enable it to organize a War Service Office to meet these needs.

The American Association of Psychiatric Social Workers was organized in 1926 for the purpose of developing and maintaining professional standards in psychiatric social work. It is national in scope and has 600 members. Its specialized field of psychiatric social work is defined as the practicing of social case work in conjunction with psychiatry in a psychiatric setting. Voluntary service by officers and committee members has constituted the heart of the Association's slow but steady growth.

Since December 1941 the Association has acted as the only available clearing house for information regarding psychiatric social workers, their capacities, qualifications, and availability. There were then 900 unfilled posts for such persons. Demands for advice, for teachers in this field, for workers and for executives have come in increasing numbers from the American Red Cross, the Army, the Veterans' Bureau, the Public Health Service, the War Manpower Commission, civilian hospitals, industries, and voluntary agencies. Through the new War Service Office the Association will be able to handle these urgent requests more effectively.

PENNSYLVANIA HOSPITAL
NEUROLOGICAL RESEARCH

For a number of years Dr. Samuel T. Orton has

specialized in the study of apraxia in children. This is the technical term for a condition of abnormal clumsiness which handicaps and humiliates about 15 per cent of the children entering schools in the United States. Apraxia takes the form of peculiar difficulties in reading, writing, and speaking, which often cause children of average or better than average intelligence to appear stupid.

The reason for these awkward fumbblings lies in the mechanism of the human brain. The brain is so constituted that control of speech, reading, and writing cannot be evenly balanced between the two cerebral hemispheres but must be concentrated in one side. Any interference with this one-sided pattern of control makes it extremely difficult to control the fine movements required for such accomplishments. One kind of interference is provided by parents in trying to train a left-handed child to become right-handed. In other cases confusion and awkwardness are evident even when no such "corrective" efforts have been made. The pattern for unilateral cerebral dominance in such children has been distorted apparently by opposing genetic factors inherited from their two parents. These cases usually present more difficult problems in training, but they can often be helped and in many instances have been wholly corrected. Such children are predominantly males, the average incidence being four boys to one girl, and this also suggests that the origin of the condition may be heredity.

Since 1939 aid has been given by the Foundation for Dr. Orton's studies on apraxia and related phenomena in children, first at the Forman Schools in Litchfield, Connecticut, and now at the Pennsylvania Hospital.

The present grant is for \$16,440. Studies of reading and speech difficulties have led to interest in the general field of muscular incoordination. The relation of these conditions to education is evident; yet the amount of useful investigation and effective correction has been relatively small, especially in the field of apraxia. Dr. Orton's work promises results of far-reaching importance to psychiatry as well as to our knowledge of child development.

UNIVERSITY OF EDINBURGH

NEUROSURGERY, NEUROLOGY, PSYCHIATRY

Mr. Norman Dott, a neurosurgeon, and Dr. D. K. Henderson, the Professor of Psychiatry, both of the University of Edinburgh, have organized and are directing a centralized service in Scotland and northern England for civilian and military patients with head injuries. During the past three years the service has made available for prolonged care and study selected cases of brain injury and associated psychiatric disturbances. The neurosurgeon and the psychiatrist supplement each other in the study of brain injuries or tumors resulting in changes of personality, impairment of mental function, intellectual deterioration, psychoses, speech disorders, or confusion. In the Brain Injuries Unit at Edinburgh considerable attention is given to speech therapy, occupational therapy, physical training, and physiotherapy. Unusually favorable circumstances are available here for long-continued observation and study of the relation of brain injuries to mental activity and general behavior. Changes seen in convalescence or deteriorating states are observed as well as the phenomena of acute and recent injury. The combined

investigation of brain disorders by neurology, neurosurgery, and psychiatry has opened up research not possible when workers in the different fields operate independently.

The Foundation has supported the joint work of Mr. Dott and Dr. Henderson since 1940. Its contribution in 1943 was \$20,750.

UNIVERSITY OF CINCINNATI
NEUROPHYSIOLOGY

Support given by the Foundation during the past six years has enabled the University of Cincinnati to establish a Division of Neurophysiology under the joint direction of Drs. Charles D. Aring and Joseph Evans. Additional funds raised by the University have made the Division a strong, productive unit. In 1938 a five-year appropriation was given for research in neurology in relation to nutrition under Dr. Tom Spies and Dr. Aring. Interesting and valuable work was accomplished, dealing in particular with pellagra and beriberi, and emotional behavior as affected by vitamin deficiency. Aid has also been given for work in the neurosurgical unit under Dr. Evans. The 1943 grant of \$9,750 is for further support of Dr. Aring's work in neurophysiology.

Dr. Aring's group is interested in vascular diseases of the nervous system, particularly from the histopathological standpoint. Considerable attention is given to cerebro-vascular changes in injury to the central nervous system. Dr. Aring's special interest is the threshold of the appreciation of vibration as a measure of fatigue. An apparatus has been devised for measuring vibratory thresholds and vibratory adaptation curves. The effect of drugs on the appreciation of vibration is under in-

vestigation. The group is also studying the origin of cerebral hemorrhage in the human.

ENDOCRINOLOGY

COLUMBIA UNIVERSITY

ENDOCRINOLOGY

Our knowledge of the role played by the glands of internal secretion, derived at first from highly empirical experiments on animals, has been refined and extended through the contributions of biochemistry and is now at a stage where cautious clinical uses are revealing valuable applications to human disorders. The role of the internal secretions illustrates clearly the principle that in a normal organism no change in one of its components takes place without affecting the status or function of other components. Removal of the pituitary, for example, affects the thyroid, adrenals, and gonads, and vice versa. To unravel so complicated a set of interrelationships requires elaborate, extensive, and repeated experimentation.

At Columbia University a distinguished group of investigators has been conducting long-term research on the endocrine glands, their structure, functions, and interrelations. The Foundation has helped support their work since 1928, at first indirectly through the National Research Council Committee for Research in Problems of Sex, then through its own Division of Natural Sciences, and finally through the Medical Sciences. The sum of \$44,400 was given in 1943, for use over a three-year period.

The work at Columbia is directed by Dr. Philip E. Smith of the Department of Anatomy. Other members of the group are Drs. Earle T. Engle, Aura Severing-

haus, Louis Levin, and Beatrice Goldzieher. They are assisted by five technicians and two animal caretakers. Choice of specific subjects for study is determined by individual interests of the investigators, but there is frequent consultation and some collaboration, and all are familiar with the work in hand. In general the program is directed to gaining further information on reproductive processes in man and animals, on the factors involved in dwarfism and the restoration of growth, and in the alterations of blood proteins in animals from which the pituitary, thyroid, or adrenal glands have been removed.

MASSACHUSETTS GENERAL HOSPITAL
ENDOCRINOLOGY

The Rockefeller Foundation has supported the work of Dr. Fuller Albright in endocrinology at the Massachusetts General Hospital since 1935, first through its Division of Natural Sciences and then through the Medical Sciences. In 1943 an additional appropriation of \$12,000 was made.

Dr. Albright is an Associate Professor of Medicine at the Harvard Medical School. The Massachusetts General Hospital provides him with laboratory space and the assistance of two technicians. His studies have contributed substantially to knowledge of the physiology and biochemistry of calcium and phosphorous metabolism as affected by certain internal secretions, especially of the parathyroids and ovary. Connected with calcium metabolism are factors affecting the healing of fractured bones, and the control of calcium phosphate urinary calculi, the physiology of vitamin D, and a defect or disease of calcium metabolism called osteoporosis.

Recent research carried out by Dr. Albright and his assistants has dealt with various types of skeletal dis-



The Children's
Center, Judge
Baker Guidance
Center.

Photograph Excised Here



Photograph Excised Here

Department of Legal Medicine, Harvard Medical School.

orders. In connection with the effect of kidney diseases on the skeleton, the ability of citrate solutions to dissolve calcium-phosphate stones is under investigation. The latest finding in this effort is that magnesium added to these solutions almost completely eliminates their irritability. Research is now getting into the field of enzymes with the purpose of attacking the organic matrix of stones and hence increasing the speed of dissolution. Skeletal disorder and other metabolic changes in Cushing's syndrome and the effect on these changes of testosterone have also received attention.

Dr. Albright's group have made several interesting clinical observations. They report existence of a syndrome associated with calcium deposits in the kidney tubules which leads to real rickets, not to so-called "renal rickets," and which responds to alkali therapy. They have noticed that steatorrhea produces a deficiency in all fat soluble vitamins, rather than a deficiency of just vitamin D; that immobilization of large parts of the skeleton may lead to such rapid osteoporosis that the kidneys cannot excrete all the calcium, with the result that the patient may die of hypercalcemia and kidney shutdown; and that primary ovarian failure may lead to decreased stature. They have described the clinical entity, "post-menopausal osteoporosis," and also "pseudo-hypoparathyroidism," in which the disorder is due not to lack of the hormone but to the inability of the body to respond to the hormone.

MEDICAL EDUCATION

AMERICAN LIBRARY ASSOCIATION

SURVEY OF ARMY MEDICAL LIBRARY

The United States Army Medical Library, or the Library of the Surgeon General's Office, in Washington,



Million volt X-ray machine, Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York City.

Photograph Excised Here



Photograph Excised Here

Graduate medical education, Eighth Service Command,
Dallas, Texas.

D. C., is the largest medical library in the world. It began with a collection of books in the office of the Surgeon General of the Army, an office created in 1818. In 1840 Surgeon General Joseph Lovell compiled a list or short catalogue of the books in his office. This material was the nucleus of the present collection. Its real development as a library began in 1865 with the assignment of Surgeon General John Shaw Billings who laid the foundations for a magnificent collection, and ably administered the increasing services of this library.

The collection consists of more than one million items, including some 450,000 books, about 600,000 pamphlets, 2,000 journals, 10,000 portraits and photographs, and in addition, autographs, clippings, engravings, manuscripts, periodicals, as well as the long list of references printed in its publication, the *Index Catalogue*. Formerly the Library received an average of more than 2,000 periodicals, of which approximately 1,100 were in foreign languages. Its special features are: medical incunabula, of which there are more than 460 titles of the estimated 600 known; several hundred medical manuscripts; special collections of medical biographical and bibliographical works; federal, state, and municipal documents on sanitation, public health, and vital statistics; 2,000 works of sixteenth century authors and 7,000 works of seventeenth century authors. The Photoduplication and Microfilm Section of the Library has been extended to serve government offices, branches of the Armed Forces, and other medical libraries.

At the request of the present librarian, Colonel Harold W. Jones, the Surgeon General in 1943 asked the American Library Association to make a comprehensive report upon the functions, activities, holdings, organization,

administration, personnel, budget, and buildings of the Library. A staff of four or five men chosen by the American Library Association have carried out the survey and are preparing a report to the Surgeon General designed to provide the basis of policy and objectives in the future. The value of this project lies in the fact that the Army Medical Library is a *national* library with a now irreplaceable collection of medical literature. It is hoped that the survey will lead to the more adequate use and appropriate growth of the collection. The Foundation's contribution to this survey amounted to \$20,000.

GRADUATE MEDICAL EDUCATION

EIGHTH SERVICE COMMAND, DALLAS, TEXAS

In the Eighth Service Command Colonel W. Lee Hart has instituted a program to introduce graduate medical education and hospital methods into a selected number of hospitals of the Army Medical Corps. Colonel Walter Bauer, Medical Consultant of the Eighth Service Command, assists Colonel Hart in the work, the specific objective of which is to improve the performance and morale of medical staffs in the air force, station, and general hospitals of this Command. The Foundation is financing the plan, approved by the Chief Consultant to the Surgeon General, with a grant of \$25,000. This sum will provide X-ray films, lantern slides, and mimeographed history sheets used at the Massachusetts General Hospital; materials for effective working hospital libraries; travel and honoraria of civilian lecturers.

The essential exercises in this program are regular clinico-pathological conferences, meetings and ward rounds of major services and of the entire hospital staff, and discussions of current medical literature; clinical

case teaching in psychiatry; visits by nationally known internists, surgeons, roentgenologists, and psychiatrists with the Army consultants, to make ward rounds, hold clinics, and give demonstrations. Effects of this experiment should be far-reaching, suggesting that small civilian hospitals after the war can profitably maintain similar teaching activities for the continuing benefit of their patients through having a more alert and informed staff. Aside from its immediate value to sick and wounded soldiers, the program will bring returns by sending back to civilian communities physicians better qualified to practice medicine than they were before entering the services.

The program under Colonel Hart has been an experiment, made under what were considered optimum conditions in point of collaboration and direction, in defining and perhaps proving the value of laying emphasis in base and station hospitals upon the interchange of skills and knowledge — i.e., upon teaching and learning.

To the consultants from civilian life whose visits have substantially contributed to the success of the program much gratitude is due, although they have more than welcomed this opportunity to contribute to the medical care of the soldiers.

HARVARD UNIVERSITY

LEGAL MEDICINE

The first full-time chair of legal medicine in the United States was established at Harvard in 1937, marking a notable advance in a subject too long neglected in the English-speaking part of the world. On the continent of Europe the interdependence of the laws concerned with preserving the health and safety of society, and medi-

cine, which aims to preserve the physical and mental health of man as an individual, has long been recognized and the two have cooperated effectively in the solution of common problems for well over two centuries.

Problems still to be solved through the joint efforts of both professions are numerous and in pressing need of attention. What constitutes an acceptable standard of scientific evidence in courts of law? What kind of evidence should be used to determine the presence or absence of any given abnormality of mind or body? What contributions can medical science make to the detection of crime? When can it be said that injury has contributed to or caused disability or death? What legal mechanisms will best assure the availability of truly reliable scientific evidence to courts of justice?

Under the leadership of Dr. Alan R. Moritz Harvard's Department of Legal Medicine has made considerable progress in the first five years of activity. Its facilities now include a large special library in legal medicine, a group of laboratories equipped for routine and research work in pathology, toxicology, biochemistry, serology, photography, and microscopy, and quarters for animal experimentation. The undergraduate course has been opened to medical students of Tufts College and Boston University, and in addition to graduate teaching special courses are offered to medical examiners, coroners, and other qualified persons. State and county authorities have taken advantage of Harvard's facilities for expert solution of criminal cases and, as a result, material for teaching and research is provided. A number of articles have already been published in medical and legal journals on such subjects as education and legislation, medical jurisprudence and legal aspects of scientific evidence, pathology, chemistry and

toxicology, immunology, and scientific criminal investigation.

The Rockefeller Foundation continued its support in the development of legal medicine at Harvard University in 1943 with a grant of \$15,000.

MEMORIAL HOSPITAL FOR THE TREATMENT OF CANCER AND ALLIED DISEASES

The Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York, is a leading center for teaching and research in cancer in the Americas, and in view of the effect of the war upon any similar institutions in Europe, probably in the world. Under the leadership of Dr. C. P. Rhoads the Hospital has improved its teaching of Cornell medical students, continued graduate training of physicians preparing themselves as cancer specialists, and made great strides in the field of pure research. Continuing previous support The Rockefeller Foundation appropriated \$75,000 to the Hospital in 1943.

Three departments carry on the experimental work at the Memorial Hospital: the Research Chemistry Department, the Nutrition Laboratory, and the Enzyme Laboratory.

Work in the Research Chemistry Department centers around compounds like the sex hormones, somewhat similar in molecular structure to the cancer-producing chemicals in tar. Compounds investigated are isolated from the urine of normal individuals and of cancer patients. The theory now under investigation here is that the abnormal compounds present in the urine of cancer patients play a causative role and are not just the consequence of the disease.

Purposes of the program in the Nutrition Laboratory, dealing with the abnormal nutritional conditions of the patient with cancer, are to ascertain what set of abnormal chemical functions allows the growth of cancer to proceed, and to restore proper nutritional balance so that the patient will be better able to withstand severe surgical or radiological treatment.

Experiments in the Enzyme Laboratory have proved that a certain dye known as "butter yellow" when fed to rats under the proper conditions regularly causes liver cancer. The dye, or some product into which it is transformed, damages an enzyme essential for the chemical activity of normal liver cells. The chemicals into which this dye is broken down were isolated in pure form from the urine of treated animals and at least one of them is now known to kill the activity of the enzyme mentioned. It is clear that some cells, tougher than others, resisted the action of these toxic products, developed new and different chemical systems, and carried on substitute but effective processes. By virtue of these abnormal abilities the adapted cells became resistant, not only to the chemical which had caused their adaptation, but to the normal control forces of the body as well, so that their growth rate could not be controlled by the restraining forces usually in effect. The adapted, tough cells could rob the normal cells of nourishment, continue growth indefinitely, and so eventually destroy the body.

The present goal of work in the Enzyme Laboratory is to find a chemical capable of killing the cancer cells without harming the normal cells. Already three chemicals have produced the desired effect. Two of these are too toxic for use in living animals and the effect of the third is very weak. However, these results are on the

whole extremely encouraging. The program is expensive, slow, and complex, but the goal, a chemical cure and prevention of cancer, is one of the greatest of medical investigation, and appears to be not unattainable.

UNIVERSITY OF BUENOS AIRES
INSTITUTE OF PHYSIOLOGY

In 1919 the Institute of Physiology of the University of Buenos Aires was established as a center of teaching and research in physiology, biological chemistry, and biophysics. In 1942 there were seventy-seven scientific workers in the Institute and instruction was given to approximately 1,000 students in medicine, dentistry, and pharmacy. Director of the Institute, inspiring teacher, and brilliant research leader is Professor B. A. Houssay. Not only through his own important contributions in various fields of physiology and biochemistry, but also through the research of numerous students working under his direction, Professor Houssay has come to be recognized as one of the leaders of Latin American medical scientists. Few men have had greater influence on the training of young scientists. Not only do Houssay's pupils fill a number of the chairs of physiology and biochemistry in the Argentine, but he has trained a number of young men for academic posts in neighboring countries, particularly Chile, Uruguay, and Paraguay.

The research of Houssay and his co-workers has resulted in notable contributions to the knowledge of the different functions of the pancreas, liver, hypophysis, adrenals, and thyroid, in diabetes and carbohydrate metabolism. Other fields which have received special attention are nutrition, including mineral metabolism and the vitamin content of native foods, hypertension

of renal origin, electrocardiography, and electroencephalography.

Foundation support to the work at the Institute of Physiology amounted in 1943 to \$25,000.

UNIVERSITY OF UTAH

FLUID RESEARCH FUND

In 1943 the Medical School of the University of Utah, which has been a two-year school for forty years, became a four-year school, with full-time professors and assistants in medicine, surgery, obstetrics, and pediatrics, and affiliation with the City and County Hospital of Salt Lake City. This School is centrally located in the large inter-mountain area certain to grow in wealth, population, and importance during the next fifty years. Except for Colorado, the states adjoining Utah do not have medical faculties. Emphasis upon research and support of new standards in the school during its formative years will be of special value and continuing influence.

Administration of the \$15,000 fluid research fund given by The Rockefeller Foundation in 1943 will be in the hands of a Committee of three consisting of the Dean, Dr. A. C. Callister; a physician not on the faculty but a member of the State Board of Health, Dr. Joseph Morrell; and a competent investigator from outside Utah, Dr. A. L. Washburn of the Child Research Council of Denver and the University of Colorado Medical School.

GROUP MEDICINE AND MEDICAL ECONOMICS

GROUP HEALTH COOPERATIVE, INC.

The purpose of Group Health Cooperative is to es-

establish prepayment plans for doctors' care in which physicians pledge their services just as hospitals pledge theirs under the Blue Cross hospital plan. This non-profit organization composed of physicians and laymen was begun in 1938 and received a license from the New York State Commissioner for Insurance in 1940. The principal part of its present program is a 2¼ cent-a-day plan for medical and surgical care.

Any person under sixty-five years old who belongs to an organized group such as a common employment group, a trade union, a fraternal or a cooperative organization, and who lives in any of the ten southern counties of New York State is eligible to subscribe. The enrollment of at least 75 per cent of a group is required in order to secure a sound proportion of persons with normal health, and lower rates are given to groups subscribing under pay roll deduction plans. Doctors' services for hospitalized illness, whether medical, surgical, or maternity, and in addition surgical and maternity care at home or in the doctor's office are provided. Subscribers have at their service a choice among approximately 3,000 physicians and surgeons, representing every hospital in the metropolitan area. The plan, approved by the New York, Kings, Queens, and Westchester County Medical Societies, is supervised by a Medical Advisory Board of nineteen well-known physicians. It was evolved after two years of experimentation with a more comprehensive plan which emphasized preventive medical care in addition to the types of "catastrophic illness" covered by the new plan.

The distinctive features of Group Health Cooperative are that the subscribers have equal representation with the participating physicians in the management; payments are made directly to the physicians and not in

uncontrolled cash indemnities to the subscribers; attention is given to educating and protecting subscribers in point of preventable illness; active supervision of the physicians' services is afforded through an administrative staff, including a competent medical advisory board. The Foundation contributed to the support of Group Health Cooperative in 1942 and made a further appropriation of \$59,500 in 1943.

MEDICAL ADMINISTRATION SERVICE, INC.

Dr. Kingsley Roberts, Director of the Medical Administration Service, New York City, has spent considerable time recently visiting communities where the demands of war have caused serious shortages of physicians. He has conferred with groups of medical men, industrialists, labor leaders, housing authorities, and civic leaders, and in general has been making a first-hand study of the problem of medical care as it is complicated by the dislocations of war.

In peacetime the proportion of medical men in the United States has averaged about one doctor to every 800 of the population. The War Department's requirement for the Army is one doctor to every 154 soldiers. Moreover, the Army takes no doctors over forty-five years of age. It is estimated that by the end of 1943 more than half of the medical men within this age limit will be in uniform, and the total number left to serve the home communities will average about one doctor to every 1,800 of the civilian population. This does not mean that every 1,800 citizens will have a doctor within calling distance. For instance, in one area where the population has increased 69 per cent during the last year and a large proportion of the local physicians are in the Army, there are only sixty active physicians for a popu-

lation of 205,000, a ratio of one doctor to 3,400 people. It is estimated that another 35,000 had been added to this population by the middle of 1943. The doctor shortage here is dangerous, yet the plight of this city is not unique.

To date efforts to transfer physicians have been largely blocked by state laws permitting a doctor to practice his profession only in the state which granted his license. Obviously the distribution of medical care provides a series of problems of very considerable urgency. Somewhat less obviously, the experience being accumulated through various attempted solutions can be put at the disposal of various agencies, private and public, through an organization created for this purpose, thus diminishing mistakes and delays in number and magnitude.

Dr. Roberts has also given considerable attention to the problem of absenteeism in war plants. The 350,000,000 man-days lost each year through non-industrial illness and accidents mean a production loss of 1,000 men working in 1,000 war plants for a full year. This illness is not all preventable, but 70,000,000 more man-days of war work would be available each year, the equivalent of over 200,000 men workers, if 20 per cent of illness absenteeism were prevented.

The Medical Administration Service is an association of doctors and laymen organized to promote more effective and economical medical care on sound professional and economic bases. It serves an urgent need at a time when many hospitals are requiring new sources of support and war industry populations are making unprecedented demands for a better administration if not a radical reorganization of medical care. In 1943 The

Rockefeller Foundation appropriated \$30,000 for the work of this Service.

UNIVERSITY OF CHICAGO
INDUSTRIAL MEDICINE

It is little more than a quarter of a century since industrial medicine in America was concerned only with treatment of injuries and illnesses incurred through industrial hazards. The first step beyond this stage came with the recognition of a need for preventive as well as for remedial medicine which focused attention on plant hygiene and sanitation, ventilation, lighting, and other environmental conditions. More recently the scope of industrial medicine has been broadened still further to include, besides the hygienic and sanitary aspects of the industrial environment, attention to mental hygiene, physical endurance, and an interest in the health conditions of the workers' home surroundings.

Modern industrial medicine is rapidly becoming a three-fold problem in disease and accident prevention, health conservation, and medical care. The costs of such extensive programs to industry are less than the costs of lost labor plus high rates on liability and accident insurance. Prevention and control of illness contracted outside the plant have become almost as important economically as the elimination of disabilities of industrial origin.

In line with this trend is an investigation of health conservation plans going forward at the University of Chicago. The study is not limited to industrial hazards. It necessarily involves some aspects of public health and preventive medicine, and in addition will focus on the best means of protecting the ordinary citizen not only

against the disabilities and loss of efficiency rising from occupational hazards but also against other types of sickness. The program includes establishment of a new central department of Health Conservation and Industrial Hygiene; integration with the University's student and employee health programs; and supporting studies in the divisions of biostatistics, epidemiology, and mental hygiene.

Besides conducting the teaching, clinical, and research work of the department itself, the staff will keep in close touch with work in the clinical and basic science departments of the University. The departments of public health nursing, bacteriology and parasitology, pathology, pharmacology and toxicology, biochemistry, home economics, and zoology, and the various clinical departments are appropriately involved. Subjects now under investigation in the University's clinical departments include tuberculosis, respiratory diseases and air sterilization, high blood pressure, kidney disease, gastrointestinal disease, cancer, neuropsychiatric disturbances, allergies, dermatitis, maternal and infant welfare, and venereal diseases.

The Rockefeller Foundation contributed \$100,000 in 1943 toward this program. The large numbers of war workers currently using processes and materials likely to prove harmful to health make the project particularly timely, while the concentration of industries in the Chicago area gives the University an excellent source of research material.

SCHOLARSHIPS FOR BRITISH MEDICAL STUDENTS

During the past three years a total of seventy-seven students from the medical schools of England, Scotland, and Wales have been appointed as Rockefeller Founda-

tion scholars to complete their medical training in some twenty-four American and Canadian schools. Twenty-six have returned or are due to return by the end of 1943 to take their degrees in medicine at the schools from which they came. Two students, William Morgan Thomas, from Emanuel College, Cambridge, and Matthew A. O'Hea, from the University of Glasgow, lost their lives at sea as a result of enemy action. Enrolled in twenty-three schools as regular students or taking short internships before returning to Britain, the holders of these scholarships receive maintenance and tuition while in the United States or Canada. Traveling expenses to and from the United States are paid by the student. No American degrees are conferred, nor are any licensing examinations taken.

Thanks to a wise policy of the British selections committee, and to the energy and abilities of the students as well as the excellent cooperation of the American and Canadian medical schools, this scholarship program has achieved its goal of helping to preserve the excellence of British medical education during a time of interruption and disorganization. As conditions in the British schools are now more nearly normal, the number of students in 1944 will be reduced from about twenty-five to eight or ten. The sum of \$50,000 was appropriated for continuing the program at this level with the intention of fostering greater understanding between physicians of the countries involved.

FELLOWSHIPS

From a fund of \$50,000 the Medical Sciences administered thirty fellowships during 1943. Of these, twelve were continued from 1942 and five from 1941. With one exception fellows studied in hospitals or uni-

versities of the United States and all but five came from Latin American countries. Distribution by country of origin was as follows: Argentina, 6; Canada, 2; Chile, 6; Great Britain, 1; Iceland, 1; Mexico, 3; Peru, 7; United States, 1; Uruguay, 1; and Venezuela, 2. Fellowships were given for studies in a variety of subjects, including, besides psychiatry and neurology, biochemistry, physiology, thoracic surgery, cancer, experimental medicine, internal medicine, pediatrics, infectious diseases and epidemiology, virus research, pharmacology, obstetrics, medical library science, cardiology, and physiology of nutrition.

Funds given to the National Research Council by the Foundation in 1943 provided for six fellowships in the medical sciences. None of these was a new fellowship, five being carried over from 1942 and one from 1941. All fellows were citizens of the United States and studied in this country.

POSTWAR APPOINTMENTS

In 1943 the Foundation approved a plan for participation with selected centers of medical teaching in providing postwar appointment for medical graduates from the Armed Services for the purpose of their further training, particularly in clinical subjects. A sum of \$320,000 has been appropriated for future allocation, to help cope with the serious losses in numbers and quality of young teachers and investigators now taking place and increasing as the war continues.

Medical education resembles other forms of professional education more in its preclinical phase than in the clinical training. In internships and residencies, "supervised experience" more nearly describes the form of

education than any other words. It is a commonplace to say there is no substitute for experience; but the cancellation of many internships and residencies has already put 12,000 young doctors in the Army without adequate training, and this total is growing at the rate of 5,600 annually. A recent order shortening the remaining internships continues the lowering of standards. Army and Navy directives deriving from the immediate need for a large number of young doctors in military service have shortened the period of study and preparation for medicine by about one third. M.D. degrees will be obtained by men under twenty-two instead of over twenty-six. The experience, training, and maturity represented by forty-eight months of medical education will be lacking.

In outline, the proposed plan is to take twelve fields in medicine, eight clinical and four preclinical, and select not more than four leading teachers in each field for whose work in training advanced students after the war a limited sum would be paid to their universities as a fund earmarked for assistantships, internships, or residencies for young men after their release from military service. The teacher will choose the recipients and fix the amounts of stipend and term of appointment.

Such a plan has the advantages of stabilizing the plans of a small but important group of young men and of attempting to enlist the cooperation of medical schools, donors, and government in the most urgent postwar need in medicine.

GRANTS IN AID

Review of the 37 medical sciences grants in aid made in 1943 shows that only a few were in support of what

might be termed war projects, such as a grant to the National Committee of Mental Hygiene, for improvement of psychiatric selection of men in the armed forces; to the Royal Society of Medicine, for the maintenance of a library at a safe place; to the Institute of Human Relations of Yale University, for a study of fear and courage under battle conditions.

On the other hand, the grant in aid mechanism was used to continue year-to-year aid of research in a group of institutions in England, Sweden, and Switzerland where in peacetime aid would take the form of a term grant. Among these were grants to the Serafimer Hospital, Stockholm, for research on the nervous system under Dr. Eric Lysholm, and to the University of Oxford, for research under Dr. John Z. Young in peripheral nerve injuries. As in normal years a substantial part of the fund has been used for traveling expenses of visiting professors and for apparatus to meet the immediate needs of fellows returning to their own countries.

Exploratory grants went to Vanderbilt University for a study of the relation of psychiatry to surgery; to the University of Michigan, for the teaching of public health and medical economics; to Tulane University School of Medicine for research on the effects of climate on certain body reactions; and to the University of San Marcos, Faculty of Medicine, Lima, Peru, for library development.

Three deposed European scholars, one French and two German, were aided through grants to universities for their reestablishment in the United States and Canada.

The grants were distributed geographically as follows: United States, 14; England, 8; Argentina, 4; Peru, 3;

Sweden, 2; Canada, Switzerland, Mexico, Iceland, New Zealand, and North Africa, 1 each. They varied in amount from \$100 to \$7,500, and in duration from two months to three years. The average amount given was approximately \$3,000 and the total allotted was \$113,677.

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THE NATURAL SCIENCES

THE NATURAL SCIENCES STAFF

During 1943

Director

WARREN WEAVER

Associate Director

FRANK BLAIR HANSON

Assistant Director

H. M. MILLER, JR.

THE NATURAL SCIENCES

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THE NATURAL SCIENCES

THIRTY research projects in the field of experimental biology were supported by the Natural Sciences Division of The Rockefeller Foundation in 1943 with appropriations amounting to approximately \$313,000. In addition to this main program grants totaling over \$111,000 were made for a study of the history of ancient mathematics and astronomy, applied mathematics fellowships, constructing and equipping a research laboratory in Uruguay, and aiding British scientific journals in financial difficulties because of the war.

Emphasis in the Natural Sciences in 1943 was on fundamental and long-term studies, many of which have received previous support from this Division, in various fields of biology. Attention was given to important work on such subjects as the growth and function of the central nervous system in the embryo; basic evolutionary changes taking place in the chromosomes, as seen in the fungus fly, *Sciara*; physicochemical properties of cell protoplasm; phenomena associated with crossbreeding and with disease resistance; the effect of genes on the biochemical composition of red blood cells; gene action on the development and functioning of the bread mold, *Neurospora*; fertility at high altitudes; and transference of living ova.

In the field of nutrition, support was given to research on the human requirements in proteins in terms of amino acids; the theory of protein structure and the physical chemistry of proteins; and intermediate metabolism, studied with the aid of chemical isotopes. The Foundation continued assistance to an investigation at the California Institute of Technology of the chemical

basis of the immune reaction; to a program for developing agricultural resources in Mexico; and, in small amounts, to seventeen projects in Europe which continue to achieve important results in spite of the handicaps of war.

EXPERIMENTAL BIOLOGY

WASHINGTON UNIVERSITY

GENERAL PHYSIOLOGY AND EXPERIMENTAL EMBRYOLOGY

At Washington University, St. Louis, Professors Viktor Hamburger and H. B. Steinbach are investigating prenatal development, attempting to throw light on the growth and function of the central nervous system in the embryo. Using the most delicate type of surgery to transplant wing and leg buds from one chick embryo to another, Professor Hamburger has accumulated some striking facts about the behavior of nerves in development. He has found that the body, which would be devoid of intelligence, sensation, and movement without the nervous system, nevertheless begins life without this master organizer. There are no nerves in the germ cell and it is only after the original fertilized cell is multiplied many times that a rudimentary brain and spinal cord appear. The embryonic nervous system plays no essential part in building the earliest body structures.

Recent work at Washington University has dealt with gene control of eye development. Human eyes are organs of near perfection; yet, like all organs, they are the end products of a process of evolution, and there are a number of genes capable of diverting normal eye development into abnormal channels. Such conditions as night blindness, color blindness, or glaucoma may result. Professors Hamburger and Steinbach have been working on an hereditary eye malformation, coloboma, not uncommon in man and occurring also in chicks. Embry-

onic chick eyes have been transplanted, which, if left undisturbed, would have had coloboma. Grafted into the head of a normal chick the eyes developed normally. The harmful gene effect is suppressed by providing a more favorable milieu for the development of the primordium.

Such experiments are not expected to result in an immediate cure for coloboma, but they show that an increased knowledge of the mechanism of gene action may help to counteract undesirable effects. The program at Washington University, supported by the Foundation in 1943 with a grant of \$20,000 over a three-year period, emphasizes the integration of embryology, physiology, and genetics. It is expected that the work will lead to investigation of other hereditary factors and their mode of action.

UNIVERSITY OF PENNSYLVANIA
EXPERIMENTAL BIOLOGY

Researches of Professor C. W. Metz, Head of the Department of Zoology at the University of Pennsylvania, and his co-workers, Professors P. W. Whiting and L. V. Heilbrunn, are laying the foundation for valuable contributions in the field of experimental biology. Their investigations were supported by the Foundation in 1943 with an appropriation of \$30,000 to be used during a period of three years.

Present work of Dr. Metz deals with evolutionary changes in the fungus fly, *Sciara*, which, like the fruit fly, *Drosophila*, contains giant salivary gland chromosomes. It is believed that the basic evolutionary changes take place in the chromosomes and that knowledge of these internal changes and of the mechanism which causes them will contribute significantly to an under-

standing of evolution itself. At present there is no way of distinguishing between changes which play a causal role in evolution and those which merely accompany evolution, but such distinction should appear as the studies in this field progress. With the rediscovery in 1934 of the giant salivary gland chromosomes in *Diptera*, or two-winged insects, new impetus was given to this work. The giant chromosomes are more than 1,000 times as large as the ordinary chromosomes from which they are derived. Showing a clear-cut linear pattern of transverse chromatic disks which reflects their internal genic differentiation, they are a rich source of information on evolutionary chromosome changes. Dr. Metz's research on *Sciara*, which differs in many respects from *Drosophila*, will be especially valuable as a basis of comparison with the earlier findings.

Professor Whiting is working on the same problems of chromosome changes in another species of insect. Chromosome changes occurring in nature are detected by direct microscopic examination of the chromosomes or by study of hybrids. In an effort to discover the mechanism involved in evolutionary changes Professors Metz and Whiting have worked on the artificial induction of such changes with X-rays, radium, temperature, and chemicals.

Dr. Heilbrunn's work is concerned with the physico-chemical properties of cell protoplasm. Since protoplasm is colloidal in nature, this research requires the point of view and the technique of the colloid chemist. Dr. Heilbrunn has shown that calcium bound to protein in the cortex of cells is released as a result of stimulation of the protoplasm by any one of a variety of agents. The released calcium has a potent effect on the interior protoplasm of various types of cells and is intimately related

to the initiation of activity in these cells. Muscle protoplasm has been found extremely sensitive to the calcium ion. Dr. Heilbrunn has also found that cell protoplasm contains considerable quantities of chloride, which formerly was believed to be present only in the spaces between the cells. Preliminary experiments indicate that the same types of agents which free chloride within a cell also free fat.

IOWA STATE COLLEGE

GENETICS

Genetics at Iowa State College is particularly strong and The Rockefeller Foundation has contributed \$19,500 over a three-year period to work in this field under the direction of Professors E. W. Lindstrom and J. W. Gowen. The program is concentrated on two projects, one having to do with crossbreeding and the other with disease resistance.

It is well known that when a population of animals or plants is inbred a marked loss of vigor, reproductive ability, and disease resistance results. Crossbreeding produces an increase of physiological vigor often as great as 300 per cent. Recent work traces this hybrid vigor to the chromosomes. Elaborate experiments with *Drosophila* indicate that hybrid vigor is directly proportional to the amount of hybridity in the chromosome pairs of the offspring of parents with dissimilar racial characteristics. In animals having three pairs of chromosomes of hybrid origin, vigor, as measured by egg production, is three times as great as in cases where only one pair of chromosomes is hybrid.

With regard to disease resistance, it is clear that epidemics involve two factors, susceptibility on the part of the host and virulence on the part of the invading

organism. Both factors are variable. Present experiments deal with mouse and chicken typhoid and a bacterial disease in corn, together with the respective pathogens. The purpose of the program is to analyze the genetic mechanisms and the environmental factors which combine sometimes to produce no change and sometimes to produce an almost explosive increase in virulence of a pathogen. Inheritance intimately affects differences in resistance. But inheritance works too slowly in the host population to explain completely the rise of epidemics. The immediate origin seems to be rather in mutations of the pathogen's virulence and the selective forces in the host which isolate and favor the growth of the more virulent mutants.

UNIVERSITY OF WISCONSIN
GENETICS

Changes in genes or in arrangements of genes are at present the only known means by which heritable changes in organisms, either plants or animals, are effected. In the past, investigation of these changes has depended largely on heritable characters visible to the eye. Recently there has been a growing tendency to attempt to analyze physiological characters in terms of their genetic background and also to attack biological problems with a combination of the techniques of genetics and chemistry.

Due to the difficulties of working with chemical substances of high molecular weight, it was the application of serological reagents, not the ordinary chemical methods, which led to the important discovery that the proteins in various animals and plants are different and are specific for each species. Differences in the blood cells

of individuals within a species (humans), as determined by immunological reactions, were discovered by Karl Landsteiner at the beginning of this century. This and other findings, coupled with the discovery in pneumococci that the different types, as determined by immunological methods, owed their specificities to carbohydrates, suggested that a combination of immunological and genetic techniques should yield results of interest.

Work in the Department of Genetics at the University of Wisconsin on the blood cells of two species of doves showed that each species had antigens (biochemical characters) of red blood cells in common with the other and antigens peculiar to itself. Hybrids, in addition to having antigens common to both parents, also have a substance different from any in either parent. This is presumably produced by interaction of the genes from each parent. A comparable situation exists among antigens of the blood serum. Different genes are involved in the formation of these two types of antigens.

One conclusion from these observations is that many genes affect the biochemical composition of the red blood cells. More than thirty different antigens have been recognized in the blood cells of cattle and of chickens. The number of combinations possible within a single species is somewhat over a billion. Each animal, with the exception of identical twins or closely inbred individuals, is biochemically distinct from all others, and it is probable that many more antigens exist in man than are now known.

This genetical analysis furnishes a new tool for biochemical research into the nature of the genes and should also throw light on phylogenetic relationships of groups of related species. The Foundation in 1943 con-

tributed \$7,500 to the University of Wisconsin for the research under the direction of Professors M. R. Irwin and L. J. Cole.

STANFORD UNIVERSITY
BIOCHEMICAL GENETICS

The work at Stanford University on the biochemical genetics of the bread mold, *Neurospora*, focusses primarily on the question of gene action in the development and functioning of an organism. The project was undertaken on the assumption that genes control specific chemical reactions. A description of the methods employed by Professor George W. Beadle was given in The Rockefeller Foundation Report for 1942. As the work progresses it may be possible to find, through mutation, a gene that will more or less directly influence any specified enzymatically catalyzed reaction. The work at Stanford, supported by the Foundation in 1943 with a grant for \$7,500, is a significant and promising attempt to interpret genetic phenomena in terms of chemical ideas.

INSTITUTE OF ANDEAN BIOLOGY

Since the time of the Spanish conquest the problem of fertility at high altitudes, both of man and of introduced livestock from low regions, has been a puzzling one. According to all available records, the first birth of a child to Spanish parents living constantly in the Sierra regions of Peru took place more than fifty years after the arrival of the Spanish conquerors, while the indigenous peoples of the same regions multiplied normally. In the same way livestock introduced into the region remained infertile while reproduction of native animals was normal. This problem has become the

special province of the Institute of Andean Biology at Lima, Peru, where Dr. Carlos Monge is conducting studies on fertility of animals, principally sheep, in the high Sierra regions through the increase of livestock available for food. Apart from the scientific interest of such investigations, the work has a bearing on the nutrition of the Sierra peoples. Sporadic and incidental studies have been made on high altitude fertility in various parts of the world — Italy, Switzerland, India, Chile — but no intensive program is in force anywhere outside of Peru. South America has large areas in high altitudes and the region around Lima, with its great range of altitudes, temperatures, and conditions of rainfall, is particularly suited for such investigations.

The Institute, founded in 1934 with financial support from the Faculty of Medicine of the University of San Marcos at Lima, was in 1940 taken over by the Ministry of Public Health. Human physiology studies are continuing under Dr. Alberto Hurtado at Lima and Morococha, and the Rockefeller Foundation has contributed \$9,775 to the high altitude animal physiology research program carried on at Huancayo.

ROSCOE B. JACKSON MEMORIAL LABORATORY

In 1943 the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine, of which Dr. C. C. Little is Director, received two grants from The Rockefeller Foundation, one of \$35,000 for establishing and maintaining for five years a mammalian stock center, and a two-year grant of \$9,000 for special research in the transference of living ova.

The development of genetics in the past three decades has created a demand for purebred stocks of animals and plants. At the Jackson Memorial Laboratory there

is a flourishing mouse colony which fills the requirements of numerous investigators all over the country. The annual sale of mice, running into hundreds of thousands, brings a small profit, which is devoted to the research work of the station. The present proposal is to set up a similar service with genetic stocks of rats, guinea pigs, and rabbits. The initial breeding stock will consist of 1,000 rats, 700 guinea pigs, and 500 rabbits, and is expected to become self-supporting in five years. The Bar Harbor Laboratory has recently received a gift of over fifty acres of land with buildings, which will be available for the expanded program.

Investigators in this Laboratory have successfully transferred living eggs from the body of one animal to that of another with a different internal chemical environment. The purpose is to measure the nature of the foster mother's influence upon the egg and the embryo. It is already known that external agents — X-rays, radium, ultraviolet light, certain chemicals — may alter the germ cells both of animals and plants, so that the resulting progeny through successive generations show altered hereditary characters. In the case of mammals, moreover, there are internal agents and an internal environment which vary considerably from individual to individual and even more so from strain to strain and race to race. The work at the Jackson Memorial Laboratory proves the existence of an extraordinary foster mother intrauterine influence on the numbers of sacral vertebrae. This basic and challenging discovery, the first clear-cut demonstration of strain differences in uterine environment, indicates that the foster mother can exert an important influence on the embryo. The grant made by the Foundation in 1943 will enable Dr.

Little to complete these studies on transferred ova in mammals.

DUKE UNIVERSITY

PHYSICAL CHEMISTRY

The proteins, among the most important biological substances, occupy key positions in metabolic processes. They play the roles of enzyme, hormone, virus, and immune body; perform vital mechanical functions in building such protective tissues as hair and skin; and are essential for muscular activity. Their structure is as complex as their functions are diverse. Structure, properties, and biological functions of a protein are thought to depend on its chemical composition, as determined by the nature and relative amounts of the constituent amino acids, the sequence in which they occur, their spatial arrangement in groups, and the bonds that hold them in place. While there is some information available on the chemical structure of certain proteins, gained chiefly from chemical analysis, there is little direct evidence concerning their physical structure. Workers at Duke University are building up a more complete picture of the physical chemistry of the proteins. The Rockefeller Foundation has aided the research of Professors W. A. Perlzweig and Hans Neurath with a three-year grant of \$9,500.

Agents such as heat, acids, alkalies, irradiation, and surface forces produce profound changes in the structure and function of proteins. These changes are generally termed "denaturation." A denatured protein loses its specific biological activity. Heat-treated pepsin - no longer digests protein, acid-treated virus no longer causes disease, and urea-treated insulin no longer acts

as a hormone. Denaturation also interferes with certain properties of proteins, such as solubility, reactivity of constituent groups, and the ability to form crystals.

One object of the research at Duke University is to study the difference in structure between a native and a denatured protein and to study the structure of the native protein by analyzing the changes caused by denaturation. The question of whether denaturation can be reversed has received considerable attention. It appears that heat denaturation, which changes molecular shape, is an essentially irreversible reaction, but that denaturation by urea and guanidine hydrochloride, which only affects particle size, may be reversed. This suggests that the ability of a protein to produce antibodies depends upon its shape and that any change in shape interferes with the process. The antigenic activity of the regenerated protein is considerably lower than that of the native protein, a fact which may hold promise for the therapeutic value of denatured-regenerated proteins.

UNIVERSITY OF ILLINOIS

NUTRITION

A major accomplishment of the last twenty years in the field of nutrition has been the research of Dr. William C. Rose at the University of Illinois. Since 1935 Dr. Rose has been at work establishing a clear picture of human requirements in the way of proteins, in terms of the component parts or "building blocks" of these proteins, known as the amino acids. Twenty-one of these acids had been identified by 1935 when Dr. Rose isolated from the protein in milk an entirely new amino acid which he named "threonine." Experiments with

rats showed that threonine and nine of the other known amino acids were essential to growth. Twelve of the twenty-two could be dropped from the diet with no ill effects. By work with rats it was also established that the same ten which are essential to growth are indispensable for reproduction. The work has now progressed to the point of testing amino acids in humans, and Dr. Rose has already succeeded in demonstrating the essential nature in man of five acids and the non-essential nature of thirteen others. In wartime, with the heavy demand for foods rich in proteins, research of the type going forward at Illinois has taken on immediate importance.

Recent investigations indicate that there exists in proteins an unknown component nutritionally like arginine, in that it is essential for maximum growth but not necessary for moderately rapid growth. The same complex chemical methods that led to the isolation and identification of threonine are now being put to work to discover the maximum growth component. Biological assays of this type are time-consuming and require large quantities of amino acids. Most of the present grant of \$9,000 to the University of Illinois will be used to obtain more amino acids. Previous Foundation support to Dr. Rose's work amounted to \$90,000.

COLUMBIA UNIVERSITY

BIOCHEMISTRY

Food taken into the body contains proteins which are split up into their constituent amino acids during passage through the intestinal tract. As described in a previous Report, the development of the use of chemical isotopes as tracers has made it possible to follow the

route of these amino acids through the intestinal wall and throughout the body. The mechanism by which proteins are synthesized in the body and the way in which fats and carbohydrates are broken up and converted into storage material are now open to investigation. Almost all the physiological compounds can be "tagged," and the body, with its compounds labeled, has become "visible" to the chemist. For applying this method to a study of intermediate metabolism the Foundation has followed up a five-year grant made to Columbia University in 1938 with an appropriation in 1943 of \$43,500 for three years. The work is under the direction of Professor Hans Clarke of the Department of Biochemistry.

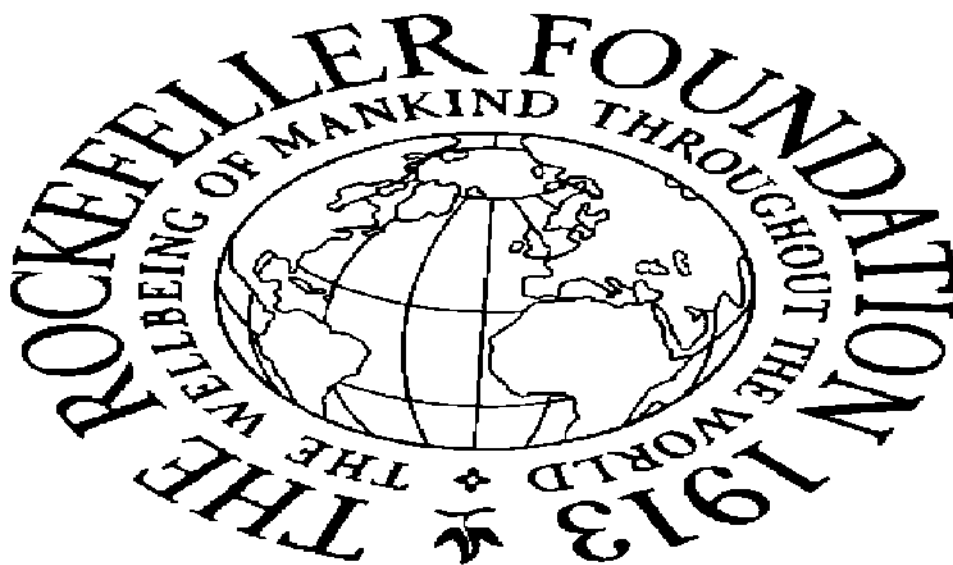
One investigation has been carried out on the enzyme hydrogenase found in certain bacteria. Another study relates to the metabolism of glutamic acid, the deamination product of which occupies a key position in the carbohydrate cycle. This amino acid has now been shown to undergo so rapid a turnover that it is considered to play a major part in nitrogen transfer *in vivo*. An extensive study has been made of the distribution of heavy nitrogen among the tissues of rats to which isotopic glycine has been fed. The chemical behavior of antibodies in the living animal has received special attention. It has been demonstrated that whereas actively produced antibodies, like the proteins of plasma and other tissues, continually take up amino acids from the body fluids, this is not the case with antibody injected into the animal so as to produce passive immunity.

Work is going forward on the development of the isotope dilution method for estimating amino acids.



Photograph Excised Here

Advanced students in applied mathematics,
Brown University.



Photograph Excised Here

Mexican agriculture project.

It is expected that use of this method may add to the theory of protein structure.

CALIFORNIA INSTITUTE OF TECHNOLOGY

IMMUNOLOGY

At the California Institute of Technology, Professor Linus Pauling heads a group in the Gates and Crellin Laboratories of Chemistry which is investigating the chemical basis of immune reaction, and Professor A. H. Sturtevant is conducting research in the William G. Kerckhoff Laboratories on problems of serological genetics.

Professor Pauling's work is proceeding on the theory that it may be possible to convert a normal protein solution into a solution which has the properties of an animal antiserum to a specific antigen. He would substitute the chemist's test tube for the internal animal environment. There are some types of antigens for which no animal antisera are available and it is hoped to prepare such antisera in the laboratory. The protein that Professor Pauling starts with is human globulin. The use of this substance to manufacture antisera would eliminate the danger of serum sickness. Experiments are under way using such well-known antigens as toxins, viruses, and bacteria. So far, mice inoculated with artificial antibodies against type I pneumococcus have lived twenty-four hours longer than the controls. Changes in the method of manufacture may lead to increased potency and the work is now taking this direction. In addition to the tests against type I pneumococcus, a similar series of tests of artificial antisera against diphtheria toxin is under way.

Professor Sturtevant's original program dealt with the problems of fertilization from the serological point of view. In the course of the work certain new leads were



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Iowa State College genetics research with fruit flies.



Photograph Excised Here

Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine.

uncovered which are being followed. Professor Sturtevant is studying the immunological mechanisms in lower organisms. Serology in the past has dealt chiefly with the higher vertebrates, the aim being to control diseases in man. A broad survey of other groups of organisms may throw light on immunological reactions and their function aside from disease resistance.

These researches at the California Institute of Technology have received substantial aid from The Rockefeller Foundation in the past. In 1943 support was continued with an appropriation of \$13,300.

MEXICAN AGRICULTURAL PROGRAM

As noted in the Annual Report of last year, an agricultural program was undertaken in Mexico in cooperation with the Mexican Department of Agriculture. The first project to be set up in this new program is work on wheat improvement under the direction of Dr. J. George Harrar, formerly of Washington State College, and now in charge of the Foundation's work in agriculture in Mexico. During the year Dr. E. J. Wellhausen, of the West Virginia Agricultural Experiment Station, was added to the staff in Mexico for investigations in the field of plant breeding, especially on corn and beans. It is expected that during the coming year there will be other additions to staff in the fields of agronomy, entomology, and animal husbandry. An interim grant of \$20,000 was provided for the purchase of initial equipment and research expenses over the period ending December 31, 1944.

STATED EUROPEAN PROJECTS CONTINUATION

A number of projects which were part of the European

program in the Natural Sciences before the war continue to receive support on a year-to-year basis. Eight of these projects are in England, seven in Sweden, and two in Switzerland. In each case it has been possible to continue research with successful results. Institutions aided, purposes of the grants, and amounts given are listed below:

- University of Birmingham, England — researches in genetics and physiology of reproduction under Professor Lancelot Hogben — \$4,050
- University College, London, England — research in Department of Biometry under Professor J. B. S. Haldane — \$4,050
- University of Oxford — X-ray analysis of biologically important large molecules — \$1,830
- University of Oxford — researches in the Dyson Perrins Laboratory of Organic Chemistry — \$3,250
- University of Oxford — biochemical investigations of penicillin under Professor H. W. Florey — \$4,860
- University of Sheffield, England — research in biochemistry — \$1,625
- University of Cambridge — X-ray analysis of biologically important molecules — \$3,450
- University of Cambridge — researches in cellular physiology — \$4,860
- University of Uppsala, Sweden — researches in biochemistry of fatty acids, lipoids, and proteins — \$1,125
- University of Uppsala — researches in physical-chemical properties of proteins and other substances of biological and medical importance — \$11,250
- University of Uppsala — researches on surface chemistry of the red blood cell and mechanism of gastric acid formation — \$3,000
- Karolinska Institut, Stockholm — research in biophysics — protein metabolism — \$5,500
- Karolinska Institut — researches in general biochemistry — \$6,000
- University of Stockholm, Sweden — researches in chemical physiology and embryology — \$6,300
- Research Institute for Physics, Academy of Sciences, Stockholm —

researches with artificially (cyclotron) produced radioactive substances on important problems in biology and medicine — \$6,000
Eidgenössische Technische Hochschule, Zurich, Switzerland —
researches on constitution and syntheses of physiologically active natural substances — \$10,500

Eidgenössische Technische Hochschule — Institute of Plant Physiology — analysis of optical properties of fibers and cell walls, using X-rays and polarized light — \$1,625

OTHER GRANTS

BROWN UNIVERSITY

HISTORY OF ANCIENT MATHEMATICS AND ASTRONOMY

In the development of modern science, astronomy has played an extraordinary role. The fact that the movement of celestial bodies could be predicted and explained with high accuracy by mathematical means was the main basis for belief in the power of the exact sciences to explain nature. This exceptional role of astronomy was still more pronounced in antiquity, as it was then the only field where natural phenomena could be explained and described mathematically. Astronomy is also the only science which did not deteriorate during the Middle Ages, and is consequently one of the most important links between ancient and modern culture.

At Brown University Professor Otto E. Neugebauer has received support from The Rockefeller Foundation to the extent of \$41,000 for his researches in the history of ancient mathematics and astronomy. A ten-year program of research and publication has been undertaken relating to the period when mathematical concepts were chiefly concerned with astronomy, and when astronomy was, in turn, interwoven with cosmology, philosophy, and religion. There is thus a valid and important sense in which Professor Neugebauer's studies deal with the origins of quantitative and analytical

thinking in close relationship to a broad cultural setting. This is a type of long-range research which, in the hands of a competent scholar, promises to contribute in a fundamental way to the history of ideas.

BROWN UNIVERSITY

APPLIED MATHEMATICS FELLOWSHIPS

As explained in the 1942 Annual Report, the Foundation is helping Brown University to promote the development of applied mathematics in the United States. During the summer session of 1942 there were enrolled in the various courses in applied mathematics at Brown 110 students, of whom twenty-seven had fellowship aid from the Foundation's grant; for the present academic year there are forty-four students in such courses and twenty-five of these are similarly aided. Stipends of these fellows range from \$125 to a young student for the summer session up to a maximum of \$1,800 for the full year to an experienced older man on leave from his academic post.

Brown University, long an influence in the teaching of pure mathematics, has recently become a strong center in the training of applied mathematicians. Its staff has been augmented by some fourteen of Europe's important leaders in applied mathematics. During the past year some thirty research papers were completed or published. A new journal, the *Quarterly of Applied Mathematics*, with a distinguished board of editors and an eminent group of collaborators, has been inaugurated on a national basis.

The war has emphasized and increased the demand for men trained in applied mathematics and it seems likely that such talent will be as critically needed during the reconstruction period as it is now. To continue the

fellowship program at Brown University, the Foundation in 1943 contributed \$25,000.

URUGUAY

RESEARCH INSTITUTE OF BIOLOGICAL SCIENCES

The staff of the Laboratory of Biological Sciences has been increased from eight to fourteen members with three departmental chiefs on a full-time basis. The status of the laboratory has been raised to that of a research institute. Excellent research has been going on here since 1927 under the direction of Professor Clemente Estable and his associates in cytology, histology, embryology, zoology, botany, and general physiology. Professor Estable's special field of interest is histology and histophysiology of the nervous system. Considerable attention is given to the development of methods for the microscopic examination of organs and tissues in the living animal. A method of transilluminating the frog heart has permitted microscopic study of living muscle fibers.

Toward the cost of constructing and equipping a laboratory for this research institute the Foundation has appropriated \$30,250, to be used during a two-year period. The major part of the cost of providing and maintaining the Institute is borne by the Uruguayan Government and the city of Montevideo.

THE ROYAL SOCIETY, LONDON

SCIENTIFIC JOURNALS

Since 1941 the Foundation has contributed to a fund for the relief of British scientific journals faced with financial problems because of loss of foreign subscriptions and the increase in printing costs. These periodicals

publish both English and foreign articles. The Royal Society is administering the fund and eighteen allocations were made from the Foundation's 1942 grant. In 1943 the sum of \$15,050 was appropriated for use during 1944.

FELLOWSHIPS

Emphasis in the fellowship program of the Natural Sciences during 1943 was on studies relating to agriculture. Aid was given for research in such fields as cytogenetics, plant breeding, plant pathology, plant genetics, animal husbandry, and statistics and genetics. Other subjects studied were mathematics, physical and organic chemistry, general biochemistry, and biophysics. Most of the fellows were Latin American scholars who studied in the United States. Countries represented were Argentina, 4; Brazil, 3; Chile, 2; Colombia, 4; Great Britain, 1; Mexico, 2; Peru, 1; Switzerland, 1; the United States, 3; Uruguay, 1; and Venezuela, 1. There were eleven new grants in 1943; ten were carried over from 1942, two from 1941, and one, to a fellow who has been unable to return to England from Switzerland, from 1939. With the exception of one in Switzerland and four in South America, all of the fellows studied in the United States.

In addition to the fellowships which it administered directly, the Foundation continued its practice of appropriating a fellowship fund to the National Research Council which in 1943 provided for twenty-six fellowships in the natural sciences. Eight of these began during the year and eighteen were carried over from 1942. Subjects studied were astronomy, mathematics, chemistry, geology, zoology, botany, physics, and psychol-

ogy. One of the fellows studied in Villavicencio, Colombia; the others in the United States.

GRANTS IN AID

During 1943 the Foundation gave thirty grants in aid in the Natural Sciences, twenty-four of which were for research, in the following fields: genetics, 5; general physiology, 4; general biochemistry, 4; organic chemistry, 2; physics, mathematics, agriculture, molecular biology, semantics, cosmic ray research, biophysics, ecology, and cyclotron work in nuclear physics and in radioactive substances, 1 each. Four of these grants enabled refugees from Denmark to continue research in Sweden and the United States. Besides grants for research, aid was given to the Asociación Argentina para el Progreso de las Ciencias, for local fellowship and grant in aid programs; to the National Research Council toward the cost of publishing research in biophysics; to the American Mathematical Society for the use of a War Policy Committee which it has organized in cooperation with the Mathematical Association of America for the purpose of making the services of mathematicians as effective as possible in the war effort; and to the Department of Chemistry, Faculty of Exact, Physical, and Natural Sciences, National University of Buenos Aires, Argentina, for the purchase of equipment and supplies. Funds were also provided for travel and other incidental expenses of certain individuals and for equipment, materials, travel, and other research expenses of Latin American scientists, principally returned Natural Sciences fellows.

Grants in aid in 1943 were distributed among the following countries: United States, 13; Sweden, 5; Argen-

tina, Brazil, and England, 2 each; Bolivia, China, Switzerland, and Venezuela, 1 each. They varied in amount from \$200 to \$7,500, with the average slightly over \$3,500. The total sum given was \$111,754. For similar grants in 1944, \$125,000 has been appropriated.

THE SOCIAL SCIENCES

THE SOCIAL SCIENCES STAFF

During 1943

Director

JOSEPH H. WILLITS

Associate Director

SYDNOR H. WALKER¹

Assistant Director

ROGER F. EVANS

Consultant

ANNE BEZANSON

¹ Resigned March 24, 1943.

THE SOCIAL SCIENCES

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THE SOCIAL SCIENCES

THE issues of the war are being decided by the test of physical force delivered to the battle-front under decisions imposed from above. The issues that follow the war are of another kind and can only be solved in another way. The issues of the peace will be issues in human adjustment — in the Balkans, in China, among nations, between ideologies, between capital and labor, and so on through the infinity of ways in which man hammers out the character of social organization and adjustment. These issues, too, can be approached by force; and a dangerous heritage of war is that many men will turn too easily to that as a simpler method. But the war's legacy of social and economic crises will be approached, we hope, by the democratic processes of understanding, discussion, and accommodation among free men. We will be prepared to meet these crises only if efforts in understanding these problems have been well-developed. It is toward the understanding of some of these strategic issues of the postwar world that many of the grants in the Social Sciences in 1943 were directed. Of the total of \$1,068,130 in appropriations voted in this year for social science research, \$312,850 went to agencies working specifically on studies in the international field. Grants for such studies in the United States were made to the Council on Foreign Relations, the Foreign Policy Association, the Institute of Pacific Relations, and the Ethnogeographic Board; in England to the Royal Institute of International Affairs; and in Sweden to the Institute of International Affairs.

Fundamental research continues to consume a substantial portion of the budget of the Social Sciences.

A total of \$260,280 was appropriated for research programs at Columbia University, the Institute for Advanced Study, the League of Nations, Economic, Financial and Transit Department, the Food Research Institute at Stanford University, the National Institute of Economic and Social Research of Great Britain, and the Social Studies Research Committee at the University of Oxford.

Two hundred and eighty thousand dollars were appropriated in 1943 for training and exploration in the social sciences. A grant for an exploratory study of the social and economic problems of Arctic Canada was made to the Canadian Social Science Research Council. The Social Science Research Council in New York which received \$150,000 toward its administrative expenses for five years is engaged in a continuing program of research training and exploration. The training programs of the National Institute of Public Affairs in Washington and the Escola Livre de Sociologia e Política in São Paulo, Brazil, also received Foundation aid in 1943.

The purposes for which these grants were voted are described in greater detail in the following pages.

INTERNATIONAL STUDIES

COUNCIL ON FOREIGN RELATIONS

The War and Peace Studies Project of the Council was organized shortly after the outbreak of hostilities in 1939 for the purpose of furnishing such scholarly contributions to the work of the government as an unofficial agency can make in wartime. Studies have centered around five main fields: strategy and armaments, economics and finance, political questions, territorial ques-

tions, and the peace aims of European nations. Since the inception of the project 541 memoranda have been sent to Washington dealing with subjects selected by both the Council and the government. The research is carried on by the study group method and the membership of these groups includes persons especially qualified by training and experience, both in government service and out, as well as members of the Council's research staff. The Foundation has appropriated \$60,800 for the continuation of these studies in 1944. The interest which has been shown in these studies has led the Council to arrange during the coming year for a wider distribution of various memoranda based on some of them, both inside the government and to selected individuals in private organizations.

FOREIGN POLICY ASSOCIATION

The basic materials for the educational program of the Foreign Policy Association are supplied by the Research Department which received a grant of \$100,000 for a two-year period from the Foundation in 1943. The Department is concentrating on three fields of immediate concern to the American people: problems of postwar reconstruction; political and economic trends in the Middle East and Asia; and the economic effect in both hemispheres of total war. The results of this research are disseminated in a variety of ways. A weekly newsletter and a biweekly *Foreign Policy Report* are distributed to subscribers, among whom are business men, educators, government officials, and journalists. The *Headline Books*, designed to reach a wider public, are used largely in schools and by discussion groups. Over a million and a half of these books have been distributed. A Washington office serves as an

information bureau for government departments, embassies and legations, newspapers, and national organizations; a Speakers' Bureau furnishes lecturers to educational groups and arranges lecture series and meetings. In its publications, its program of popular education, its broadcasts, and public meetings, the Foreign Policy Association is drawing attention to the immediate problems of national defense and of American foreign policy and problems of the postwar period. In addition, it emphasizes the importance of their study and public discussion.

INSTITUTE OF PACIFIC RELATIONS

For more than fifteen years the Institute of Pacific Relations has been the most important single source of independent studies of the problems of the Pacific area and the Far East. The events of the past two years have emphasized the invaluable nature of its material and have multiplied the demands upon the Institute. In 1943 the Foundation appropriated \$41,000 toward the general expenses and research program of the Pacific Council, the governing international body, and \$15,000 toward the general expenses of the American Council, one of its ten national member councils. This grant carries Foundation support through 1945.

The Institute's basic activity is its research program conducted by the Pacific Council. Currently this study program is focussed on Wartime and Postwar Economic and Political Problems of China, the Soviet Union and the Far East, the Future of Japan, and Postwar Settlement in the Pacific. Government departments and universities which are training soldiers and civilians for service in this area are turning to the Institute for

all published material and even for partly completed manuscripts.

The American Council carries on its own research program and assumes responsibility for the international secretariat and triennial conferences. It cooperates in the Pacific Council's longer-term studies and independently publishes special reports, bibliographies, and memoranda.

NATIONAL RESEARCH COUNCIL

ETHNOGEOGRAPHIC BOARD

The Ethnogeographic Board is sponsored by the National Research Council, the American Council of Learned Societies, the Social Science Research Council, and the Smithsonian Institution, and was created in 1942 to act during the emergency as a clearing house of specific regional information and personnel data between the sponsoring institutions, their numerous affiliated scientific and educational organizations, and civil, military, and war agencies within the government. The institutions also had in mind its potential value in organizing material essential for establishing any sort of just and workable peace. The Board's activities, therefore, center around war and postwar problems in ethnogeography, the study of human and natural resources of world areas. Its work is interdisciplinary in character; the information it distributes about a given area and its inhabitants derives from research in the natural sciences, humanities, and social sciences.

Before the Foundation made its grant of \$20,000 in 1943, the Board operated for some six months on a demonstration basis, developing a card roster of over

5,000 specialists which was furnished to interested parties in the form of regional lists. It established contact with persons in governmental agencies and on request rendered reports to them. Since that time several governmental agencies have assigned full-time liaison officers to work with the Board, and some 4,000 copies of lists and reports have been distributed.

The Board is called on heavily for "spot" information that can be transmitted immediately. Round table discussions are held for representatives of different agencies concerned with related problems in different areas. The Board requests specialized or regional knowledge from scientific institutions and individual scientists and channels this information directly into the government war effort. A large number of scientists have been assisted in securing assignments or positions that make the best use of their particular technical, linguistic, or regional training. None of these activities has duplicated the work of any government-supported office, and all are aimed at integrating the needs of the government with the ethnogeographic resources of the country at large.

ROYAL INSTITUTE OF INTERNATIONAL AFFAIRS, LONDON

The Royal Institute of International Affairs is the foremost non-governmental agency in the British Empire concerned with the study of international affairs. It exists to encourage and facilitate the study of international questions and to promote exchange of information and thought on current world problems. Because of the value of its research to the British Government it has suffered little loss in personnel due to the war. One of its sections, the Foreign Research

and Press Service, under the direction of Professor Arnold Toynbee, has recently been completely taken over by the Foreign Office. Only by this clarification of its status did the Foreign Secretary believe he could use the Service to its full capacity in the tasks that lie ahead.

The tempo of the Institute's work does not appear to be affected by war conditions. Ten study groups, all directed to postwar problems, were held during the past year. Research by individual scholars connected with the Institute has resulted in a series of published pamphlets and two major studies, *Democracy and Its Working*, two volumes of which have been published under the title *The Modern Democratic State*, and *International Transport and Communications*. Other volumes planned and in preparation include studies of democracy in France, Scandinavia, and Holland, the international labor movement, and the British Empire and colonial problems.

For the research program of the Royal Institute the Foundation voted in 1943 a grant of \$64,800 for a two-year period.

INSTITUTE OF INTERNATIONAL AFFAIRS, STOCKHOLM

The Institute of International Affairs in Stockholm is an outgrowth of the Swedish Coordinating Committee of the International Studies Conference and is now the recognized center in Sweden for the collection and distribution of information in the field of international relations. Like the other agencies mentioned in this report it is non-political. The Foundation has helped establish and maintain this organization and in 1943 its contribution amounted to \$11,250. In addition,

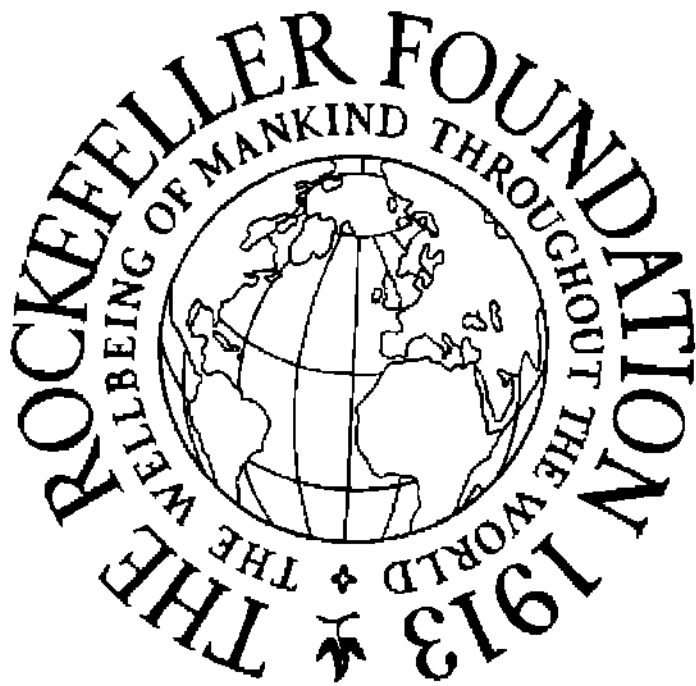
the Institute is aided by forty-five Swedish organizations and enterprises. The research program of the Institute has resulted mainly in the publication of books and pamphlets, circulation of which had in 1943 reached a total of over 400,000 copies. The most widely distributed of the Institute's publications is a series entitled *International Topics*, containing surveys of such subjects as *Japan's Course and Aims*, *The Great Powers and Oil*, and *Norway Under Occupation*. Another series, *International Affairs*, deals with developments leading to the present war. A third more scholarly series is directed to a more limited public. A recent book in this group is Herbert Tingsten's *Contemporary Federations of States*.

The Institute's activities also include the preparation of special articles, a Calendar of Events which is circulated to libraries, newspapers, and schools, and a cumulative Data File of Foreign Affairs with summaries of reports published in the domestic and foreign press on all important international news.

FUNDAMENTAL RESEARCH

COLUMBIA UNIVERSITY

For a study of the theory of public utility rates by Professor James Bonbright, one of the outstanding economists on the faculty of Columbia University, the Foundation has appropriated \$24,000 to this university. Like Professor Carl Shoup's work in public finance, also supported by the Foundation, Professor Bonbright's study bears upon critical points in the relationships between public authority and private business. In his capacity as Chairman of the Power Authority of New



Photograph Excised Here

Student conference, National Institute of Public Affairs, Washington, D. C.

York State, Professor Bonbright has been in direct contact with practical problems of rate control.

Public utilities play such an important role in our modern economic system that study of the rate-making practices in these closely regulated enterprises is needed. The greatest significance of such a study lies, however, in the fact that public utilities furnish the best examples of the actual and prolonged experience of governmental attempts to determine and enforce standards of reasonable prices.

Professor Bonbright proposes to treat the problems of rate-making from the standpoint of economic theory and practical rate regulation and to discuss the various schools of thought in terms of basic criteria of "reasonable" rates and prices. He hopes to determine how modern economic theory can be applied to the problem of determining reasonable utility rates, and what limitations and shortcomings of this theory are revealed by attempts to make such practical applications.

INSTITUTE FOR ADVANCED STUDY, PRINCETON

The Institute for Advanced Study was established, not as another graduate school for specialized research, but as an independent center for the strengthening of existing agencies. Its first task, therefore, has been to study and appraise critically the work in education and research going on in the various disciplines in universities, government, and business. Intimate and varied participation is maintained in research ventures of the Federal Government, League of Nations, National Bureau of Economic Research, and certain universities. The work has been experimental in nature with no immediate emphasis on publication. For the



Photograph Excised Here

Publications of the Food Research Institute, Stanford University.

continuance of the economics program at the Institute \$70,000 was appropriated in 1943 for a two-year period.

LEAGUE OF NATIONS

ECONOMIC, FINANCIAL AND TRANSIT DEPARTMENT

The Economic, Financial and Transit Department of the League of Nations, which was moved from Geneva in 1940 to Princeton, New Jersey, now finds itself cut off from communication by mail with Switzerland and with that portion of its work for which the Geneva office is responsible. As a result, the group at Princeton has maintained the statistical studies which were published annually in Switzerland and has also carried on its own research program consisting of analytical studies designed to aid governments in the formulation of their postwar plans and policies. The particular fields with which it deals are: international trade, raw materials, foodstuffs, European agriculture, and demography. Titles of some of the studies recently published by the Department are: *The Network of World Trade, Commercial Policy in the Inter-War Period, Economic Fluctuations in the United States and the United Kingdom, 1918-1922, Wartime Rationing and Consumption*, and *World Economic Survey, 1941-1942*, an annual publication. The present grant of \$50,000 for the research program is a continuation of support which the Foundation has given since 1933 to this League of Nations Department.

NATIONAL INSTITUTE OF ECONOMIC AND SOCIAL RESEARCH, LONDON

In 1937 The Rockefeller Foundation, the Sir Halley Stewart Trust, the Leverhulme Trust, and the Pilgrim Trust made grants for the establishment of the Na-

tional Institute of Economic and Social Research of Great Britain. Its purpose was to undertake research into economic and social problems of contemporary importance and to provide assistance to approved research in universities, in other institutions, and by individuals. Although the war has changed the original program, and some research projects have had to be abandoned, the scope and usefulness of the Institute's work have been amply demonstrated. A small research staff has been maintained which is completing some of the prewar investigations and undertaking studies of urgent current importance. Cooperation with government departments needing special data has become a major activity, and a continuing study of the British war economy is under way. In the first five years of its existence the Institute made grants to eleven universities and eight individuals. These have resulted in studies of national income, health insurance, commercial policy and trade regulation, and local government.

The Institute is looking forward to a substantial expansion of program at the end of the war with emphasis on long-range studies rather than those of an emergency character. To aid in continuing its work at the present level for a further two-year period the Foundation appropriated \$48,600 in 1943.

STANFORD UNIVERSITY

FOOD RESEARCH INSTITUTE

In 1920 when the experiences of the last war had demonstrated so forcefully the need for a more adequate understanding of the problems of food production and distribution, the Food Research Institute was established at Stanford University. Since then it has been actively engaged in a program of fundamental

research which has resulted in numerous publications on a wide range of subjects. Now wartime circumstances have once more brought food to the forefront of world problems, and the work of the Institute has taken on even greater importance. During the more than twenty years of its existence emphasis has been on research rather than on teaching and its published results have been many and varied. Two pamphlet series are currently issued — *The Wheat Studies* and the *War-Peace Pamphlets*. Recent studies include the following: *The Food-Canning Industry*, *The World Potato Economy*, *Wartime Developments in the World of Rice*, *Geography of World Agriculture*, and *Sugar in National Diets*, all of which fill genuine gaps in the literature of agricultural economics.

In 1943 the Foundation appropriated \$45,000 to the Institute for a three-year period. The purpose of the grant is to permit the Institute to increase its research output and thereby enhance its contribution to the war effort and to the analysis of postwar problems.

UNIVERSITY OF OXFORD

SOCIAL STUDIES RESEARCH COMMITTEE

The University of Oxford continues to be one of England's most important centers of social study and research in wartime changes and postwar problems. The Foundation has aided work in social sciences at the University of Oxford since 1934, and in 1943 appropriated \$22,680 for the use of its Social Studies Research Committee during the academic year. Adequate and competent personnel continue to be available for research at Oxford and work is under way on the following programs:

- 1) Social reconstruction survey

- 2) Studies in postwar problems concerning international and economic organization (Institute of Statistics)
- 3) Agricultural studies, which have led to the creation of an Institute of Agrarian Problems
- 4) The preparation of data for a social and economic history of the war
- 5) Studies of changes in the structure of government
- 6) Studies of colonial administration

A large part of the Foundation grant goes for the maintenance of the Institute of Statistics under the direction of Professor A. L. Bowley, which serves as a statistical laboratory and working center for a number of the programs.

TRAINING AND EXPLORATION

CANADIAN SOCIAL SCIENCE RESEARCH COUNCIL, TORONTO

The strategic importance of the Canadian Arctic North has made itself apparent since the advent of commercial airways, and preparation for defense has revealed an appalling lack of knowledge of the economic and social problems of that area. Interest expressed by scholars, businessmen, and government officials in both Canada and the United States led the Canadian Social Science Research Council to request a grant to permit an exploratory survey of those problems by Professor Harold Innis, Head of the Department of Political Economy at the University of Toronto. Professor Innis plans to determine what the major problems are, what work has already been done or is under way, and to stimulate interest in research in this direction in the universities, in government, and in other centers of Canada. A grant of \$10,000 for a year has been given to the Canadian Council for this purpose. The immediate result of this survey will be a preliminary volume en-

titled *Problems of the Canadian Northland*. Specific studies of agricultural settlement, geology, and minerals will also be outlined.

ESCOLA LIVRE DE SOCIOLOGIA E POLÍTICA, SÃO PAULO

A recognition of the essential role research and training in the social sciences plays in the organization of the political and social life of a country led to the establishment of the Escola Livre de Sociologia e Política at São Paulo as an independent school for training in the social studies. Its growth and unique importance in the field in South America are in no small measure due to the efforts of its Director, Dr. Cyro Berlinck. In 1933 two American social scientists joined the staff, one of whom, Dr. Donald Pierson, is still at the school and in charge of the program of research training. This program is designed to introduce students to methods of research and emphasizes the study of local social problems and the development of source material of practical value. For the past two and one-half years the Foundation has contributed to this program through annual grants in aid. In 1943 a three-year grant of \$15,000 was voted toward the support of this program to aid in maintaining the School on an independent footing until it can become self-supporting.

NATIONAL INSTITUTE OF PUBLIC AFFAIRS

The National Institute of Public Affairs, an agency working toward better administrative management at the Federal level, is conducting a public service training program, under which fifty college graduates, carefully selected each year from four or five times as many nominations by college faculties throughout the country, are

given rotating assignments on a non-salaried basis in Federal offices. The Institute also serves as a general clearing house and liaison agency, and indirectly as an emergency training unit for Army and Navy personnel. An appropriation of \$105,000 was made in 1943 toward the expenses of the program over a three-year period.

Graduate interns as a whole have shown superior performance and promise, and a significant number have been entrusted with exceptional responsibilities. In consequence, there is not now a single government department which is not cooperating with the National Institute or has not offered to do so. Interest has been expressed by the British, Brazilian, and Argentine Governments, which are considering the adaptation of some of its features to their own civil service systems. The ultimate transfer to government of a substantial part of this program will have to be postponed until after the war, but it is the hope of both the Institute staff and government officials that the full scope of the program can then be realized.

SOCIAL SCIENCE RESEARCH COUNCIL

The aim of the Social Science Research Council is to raise to new levels the capacity of social science to serve society. It is a planning, advisory, and stimulating agency, which conducts research directly only under exceptional circumstances. The Council develops comprehensive, thoroughly considered plans of special study, brings trained workers into direct contact with real problems on which research is required, and encourages individual coordinated effort. Enterprises have been conducted in specific fields such as government statistics, population redistribution, social security, and pub-

lic administration. The Council's personnel office in Washington, D. C., aided by the Foundation in 1942, works with government offices, universities, and individuals to promote more effective use of social scientists.

A steady force in the direction of higher standards and abler personnel, the Social Science Research Council is shaping the forward movement of science into the social fields. In 1943 it received an appropriation of \$150,000 from the Foundation for general administrative expenses over a five-year period.

FELLOWSHIPS AND GRANTS IN AID

FELLOWSHIPS

In 1943, the Foundation appropriated \$50,000 for fellowships in 1944. In addition, one new appointment from funds previously allocated was made and two other fellowships were administered during the year.

The Foundation-administered fellowship program in the social sciences has been virtually suspended during 1943 due to the war, as these fellowships are intended principally for foreign students who are planning to return to their native countries. Grants have therefore been confined to persons whose fellowship period would make a contribution to research in which the Foundation has some program interest. The single appointment approved in 1943 was to permit a fellow to collaborate in a study of American Foreign Policy to be undertaken at the Council on Foreign Relations.

The Social Science Research Council administers the Foundation's fellowship program for North American students. Of the 32 fellowships administered by the Council in 1943, 12 were post-doctoral research training

fellows and 20 were pre-doctoral field fellows. Of the total, 12 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 1943. This was supplemented during the year by an appropriation of \$40,000 of which only about \$20,000 was actually allocated. These grants are used principally for subsidiary aid to work in areas of program interest. Forty-two grants were approved and the average amount was approximately \$3,300.

During 1943 under this program aid was given for population studies at the Scripps Foundation, for national income comparisons at New York University, and price control studies at the University of Chicago. A few small grants to organizations in South America resulted from trips financed by the Foundation of four social scientists in 1942. One of these was for research in economic history at the National University of Bogotá by Professor J. M. Ots y Capdequi, another for climatological studies at the University of Chile, and a third for work in the field of anthropology under Professor Paul Rivet at the Escuela Normal Superior, Bogotá.

In line with a program interest in facilitating the exchange of scholars between this country and England, grants were made to send Dr. Reinhold Niebuhr to England and to bring Sir William Beveridge to the United States.

THE HUMANITIES

THE HUMANITIES STAFF

During 1943

Director

DAVID H. STEVENS

Associate Director

JOHN MARSHALL

Assistant Director

WILLIAM BERRIEN

THE HUMANITIES

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THE HUMANITIES

DURING 1943 the war continued to affect the Humanities program, and, in some areas, to stimulate new types of work. Some of the casualties of war are the irreplaceable relics of the past — buildings, monuments, books, and manuscripts. In the hope of preserving for the future the substance of this universal heritage, the Foundation has been contributing for several years toward the cost of documenting and duplicating the most important cultural records in Great Britain. The extension, both actual and prospective, of military operations to other areas made it urgently necessary during 1943 to aid similar efforts for the continent of Europe.

Projects aimed at a better understanding of important world regions took on an ever-increasing importance. In 1943, as in earlier years, Foundation contributions reflected the present American interest in the languages and cultures of Latin America and the Far East. Five major grants during the year were in the field of Slavic studies.

Although not a direct result of the war, there was evident a similar demand for a better interpretation of the contemporary life and culture of North America, both for the benefit of other nations and of our own. The Foundation in 1943 gave increased support to studies seeking to reinterpret the cultural history, literature, and general background of life in North America. This work is largely individual, not institutional in character; Canada as well as the United States is represented by the subjects of study.

Several contributions were made during 1943 toward efforts to study and define the place of the humanities in

liberal arts education in the United States. It is hoped that these efforts may result in a better organization of education in the colleges and universities of the country.

STUDIES IN LANGUAGE AND FOREIGN CULTURES

AMERICAN COUNCIL OF LEARNED SOCIETIES

CENTER OF ENGLISH STUDY, ESCUELA NORMAL SUPERIOR,
BOGOTÁ

The growth of demand for English as a second language led the Foundation to aid in establishing one training center during 1943 in the Escuela Normal Superior, Bogotá, Colombia. The Escuela is the official center for training of teachers in that country.

The new institute aims to develop a more capable group of teachers and new materials that have stood the test of classroom use. In addition to the usual classroom work the new plans call for the teaching of English by broadcast. The recordings will be used on stations outside of Bogotá as well as in resident classes. Teaching materials developed and tested in the course of this work will be published and made available to other American republics where there is an ever-increasing demand for modern teaching materials to strengthen the teaching of English at different levels.

Collaborating with the staff of the Escuela is Professor Hugh Walpole, formerly professor in Queens University, Canada, and later Assistant Director of the Commission on English Language Studies at Harvard University. Professor Walpole has also had the benefit of practical experience at the Gimnasio Moderno in Bogotá, where he worked for a year in the development of English teaching at the elementary and secondary school levels. At the Escuela he will have assistance

from three Colombian supervisors of English teaching in the Instituto Nicolás Esguerra, the public secondary school of Colombia used by the Escuela for practice teaching.

The grant of \$10,000 from the Foundation is primarily to supplement during the two years ending January 30, 1945, salaries from the Escuela, which is providing adequate quarters and all other means to effective work. This grant is administered by the American Council of Learned Societies, a fact that gives the advantage of interchange of ideas on the teaching of English at centers in the United States and in other Latin American countries.

AMERICAN COUNCIL OF LEARNED SOCIETIES MODERN LANGUAGE PERSONNEL

In the United States the Foundation's principal contribution to the field of language study in 1943 was through support of the work of the American Council of Learned Societies. Grants made in 1941 for this purpose were supplemented in 1943 by an appropriation of \$85,000 to be used during the three years ending December 31, 1945, to develop personnel and resources for teaching of modern languages in institutions of the United States. The funds were intended to aid in meeting demands for language training not already available through the usual course offerings of American universities.

This activity of the Council is under the direction of its advisory committee on modern language personnel and resources. Courses of instruction calling for about thirty hours of classroom work a week and continuing over a period of three to twelve months have been developed in such languages as Arabic, French, German,

Italian, Spanish, Pidgin, Burmese, Dutch, Indo-Chinese, Japanese, Malay, Thai, Bulgarian, Greek, Roumanian, Serbo-Croatian, and Turkish. The courses are offered in American universities to men in military service preparing for work in specific geographic areas. New materials such as grammars, textbooks, and sound recordings have been prepared for these languages and other unusual dialects of Southeastern Asia, the Near East, and the Balkans, that lacked systematic analysis. The American Council of Learned Societies' program is a primary source for the development of teachers and materials for such work.

Both short- and long-term effects of this language development are appearing in the form of aid to the war effort and in the basis that is being laid for continued training in hitherto little used languages after the war.

NATIONAL INSTITUTE OF ANTHROPOLOGY AND HISTORY
DEVELOPMENT OF TEACHING AND RESEARCH PROGRAM
AND REORGANIZATION OF LIBRARY RESOURCES

The National Institute of Anthropology and History in Mexico City has been in existence since 1939 as a center for humanistic and social studies under the direction of Dr. Alfonso Caso, and has established standards of work that are drawing students from Central America and the United States. Its program of teaching and research had previous aid from the Foundation in the form of a grant of \$20,000 for the three years ending in 1943. To consolidate the gains already made a second grant of \$70,000 was voted in 1943 toward development of the teaching and research program of the Institute and reorganization of its library resources during a five-year period.

With this aid as a supplement to government funds,

the fellowship program of the Institute will be enlarged to provide thorough training for a selected group of students. The present plan calls for study leading to the master's degree in a four-and-a-half-year period for eleven students from Central America and Caribbean countries. The length of the training period is due to the fact that specialized studies are preceded by a period devoted to strengthening the student's general education, this general training being on a particularly high level at the Institute.

The other aspect of the plan is to make readily available for scholars and students of both Americas unique material for the study of the archeology, anthropology, and history of the New World. The National Museum and the Institute have combined their resources in a joint library which is one of the major collections of humanistic and social science reference materials in Mexico. Full classification of their collections will open a large body of hitherto unknown materials for the study of Hispanic-American cultural history. The visiting librarians whose services are provided under the Foundation grant will assist in the reorganization of the joint library, and also will conduct courses in library techniques for the benefit of Mexican workers who will carry on the routines of library services.

The fund of the Foundation will be used primarily for salaries of Mexican staff and visiting faculty, for fellowships, and for book purchases.

PAN AMERICAN UNION

INDEX OF CONTEMPORARY RESOURCES FOR LATIN AMERICAN STUDIES

Among the valuable materials possessed by the Pan American Union are two collections not preserved else-

where. One includes Latin American newspaper files, which are held in the Columbus Memorial Library of the Union. These files contain at least one representative paper for each of the twenty Latin American countries complete for the period since 1917, making an effective collection of source material for study of current Latin American history. To meet demands for use of this material the Union is now creating a microfilm library of the files of eight of the leading Latin American dailies from 1938 to the present. Duplicate sets of these films are to be borrowed or purchased on agreement by leading United States libraries.

In the field of art the Union's Division of Intellectual Cooperation possesses an equally rich collection of holdings for the contemporary period. Such holdings are increasing steadily through gifts of reproductions and monographs from Latin American artists and museums. This Division of the Union is now established as an important clearing house in this country for current art materials. Recognizing the need to organize these resources as the basis for a lending service, the Union will prepare sets of reproductions and, to accompany the sets, a series of short monographs on artists whose work is thus made available.

To provide for organization of these two sources for Latin American studies the Foundation made a grant to the Union of \$20,000 to be used during the period ending June 30, 1946.

LIBRARY OF CONGRESS

ARCHIVE OF HISPANIC CULTURE

In 1939 the Hispanic Foundation began its existence in the Library of Congress as an international center for

studies in the field of Hispanic culture. Since then The Rockefeller Foundation has aided this center with grants totaling \$33,000 to develop its catalog and bibliographical services, for which government funds were not available.

One division of the collections of the Hispanic Foundation is the Archive of Hispanic Culture, which includes photographs, microfilm, photostats, and slides of Latin American art from the time of the Spanish and Portuguese conquest to the present day. Materials for the Archive are acquired by deposit, by purchase, and by gift and exchange from private collections, museums and other institutions in this country and in Latin America. At the beginning of 1943 the Archive had about 5,600 holdings of prints and slides. These are available for borrowing through inter-library loans.

To aid in meeting increasing demands for service of the Archive of Hispanic Culture the Foundation made a grant of \$17,650 to be used during a two-year period beginning July 1, 1943, in building up the photographic archive. A revolving fund will provide for reproduction of copies for sale to individuals and organizations. The fund also will make possible preparation of a number of basic sets of photographs and slides for loan as teaching material. In this work the Hispanic Foundation will concern itself with Latin American art of periods other than the pre-conquest and contemporary.

LIBRARY OF CONGRESS

SLAVIC MATERIALS

In the spring of 1943 Humanities officers called a meeting at the Foundation offices in New York City of some ten or twelve specialists for discussion of the de-

velopment of Slavic studies in the United States. The purpose of this meeting was primarily to consider long-term needs in this area of work.

The field of Slavic studies is clearly one for early development in this country. Little has been done in this area by comparison with Far Eastern studies, for example. The demand for competence in Slavic languages and cultures, particularly Russian, accelerated by present-day events, is certain to increase greatly at the end of the war.

One of the recommendations of the Foundation's conference was for an appraisal of existing collections of Slavic materials in the United States as a necessary basis for planning of future teaching and research. Because the Library of Congress seemed to be the agency best suited to undertake this task, a grant of \$12,000 was made to the Library for use during two years beginning July 1, 1943. Collections of other libraries in the country as well as those of the Library of Congress are to be surveyed from the point of view of preventing useless duplication and of developing an adequate representation of Slavic materials in major American libraries, where they will be available on inter-library loan. Plans will be worked out for acquisition of needed material and for exchange of material between American libraries and the principal libraries in the Slavic countries.

CORNELL UNIVERSITY

INTENSIVE SUMMER COURSES IN RUSSIAN CIVILIZATION

Another development in university education which is of particular relevance to the study of foreign languages and cultures is the new interest in the study of world areas hitherto given little attention in university

and college education. A grant to Cornell University, reported last year, enabled the University to explore what could be done with the preparation of materials needed for the study of the Far East, the British Commonwealth, and Latin America in secondary schools.

The intention of a second grant in 1943 was to support Cornell in its plan to develop university courses that would provide new materials for a better understanding of the Slavic world, particularly of the contemporary life of the Soviet Union. The program was open during the summer of 1943 to undergraduates, to teachers, to journalists, and to people in government service who had a serious interest in getting a better acquaintance with the Slavic area. Central in the program were five intensive courses on the economics, literature, history, international relations, and life of the Soviet Union. Another feature was a series of weekly workshops on special phases of Soviet life such as law, medicine, and architecture. The students worked as a group through informal discussion, particularly with the thirteen specialists brought in to direct the weekly workshops.

One important outcome will be the assembling of materials from these courses which can be utilized elsewhere. The major significance of the undertaking lies in the effort to bring into the general framework of college and university education an area of the world which has hitherto been little studied at that level. The Foundation's grant of \$10,000 was used to bring to Cornell the various specialists who had responsibility for instruction.

CORNELL UNIVERSITY
SLAVIC STUDIES

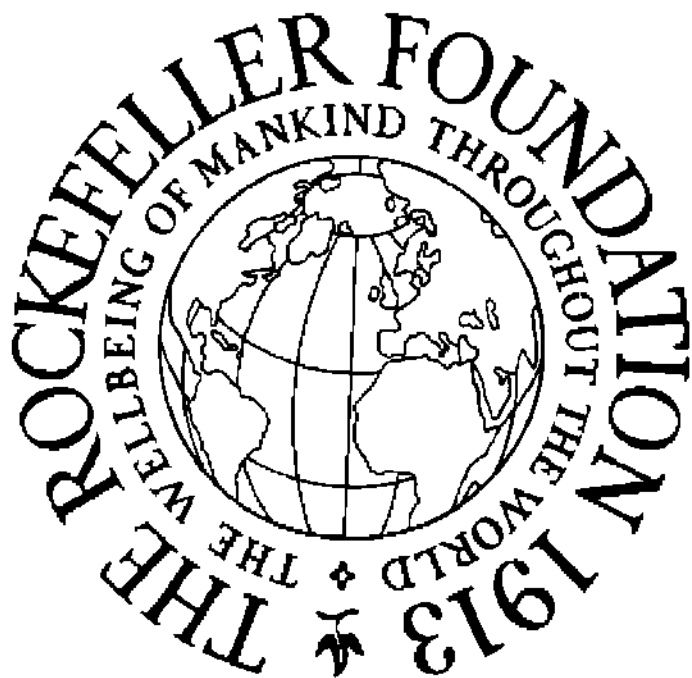
The advance of work in Slavic studies at Cornell Uni-

versity during 1943 led to a further appropriation. The amount of \$25,000 was given for aid during the five-year period ending December 31, 1948. This grant will enable specialists at Cornell to assume responsibility for the preparation of such essential items as an elementary grammar of Russian, readings in Russian for advanced students, and other materials incorporating improved methods of teaching which have recently been developed.

The review of Slavic studies in American institutions at a Foundation conference in March 1943 led to the two grants to Cornell and to other activities for strengthening programs of teaching and research. It is clear that after the war the demand for personnel in this field will be urgent. The small body of trained personnel now available has largely been absorbed by war services. Undoubtedly their wartime experience will be of considerable importance for such of them as return to the universities after the war. But the training of other specialists and the desirability of general courses on the Slavic world at the undergraduate level indicate the need of materials which can now be prepared.

HARVARD UNIVERSITY
SLAVIC STUDIES

A grant of \$25,000 was also made to Harvard University for development of Slavic studies during the five-year period ending December 31, 1948. Cornell and Harvard universities are now in a position to build on present resources as a basis for future growth. During the last ten years intensive courses in Russian and Polish have been offered at Harvard, and like Cornell, Harvard is offering instruction both in language and in area courses on the Slavic world for the armed services.



Photograph Excised Here

Intensive language program in Chinese: developed by
the American Council of Learned Societies.

The fund at Harvard will be used chiefly for preparation of textbook and reference material. Among the enterprises listed are the completion of a Basic English-Russian vocabulary of about 5,000 words, an advanced Russian exercise book, a history of Russian literature, and a guide to Slavic studies. Close cooperation between the Slavic departments of the two institutions will ensure effective collaboration in preparing these materials and will preclude any duplication of effort.

AMERICAN COUNCIL OF LEARNED SOCIETIES.

SLAVIC STUDIES

Agreement as to the desirability of translating from the Slavic languages materials required for introductory courses and needed by scholars who lack a command of the Slavic languages was another outcome of the conference on Slavic studies held in March 1943. Under a grant from the Foundation of \$50,000 for three years beginning January 1, 1944, to the American Council of Learned Societies, the planning and administration of this project were begun by a small committee established by the Council.

The first concern of this committee will be the translation of most urgently needed books, but its general plan is to include important periodical articles, such as might be published separately in American scholarly journals. Abstracts of articles, prepared by the committee, are to be supplied to journals, and the possibility will be considered of securing original manuscripts for journal publication.

By these activities the committee hopes to make known to American scholars and research workers at



Photograph Excised Here

Library of Congress.



Photograph Excised Here

Slavic Division, Library of Congress.

least part of the best humanistic scholarship in Slavic languages.

OBERLIN COLLEGE

FAR EASTERN STUDIES

One part of the Humanities program for several years has included aid to colleges and universities that are actively developing courses and research projects on the Far East. In most cases the funds of the Foundation were for initial salaries and for materials. The practical value of these plans appeared on the entry of the United States into the war, with a resulting demand for specialists in many areas of knowledge who had also a background of preparation in languages of the Orient. Persons chosen for wartime duties dealing with the Far East came from several major centers that had received some measure of Foundation aid for advanced courses and research projects. Ten universities contributed in this necessary application of men and materials to immediate requirements of Government. Other institutions had applied new funds toward developing materials for undergraduate instruction of more general character.

In 1943 Oberlin College received a grant of \$5,000 to increase its Far Eastern program. A special interest in the Far East has long existed at Oberlin. Many students have come to the college from China and Japan, and its own graduates have gone to China as students or as teachers at Oberlin-in-China. This fund will be used to increase the college's materials for teaching in the humanities, social sciences, and fine arts of the Far East.

GRANTS IN AID AND FELLOWSHIPS IN LANGUAGE STUDY

Grants in aid and fellowships are used to assist studies in foreign languages and cultures that are smaller in scale or that represent interests still in the process of

development. The greater number of these in 1943 were Latin American studies. Grants in aid provided for the transfer of Professor Torres Rioseco from his usual duties at the University of California to Brazil, and for Dr. Germán Arciniegas of Colombia to replace him on part time. Much was done to advance studies of language and literature. Fellowships were granted to three scholars from Brazil, two from Colombia, and two from the United States. All these fellowships were for long terms of residence and for specific types of research.

Development of Far Eastern studies through grants in aid was continued by awards to the Institute of Pacific Relations, Claremont Colleges, Columbia and Yale universities, and the Publishers Trade Bureau of New York City. This last-named grant was applied toward improving trade relations between China and the United States for the benefit of education. Only three fellowships for study of Chinese and Japanese were awarded during the year. This was due to the complete absorption of available personnel in military courses or in actual service.

One grant bearing on teaching and research in Near Eastern subjects was made for a study by Dr. J. H. Birge. Through the American Board of Commissioners for Foreign Missions Dr. Birge was enabled to observe current work on the Near East in various institutions in the United States. A small grant was made to the University of Pennsylvania for work in African languages, and one to Cornell University for translation of a teaching text on Russian.

AMERICAN STUDIES

LIBRARY OF CONGRESS

AMERICAN STUDIES

A grant of \$100,000, to be available during a five-year

period to the Library of Congress, recognized the Library's special interest and competence in the development of American studies. When Mr. MacLeish became Librarian in 1939, he set forth as one of three "canons" to guide the staff of the Library in acquiring materials the aim of possessing "all books and other materials (whether in original or copy) which express and record the life and achievements of the people of the United States." But the aim of assembling at the Library a truly national record can hardly be restricted to what is already in print or in other forms of recorded evidence. Within this general purpose the Library has a natural interest in encouraging work which will advance the interpretation of American history and culture through use of its resources.

HUNTINGTON LIBRARY

REGIONAL STUDY OF THE PACIFIC SOUTHWEST

A grant of \$50,000, also available over a five-year period, recognized the qualifications of another library, the Huntington Library in San Marino, California, for conducting a study of the Pacific Southwest. For the purposes of this study the Southwest is roughly defined as the territory composed of Southern California, Arizona, Nevada, Utah, and New Mexico — a natural geographic unit with a common historical background but with considerable internal diversity. Its development has involved the impact of three frontiers and cultures, the Indian, the Hispanic, and the Anglo-American.

This interest of the Huntington Library was defined at conferences held during 1942 and 1943 that brought together from other institutions scholars and interpreters of the history and culture of that region. Special

topics selected for consideration were inquiries into the effects of race, environment, and cultural background upon the cultural characteristics of the region, the meeting of the frontiers, and the cultural implications of the Mexican border. The fund of the Foundation will be used for fellowships, acquisition of materials, and expenses of meetings.

The Huntington Library is well equipped to take leadership in such a study. It has specialists in this field on its own staff, and its collections of materials on the region are everywhere recognized as of foremost importance. During the last ten years the Library has prepared the way for systematic work of this nature by substantial investments from its own resources for purchasing and cataloging materials on the Southwest, for fellowships for study of this area, and for publications.

The proposed study and the series of publications that will result seem likely to open up new fields for cooperative regional study and to present unusual possibilities for understanding present-day cultural and economic life in the light of historical perspective.

UNIVERSITY OF KENTUCKY
STUDIES IN SOUTHERN HISTORY

A significant point for development of American studies is in the University of Kentucky, where work in Southern history is coordinating the plans of historians in eight institutions. For some years under direction of Professor Thomas D. Clark of the University of Kentucky a body of materials has been gathered which promises new light on the history of the South during the period from 1670 through 1900. Such materials include diaries, contemporary accounts of travelers, and

records of trade, very few of which have had the careful scrutiny of historical scholars. A grant of \$8,500 to the University of Kentucky to be used through 1945 will assist in utilizing these and other materials to produce a series of critical essays and a bibliography making them available to students.

The fund supplies needed help to ten or twelve scholars during a period of intensive study of the documents. Grants from this University fund will be for travel and leaves of absence for faculty members of the cooperating Southern institutions who have been selected to edit and write the expositions of documents.

It is planned to publish the resulting material in a volume which will be of use in schools and colleges and which will serve as a guide to the future use of the materials assembled. This work is expected to lead to a better understanding of life in the South on the basis of materials hitherto neglected or little used.

UNIVERSITY OF CHICAGO

EARLY HISTORY OF THE UPPER MISSISSIPPI VALLEY AND CANADA

A cooperative enterprise of institutions in the upper Mississippi Valley during the past four years has led to the starting of a central archive on the early history of nine Midwestern states and adjacent parts of Canada. The region of the Great Lakes, from 1634 on, underwent successive French, British, and American occupation. Records of the colonial period of this region are still widely scattered in North America and in foreign countries. A coherent history and interpretation of the present life of the region called for the type of central archive that is now developing. Twenty institutions,

now cooperating through a committee, chose the University of Chicago as the location for this archive.

More than 20,000 pages of manuscript have been copied in microfilm or photostat, and are now being calendared in a way that gives direct access to their contents. Beginning with a collection for the study of contacts with the original Indian tribes, materials assembled provide sources for comprehensive studies by archeologists, ethnologists, linguists, and historians generally.

The University of Chicago provides space and essential equipment; the project has had assistance from funds provided by the American Philosophical Society. A grant of \$14,500 from the Foundation for a three-year period provides for staff, travel, and other expenses essential to the extension of the work and particularly to increasing contacts with Canadian scholars and materials.

UNIVERSITY OF SASKATCHEWAN
STUDIES OF WESTERN HISTORY

A comparable need for assembling materials appeared at the University of Saskatchewan. There the work of organizing the archives of the province has already begun, particularly through the efforts of Professor Emeritus Arthur S. Morton. By agreement with the provincial government the University has been designated as a branch of the provincial archives for storing materials of historic interest, as distinguished from those needed for ready reference at the provincial capital of Regina. Professor Morton has been working for some years on these materials to make them accessible to other scholars.

The Foundation's grant of \$15,000 for a three-year period will help to continue this work and to catalog other valuable materials in the University library on the development of the Canadian West. The grant also provides for training in archival work of a man who will carry on this activity. The expectation is that this fund will assist the University to become an active center for study of the history and development of the Canadian West.

UNIVERSITY OF MINNESOTA

STUDIES IN NORTHWESTERN HISTORY

Studies of the Northwest have been in progress for some years at the University of Minnesota and through the State Historical Society. Close cooperation between the University and the Society grew in large measure from the efforts of Professor Theodore C. Blegen, formerly the Director of the State Historical Society and now Dean at the University's Graduate School, whose own work in American history has resulted in important contributions on the immigrant. The University of Minnesota Press has been active in encouraging and publishing such studies of the Northwest. Work done by members of the University faculty has had continuous attention in the public schools and private institutions of the state.

With this background of experience and leadership the University, in cooperation with the State Historical Society and the Press, is in a position to recognize and wisely encourage work for interpretation of the Northwest region. Source materials have been accumulated by the University and the Society over a long period, those on the industrial and agricultural life of the area repre-

senting a good cross section of American growth from pioneer days to urban existence. Subjects of study that are ready to be matured are the history of the lumber industry, of the iron fields, of native artistic expression in particular communities, and of individual contributions to American life in the Northwest.

A grant of \$50,000 for use during a three-year period will enable the University to assist scholars and interpretative writers in bringing such historical and literary studies to completion. Of this sum \$5,000 is set aside against an equal contribution from the University toward cost of publication.

GRANTS IN AID AND FELLOWSHIPS IN AMERICAN STUDIES

A special grant in aid fund of \$50,000 during 1943 made possible some seventeen smaller grants in the field of North American studies. Some of these enabled individual scholars to complete projects of research which promised significant contributions to the field. Such assistance included grants to Union College, Lincoln, Nebraska for Professor E. N. Dick's study of the social history of the trans-Appalachian frontier; to the University of Wisconsin for Professor Merle Curti's study of American patriotism and nationalism; to the University of New Brunswick for Professor Alfred G. Bailey's studies of New Brunswick history; to Sarah Lawrence College to enable Professor Edwin Mims, Jr. to study the emphasis to be laid on immigrant groups in American history; and to Columbia University to enable Professor J. Bartlett Brebner to undertake field studies in Canada essential to the completion of a study of Canadian life and history.

Grants to the University of Alberta, Western Reserve

University, the University of Maine, Montana State College, and the University of Manitoba provided for the further development of regional studies in those areas. A grant provided for a conference to be held in January 1944 at the University of Oklahoma on the study of the Southwestern plains region.

Grants to Swarthmore College, to Princeton University, and to Brown University were for work directed toward a revaluation of the study of American literature.

A fellowship appointment enabled a graduate student at the University of Kentucky to gain useful training through association with the project at the University for studies in Southern history. Another appointment enabled Mr. Harry Bernard of Ste. Hyacinthe, P. Q. to continue in the United States his studies of regionalism in the American novel.

DRAMA, FILM, AND RADIO

NATIONAL FILM SOCIETY OF CANADA

After having contributed to the support of the Society for a period of four years, the Foundation made a final grant of \$6,000 to help in consolidating during a two-year period those activities developed during the previous four years. Increased activities made possible by earlier support had materially enlarged the scope of its services, all of them designed to bring about a wider and more effective use of educational motion pictures in Canada. The developments in this period, when the Society had the full-time leadership of Mr. O. C. Wilson as its Executive Secretary, are bringing in increased revenue. The expectation is that in the two years covered by this final grant, income for services from Ca-

nadian sources will become sufficient to support the work of the Society.

LIBRARY OF CONGRESS

MOTION PICTURES FOR COPYRIGHT DEPOSIT

A first grant of \$25,000 made in 1942 was followed in 1943 by a grant of \$40,000 for use during 1943 and 1944 in bringing together in the Library, under the deposit provision of the copyright act, such motion picture film as should become part of the national record. For the present the Film Library of the Museum of Modern Art is aiding the Library of Congress in this effort by screening films and by storing those selected for preservation. In the first eight months of this work the Film Library screened almost the entire output of copyrighted films for the period, including newsreels of world events, documentary films, and films of popular interest.

It is expected that when this grant is over, arrangements will have been completed to make the work one of the regular activities of the Library of Congress, establishing films as a part of the national record in the Library.

GRANTS IN AID AND FELLOWSHIPS IN DRAMA, FILM, AND RADIO

A grant in aid to the National Theatre Conference enabled it to obtain the services of a field representative to coordinate work in non-professional theatres.

Four fellowship appointments provided for advanced training in drama. Two of these appointments went to fellows who will return to posts in western Canada, where it is expected they will have a formative part in the development of university work in drama.

One appointment in the field of radio secured advanced training for a member of the staff of the Rocky Mountain Radio Council, and for another training in methods of study of radio audiences at the Columbia University Office of Radio Research.

LIBRARIES

AMERICAN LIBRARY ASSOCIATION

UNION CATALOG, MEXICO, D. F.

Those who work in or with libraries know that the usefulness of any collection depends largely on the accessibility of its materials. The libraries of Mexico contain many special collections which would have wider use by research workers and scholars of many countries if their location and other details were made known through central catalog records. No such central catalog of library holdings in Mexico City now exists.

To begin this work on a union list a one-year grant of \$13,000 was made to the American Library Association which will direct during 1943 a survey of library resources in the Federal District. The Association also is undertaking a central index of special collections in that area, starting with those in biology, mathematics, and the physical sciences, and including the special book collections of the University and institutes. It is planned to duplicate the resulting index cards for distribution to organizations as an aid to research and library purchasing plans.

Mexican assistants are participating in the work, which is centered at the Benjamin Franklin Library in Mexico City. Through this Library, opened in 1941 under the direction of Dr. H. M. Lydenberg, with funds

supplied by the Coordinator of Inter-American Affairs, a cordial welcome has been given to American books and American librarians. The survey and union list are under the direction of Dr. Rudolph H. Gjelsness, on leave for this project from the School of Library Science at the University of Michigan.

This preliminary year of survey and cataloging looks to the possibility of continuing the work on a collaborative basis, since the desirability of making such source materials easily accessible within the country is now recognized by Mexican authorities.

AMERICAN LIBRARY ASSOCIATION
LIBRARY SCHOOL, SÃO PAULO, BRAZIL

Opportunities for developing a standard program of study in library science and practice are increasingly desired in leading South American centers. Making a sound library course available within a country quickly increases the number of competent personnel trained in modern library methods. A school for librarians held in Bogotá, Colombia, in the summer of 1942, which attracted a full attendance from Colombia and neighboring countries, showed how eagerly such training is sought. This short course was directed by the American Library Association under a grant of the Foundation.

Work on a standard one-year course which may set a model for such courses in South America has now been started at the Library School of the Escola Livre de Sociologia e Política (Free School of Sociology and Politics) in São Paulo, Brazil. Courses offered by this Library School had been good in quality but limited in scope and with little opportunity for practical service during the time of training. A grant of \$27,500 from the Foundation to be administered by the American Library

Association is in aid of the plan advanced by the School's Director, Dr. Rubens Borba de Moraes, for establishing a one-year program for full-time students. Enrollment is to be limited to thirty students a year chosen from among personnel employed in Brazilian libraries or scheduled for posts on completion of training. An important part of the plan is provision for in-training service in the Municipal Library of São Paulo, of which Dr. Borba de Moraes was until recently the Director. The Escola Livre will contribute housing and expenses of administration of the project. All tuition received by the Library School during the five years of The Rockefeller Foundation grant is placed on deposit against the carrying expenses of the program after the termination of the grant.

The grant of the Foundation covers a five-year period, and includes funds for staff salaries, scholarship aid, and preparation of materials. This last will provide for texts in Portuguese on the organization and management of libraries from the point of view of Brazilian needs. The first book in this series appeared during the year; it is hoped that the series may serve as a guide for Brazilian librarians who will not attend the school as well as for the students themselves, and so further contribute to the library movement in Brazil and neighboring countries.

NATIONAL CENTRAL LIBRARY, LONDON

A grant of \$8,910 in 1943 to the National Central Library was a renewal of emergency aid toward the general budget of a large national library now performing valuable wartime service. Through loan of books, arrangement of inter-library loans, and supply of bibliographical data the general service of this Library ex-

tends throughout Great Britain. Such functions are now enlarged to include a book service for members of the Allied forces and special assistance to government departments. The Library's resources include material in its Bureau of American Bibliography, which is proving increasingly valuable at a time of difficult access to American books and information about American publications.

GRANTS IN AID AND FELLOWSHIPS FOR LIBRARIES

A grant in aid to the American Library Association enabled it to make available the services of a trained American librarian to aid in reorganization of the Jalisco State Library at Guadalajara, Mexico.

Two fellowship appointments provided advanced training in librarianship for staff members of the Municipal Library and the Escuela Normal Superior of Bogotá, Colombia.

OTHER GRANTS

AMERICAN COUNCIL OF LEARNED SOCIETIES GENERAL SUPPORT

In 1943 the Foundation continued its contribution to the general support of the American Council of Learned Societies by a grant of \$80,000 for the two-year period beginning July 1, 1944. Earlier grants for the administration of the Council, for fellowships and study aids awarded by its committees, and for general activities under the head of planning and development have represented the Foundation's principal contribution toward the general advancement of humanistic studies in the

United States apart from the special interests which figure in the Foundation's own program in the humanities.

In these and other activities the Council, through its twenty-three constituent societies, represents American scholarship in the various disciplines of the humanities and in closely related disciplines of the social sciences. In general it works toward the development of humanistic studies, particularly in areas otherwise not adequately represented in American institutions. Internationally it is the representative of American scholarship in the humanities through its membership in the International Union of Academies.

The present grant for general support of the Council is toward the expenses of its executive offices in Washington and for the expenses of the Council itself, mainly the cost of meetings, conferences, and publication of its bulletins.

AMERICAN COUNCIL OF LEARNED SOCIETIES

PROTECTION OF CULTURAL TREASURES IN WAR AREAS

During the course of the war opportunities have arisen for work aiming at the preservation of cultural treasures endangered by hostilities. The advances of the United Nations forces in 1943 made evident the need for specific information that would lead to proper care and protection of materials in the liberated countries.

By June 1943 American scholarship had taken the initiative in forming, under the auspices of the American Council of Learned Societies, a Committee for the Protection of Cultural Treasures in War Areas, with Professor William B. Dinsmoor of Columbia University as Chairman. A grant of \$16,500 by the Foundation enabled this Committee to assemble a staff and to begin its

work in time to have maps, handbooks, and other information available to the War Department as the liberation of Sicily got under way. The Committee is now serving as a source of information for the American Commission for the Protection and Salvage of Artistic and Historic Monuments in Europe. This Commission under the chairmanship of Mr. Justice Roberts has become the governmental center for activities of this kind.

The rapid development of the war in Europe led to an intensification of the Committee's work, with the result that the Foundation made an additional grant in 1943 of \$7,500 toward increased expenses. The Metropolitan Museum and the Frick Library of Art materially advanced the work of the Committee by providing quarters and other facilities. Supplementary work is being done in Washington and in university centers.

NATIONAL BUILDINGS RECORD, LONDON

The National Buildings Record was established in London as a wartime service to record historic buildings in Great Britain and to note the damage done to them during the war. Since 1941 over 60,000 drawings and photographs have been prepared or collected. Volunteer workers aid in photographing and in drawing, under supervision of skilled architects who are familiar with various districts. The scope of the work was considerably extended when the so-called "Baedeker bombing" began and made it necessary to include in the Record many buildings in outlying districts.

Aid has been given to this work by the British Government and by the Pilgrim Trust. In 1943 the Foundation made a grant of \$16,200, in addition to the appropriation of \$20,000 reported in 1941, to enable the National Buildings Record to retain the services of

architects for field duty and to provide headquarters with staff not to be had from other sources.

AMERICAN PHILOSOPHICAL ASSOCIATION
STUDY OF TEACHING OF PHILOSOPHY

During 1943 discussions of the nature and purposes of liberal education raised anew questions as to the place which the various disciplines of the humanities should take in liberal education in the postwar world. The American Philosophical Association, as a national association with 850 active members, had a natural concern with such questions as relate to the study of philosophy at the undergraduate and graduate levels.

The Association accordingly appointed a commission of five persons to make a national review of the place of philosophy in liberal education. This commission organized a series of discussions by members of the Association throughout the country on the aims of college and university study of philosophy and the relation of such aims to the needs of other departments of study. The undergraduate curriculum under review included logic and the methods of science, ethics, social and political philosophy, historical studies, and metaphysics.

Conclusions arrived at in the course of these discussions on the contribution to be made to liberal education by both general and specialized study of philosophy are to appear in a volume of proceedings of the American Philosophical Association. A grant of \$10,000 to the Association provided for the expenses of the commission in carrying out the review and for the cost of producing the final report.

PRINCETON UNIVERSITY
HUMANITIES PROGRAM

Discussions of the nature of liberal education likewise

led during 1943 to experimentation and to a new definition of the purposes and functions to be fulfilled by the humanities as a whole. The work of a divisional program in the humanities at Princeton University since 1935 had yielded a considerable body of experience as to these functions, and the establishment of an advisory council of alumni and of persons from outside the University to review the first five years of the program had provided an opportunity for appraisal of results.

With undergraduate education in 1943 largely devoted to preparation for military service, members of the Princeton faculty who had been associated with this program were available for further planning. A grant of \$12,500 to the University for the period ending June 30, 1944, is enabling younger faculty members in this group not yet on permanent appointment to give their time to this work.

The progress so far made by these men in developing a program for exceptional students in the humanities makes their work representative of advanced thinking on humanistic teaching and research, and promises consolidation of their earlier work to the point where it will have general influence.

VANDERBILT UNIVERSITY HUMANITIES PROGRAM

Vanderbilt University for many years has had a strong tradition of work in the humanities. Its graduates have been broadly trained, some of them becoming productive writers and others holding important teaching positions. Several critical journals, such as *The Sewanee Review*, *The Southern Review*, and *The Kenyon Review*, have been founded and edited by staff members or graduates of the University.

Vanderbilt now is formulating plans to develop teaching in the humanities at the junior college level, including new freshman courses in English, new methods of teaching modern languages, and the integration of studies of literature and philosophy. The committee of the University's humanities division in charge of this development will hold in 1944 a summer conference to which men from various colleges will be invited. As a preliminary to this conference a number of colleges and universities in the region are testing the plan of junior college instruction during the present academic year. This area includes Duke, North Carolina, Georgia, Tulane, Louisiana State, and Vanderbilt University.

A one-year grant of \$7,500 to Vanderbilt University frees members of the committee for special studies, and provides for the expense of conferences with faculty members of other colleges and universities of the region.

WESLEYAN UNIVERSITY

HUMANITIES PROGRAM

Wesleyan University is one of the colleges that adjusted its program to meet wartime needs. The college has had a large enrollment of students under the Navy program, and most of its faculty has been teaching in these special courses. At the same time it was found possible to designate a group of younger members of the faculty for development of a new program of studies for the undergraduate group. Organization of this plan followed agreement by the faculty to concentrate in the work of the first year on humanities and on a general exposition of aims in liberal education.

The first-year course is now in operation. It is distinctive in its aim to acquaint the student with the essen-

tials of liberal education from the point of view of each department of instruction, and in the requirement of practical applications of humanistic studies in some creative form of expression. The departments of English, Romance languages, classics, philosophy, psychology, and history are cooperating in the course.

The Foundation's one-year grant of \$5,000 goes toward expense of the part of this program providing creative expression in the form of writing, music, or work in other arts.

OTHER GRANTS IN AID

During 1943 grants in aid were also given for studies relating to the place of the humanities in the liberal arts college. A grant to the Association of American Colleges was for a conference on the present services and future organization of the liberal arts college. The Mississippi Valley Historical Association received aid for an investigation of the teaching of American history in the schools and colleges of the United States, carried on under the joint auspices of that Association, the American Historical Association, and the National Council for the Social Studies. Other grants provided for reports on the teaching of foreign language, history, literature, philosophy, music, and the arts. These were through the following institutions: Hamilton and Reed colleges; Chicago, Colgate, Stanford, Vermont, and Wesleyan universities.

As in earlier years, grants to aid refugee scholars in the humanities were made through the New School for Social Research and several American universities. This program is now concluded in this country. A small grant through the Clarendon Press supported research of refugee scholars in Great Britain.

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OTHER APPROPRIATIONS

OTHER APPROPRIATIONS

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OTHER APPROPRIATIONS

AMERICAN LIBRARY ASSOCIATION

PURCHASE OF JOURNALS

ANTICIPATING postwar shortages in Europe and Asia of the more important scholarly journals published in the United States, the Committee on Aid to Libraries in War Areas of the American Library Association has purchased and arranged for temporary storage of these journals until they can be distributed to libraries of universities or research institutes at the end of the war. After reviewing some 400 American scientific and technical journals, the Committee selected those likely to be most valuable to European and Asian institutions cut off during the war from such publications.

A total of 23,970 annual sets of periodicals has been purchased, amounting to approximately 183,000 separate issues and covering the years 1939-1943 inclusive. Thirty-three journals were added to the subscription lists in 1943; nine were discontinued. The Committee now has copies of 308 different journals.

The Foundation, which has supported the work of the Committee since 1941, appropriated \$70,000 for this purpose in 1943. The program has been highly successful and is generously supported by both libraries and publishers.

EUROPEAN REFUGEE PROGRAM

In 1940 The Rockefeller Foundation approved an emergency plan for giving assistance to outstanding

European refugee scholars. Grants sufficient to provide travel to this country and maintenance for two years for scholars who in many cases were not only unable to continue their work but were in personal danger, were made to various interested institutions in the United States. The New School for Social Research, of which Dr. Alvin Johnson is Director, has been the principal agency in this program. Foundation funds administered by the New School have helped thirty-two scholars to come to this country. Placement in the New School is temporary and it is expected that the scholars will find permanent posts elsewhere. Twelve have already obtained positions at other institutions. Twenty remain at the New School, and there is a possibility that one more may arrive.

The work of the office supported by the Foundation grant includes placement efforts, aid in the preparation of manuscripts, handling questions of alien nationality, and giving information and advice to the scholars. In addition to those receiving Foundation assistance, the office helps sixteen grantees supported by other organizations, such as the Carnegie Foundation and the Belgian American Educational Foundation, and by private donors. In 1943 The Rockefeller Foundation made an additional grant of \$11,800 to the New School for continuing this work.

WORK IN CHINA

Continuing a long interest, the Foundation in 1943 appropriated \$58,000 in support of four Chinese institutions, for fellowships for Chinese and for grants in aid in China. The total was allocated as follows:

Chinese National Association of the Mass Education Movement	\$ 6,000
Yenching University: College of Public Affairs	6,000
Nankai Institute of Economics	6,000
University of Nanking: Department of Agricultural Economics	6,000
Fellowships	14,000
Grants in Aid	20,000
	<hr/>
	\$58,000

In addition, \$50,000 was given as emergency aid for foreign colleges in China.

The central feature of the work in the Mass Education Movement continues to be the training program of the Junior College Division in the National College for Rural Reconstruction. In June 1942 the Junior College Division graduated its first class of students in rural education and agriculture. A large percentage of these graduates are now employed in the hsien-unit rural reconstruction program. A number of them are working in a colonization project under the auspices of the Ministry of Agriculture and Forestry, several have administrative and supervisory positions in the field of rural education, others are teaching in rural schools, and a few are assisting in the research and experimentation program of the College. Departments of hydraulic engineering and social administration have recently been added to the Division. The Mass Education Movement's Community Center School gives formal teaching to school-age children, provides social education for the adult population of the community, and exerts its influence on social welfare.

Yenching University, including the College of Public Affairs with its three departments of Political Science, Economics, and Sociology, was reestablished during 1942 in Chengtu following the closing of the institution in Peking. A considerable body of staff and students arrived in Free China and together with some former staff and new students in Free China form the reopened University. Lack of facilities and equipment make it impossible to continue the type of purely academic work done in the past but there is now plenty of opportunity to study social phenomena at first hand through actual experiences in the field and it is felt that this type of study will make an even greater contribution to the reconstruction of China. A program of rural reconstruction based on the needs and conditions in Free China has been worked out and efforts are under way to strengthen the personnel along this line. The University is now located near the aboriginal people in Western China and studies of these peoples and regions are planned which may contribute to solution of certain pressing frontier problems. A Committee on Social Studies and Service has been formed to conduct social, economic, and scientific studies furthering the development of industrial cooperatives.

The research program of the Nankai Institute of Economics, recently expanded to include problems of postwar economic reconstruction, now falls into four categories: (1) Inflation in Wartime China; (2) Problems in China's Agricultural Economy; (3) Postwar International Economic Policies for China; and (4) Researches into Chinese Economic History. Investigations are going forward on such subjects as wholesale and retail commodity prices in Chungking; the income and expenditures of various employee and em-

ployer groups; the manufacturing costs of selected industries in Chungking; interest rates; transport costs of certain commodities; agriculture credit; market regulations; and China's postwar industrialization.

The Department of Agricultural Economics of the University of Nanking has cooperated with the Farmer's Bank of China in an agricultural economic survey of Szechwan, the main purpose of which was to meet the emergency need of the government for a basis of policy determination. The study was confined chiefly to the costs and profits of producing four important food crops — rice, corn, wheat, and sweet potatoes — and to the business organization of tenant and owner farms. Marketing of agricultural products, chiefly rice, tobacco, wheat, and corn, in Szechwan is also under investigation. Studies have been made to determine the more profitable types of farming in Szechwan and agricultural extension work has continued in a model district with the distribution of seeds and nursery stocks and the training of local leaders for all phases of rural reconstruction work.

FELLOWSHIPS

In 1943 five fellowships were active: three in the natural sciences and two in the social sciences. Subjects studied were agricultural bacteriology and botany, farm management and agricultural extension, plant physiology or plant ecology, higher education, and sociology. The fellows studied in universities of the United States, three visiting other centers of interest in this country.

A final grant of \$21,000 was made for local fellowships, the Chinese National Association of the Mass Education Movement, the College of Agriculture and

Forestry of the University of Nanking, and the Nankai Institute of Economics, Nankai University, each receiving \$7,000.

GRANTS IN AID

Eleven grants in aid were given to Chinese institutions in 1943. The Nankai Institute of Economics, the College of Public Affairs at Yenching University, and the Chinese National Association of the Mass Education Movement received grants for the purchase of books and periodicals and their safekeeping in the United States. These three institutions, as well as the Department of Agricultural Economics of the University of Nanking, also received grants for general support. Smaller amounts were given to help defray travel and other expenses of scholars from Chinese universities who are studying in the United States.

ASSOCIATED BOARDS FOR CHRISTIAN COLLEGES IN CHINA

Beginning in 1938 The Rockefeller Foundation has appropriated a total of \$325,000 to the Associated Boards for Christian Colleges in China for use as emergency grants to private foreign universities and colleges. In 1943 a further grant was made of \$50,000.

Although enrollments continue large, the situation of the colleges continues to deteriorate. Some members of the foreign staffs have been obliged to return to America or Great Britain. Buildings at the new locations are makeshift and inadequate; equipment and books are lacking; living conditions are below the tolerable level. Inflation of the national currency increases at an alarming rate. Although it is impossible to maintain prewar standards, the colleges, however, somehow manage to continue and, on the whole, usefully.

In Shanghai although its foreign staff was interned, St. John's continues to function under its Chinese staff on a month-to-month basis. Enrollment is estimated at 3,000. Hangchow, Soochow, and Shanghai, formerly in Shanghai, are reestablished in Free China.

Yenching, driven from Peiping in North China, is now partially reestablished in West China. President J. L. Stuart is still interned by the Japanese in Peiping.

Chengt'u, in West China, with a total enrollment of 3,369 students, remains the largest center for the work of the Christian Colleges in China. West China Union University, the only one of the Christian Colleges in Free China operating on its own campus, reports an enrollment of 1,149. There are four refugee colleges on the same campus. The University of Nanking has 1,099 students. Its studies in the index of the cost of living are generally accepted as authoritative and are proving of considerable value in view of the steadily increasing inflation. Ginling reports 280 students. Dr. Wu Yi-Fang, President, visited America in 1943. Cheeloo (Shantung Christian University), now operating under the acting presidency of Dr. Edgar Fang, has 461 students; and Yenching University, in spite of its recent arrival, has succeeded in assembling 380 students. In Chungking are established the College of Law of Soochow and the College of Commerce of the University of Shanghai. Enrollments at these two institutions have increased to a present total of 469 students.

In South China, Lingnan, with 574 students at Kungkong in Kwantung Province, is host to the College of Arts and Sciences of Soochow University, which reports a total enrollment of 134. Fukien and Kweichow Provinces shelter four institutions with a total enrollment of 806 students. Fukien Christian University and the Col-

lege of Arts and Sciences of Hangchow are at Shaowu; Hwa Nan, the Methodist Women's College, is at Nanning. At Kweiyang in Kweichow Province is located the Engineering School of Hangchow.

In Central China, Hua Chung College reports an enrollment of 151 from its remote location at Hsi Chow, two hundred miles from the Burma border and north of the Burma Road.

REPORT OF THE TREASURER

TREASURER'S REPORT

IN the following pages is submitted a report of the financial transactions of The Rockefeller Foundation for the year ended December 31, 1943:

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THE ROCKEFELLER FOUNDATION

BALANCE SHEET — DECEMBER 31, 1943

ASSETS

INVESTMENTS

Securities (Ledger value)		\$163,790,389.05
(Market value \$196,206,272.27)		

CURRENT ASSETS

Cash on deposit	\$2,561,936.20	
Sterling on deposit in London: £15,183-12-0		
@ \$3.665	55,650.95	
Advances and deferred charges	720,979.68	
Sundry accounts receivable	89,984.90	3,428,551.73

EQUIPMENT

In New York		49,511.52
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\$167,268,452.30

TREASURER'S REPORT

251

BALANCE SHEET — DECEMBER 31, 1943

FUNDS AND OBLIGATIONS

PRINCIPAL FUND.....		\$145,160,333.97
COMMITMENTS		
Unpaid appropriations.....	\$16,369,873.57	
Unappropriated authorizations.....	1,269,163.42	17,639,036.99
	<hr/>	
FUNDS AVAILABLE FOR COMMITMENT.....		4,379,073.07
CURRENT LIABILITIES		
Accounts payable.....		40,496.75
EQUIPMENT FUND.....		49,511.52
		<hr/>
		<u>\$167,268,452.30</u>

PRINCIPAL FUND

Balance, December 31, 1942.....		\$145,891,088.80
Add		
Unexpended balance of appropriation RF 39050 allowed to lapse.....		32,067.69
		<u>\$145,923,156.49</u>
Deduct		
Net amount by which the proceeds of securities sold, redeemed, etc., during the year failed to equal the ledger value....		762,822.52
		<u>\$145,160,333.97</u>

FUNDS AVAILABLE FOR COMMITMENT

Funds available for commitment, December 31, 1942.....		\$3,077,926.42
Add		
Income and refunds received during 1943:		
Income.....	\$8,079,164.18	
Refunds.....	33,398.85	
Unused balances of appropriations allowed to lapse.....	\$977,487.31	
Less: Amount reverting to Principal Fund.....	32,067.69	945,419.62
		<u>3,350.00</u>
Gift from Mr. Eugene Havas.....		9,061,332.65
		<u>\$12,139,259.07</u>
Deduct		
Appropriations during 1943.....	\$7,684,989.00	
Authorizations during 1943 for later appropriation by the Executive Committee.....	75,197.00	7,760,186.00
		<u>\$4,379,073.07</u>

252 THE ROCKEFELLER FOUNDATION

APPROPRIATIONS AND PAYMENTS

Unpaid appropriations, December 31, 1942		\$16,758,549.13
Appropriations during the year 1943 (For details see pages 256 to 284):		
Public Health	\$2,450,000.00	
Medical Sciences	1,529,040.00	
Natural Sciences	599,150.00	
Social Sciences	1,068,130.00	
Humanities	1,055,410.00	
Program in China	108,000.00	
Miscellaneous	81,800.00	
Administration and Scientific Services:		
Scientific Services	552,091.00	
General Administration	241,368.00	
	<hr/>	
	\$7,684,989.00	
Unused balances of appropriations allowed to lapse (including \$32,067.69 reverting to Principal Fund) . . .	977,487.31	6,707,501.69
	<hr/>	
		\$23,466,050.82
Payments on 1943 and prior years' appropriations (For details see pages 256 to 284):		
Public Health	\$1,895,266.85	
Medical Sciences	1,139,573.91	
Natural Sciences	811,622.32	
Social Sciences	1,413,916.88	
Humanities	871,465.24	
Program in China	108,625.56	
Miscellaneous	82,816.59	
Administration and Scientific Services:		
Scientific Services	533,803.01	
General Administration	239,086.89	7,096,177.25
	<hr/>	
Unpaid appropriations, December 31, 1943		<u>\$16,369,873.57</u>

TREASURER'S REPORT

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UNAPPROPRIATED AUTHORIZATIONS

Unappropriated Authorizations, December 31, 1942	\$1,193,966.42
Add	
Authorizations during 1943 for later appropriation by the Executive Committee	75,197.00
	<hr/>
Unappropriated Authorizations, December 31, 1943	<u>\$1,269,163.42</u>

EQUIPMENT FUND

	BALANCE	CHANGES DURING 1943		BALANCE
	DEC. 31, 1942	EXPENDITURES	DEPRECIATION	DEC. 31, 1943
Library	\$15,572.00	\$263.38	\$3,190.38	\$12,645.00
Equipment	37,409.43	278.77	821.68	36,866.52
Paris Office:				
Part interest in Paris office building	63,726.20*	.....	.....	.....
	<hr/>	<hr/>	<hr/>	<hr/>
	\$116,707.63	\$542.15	\$4,012.06	\$49,511.52
	<hr/>	<hr/>	<hr/>	<hr/>

* Part interest in Paris office building amounting to \$63,726.20 written off the books in accordance with action of the Executive Committee at meeting held May 21, 1943.

APPROPRIATIONS AND UNAPPROPRIATED AUTHORIZATIONS

Unpaid appropriations and unappropriated authorizations, December 31, 1942:		
Unpaid appropriations	\$16,758,549.13	
Unappropriated authorizations	1,193,966.42	\$17,952,515.55
Add		
Amount appropriated and authorized during 1943	\$ 7,760,186.00	
Less appropriations allowed to lapse during 1943	977,487.31	6,782,698.69
		<u>\$24,735,214.24</u>
Deduct		
Payments on 1943 and prior years' appropriations		7,096,177.25
		<u>7,096,177.25</u>
Unpaid appropriations and unappropriated authorizations, December 31, 1943:		
Unpaid appropriations	\$16,369,873.57	
Unappropriated authorizations	1,269,163.42	\$17,639,036.99*
		<u><u>\$17,639,036.99</u></u>
* Probable payments in the following years:		
1944	\$10,817,983.99	
1945	3,420,102.00	
1946	1,543,536.00	
1947	1,552,012.00	
1948	236,227.00	
1949	35,800.00	
1950	16,800.00	
1951	16,576.00	
		<u><u>\$17,639,036.99</u></u>

APPROPRIATIONS DURING 1943, UNPAID BALANCES OF PRIOR YEAR APPROPRIATIONS,
AND PAYMENTS THEREON IN 1943

	APPROPRIATIONS PRIOR YEARS	1943	1943 PAYMENTS
PUBLIC HEALTH			
International Health Division of The Rockefeller Foundation *			
Prior Years (RF 39096, 41025, 41104).....	\$1,680,402.24	} \$.....	\$1,680,478.21
1943 (RF 42105).....	2,200,000.00		
1944 (RF 43092).....	.....	
Revolving Fund to provide working capital (RF 29093).....	200,000.00	2,200,000.00	.....
The Rockefeller Foundation Health Commission (RF 42106, 43093).....	427,846.58	230,000.00	214,788.64
Schools and Institutes of Hygiene and Public Health			
University of Michigan, Ann Arbor			
Site, building, equipment, and operating expenses (RF 40126).....	112,491.35	.....	.....
TOTAL — PUBLIC HEALTH	\$4,620,740.17	\$2,450,000.00	\$1,895,266.85
MEDICAL SCIENCES			
Psychiatry, Neurology, and Allied Subjects			
Alcoholic Consultation Bureau, Inc., Newark, New Jersey			
General budget (RF 42007).....	\$6,388.03	\$.....	\$.....
American Association of Psychiatric Social Workers, New York City			
Toward maintenance of a War Service Office (RF 43080).....	.....	8,200.00	2,050.00
American Psychiatric Association, New York City			
Work of Committee on Psychiatric Nursing (RF 42008, 43013).....	5,000.00	20,000.00	10,000.00
Catholic University of America, Washington, D. C.			
Teaching and research in psychiatry and child guidance (RF 39026).....	19,091.14	.....	11,030.51

* A complete financial statement of the work of the International Health Division for 1943 will be found on pages 286 to 300.

Child Research Council of Denver, Colorado			
Psychological studies (RF 39028)	\$10,000.00	\$	\$3,300.00
Studies in child growth and development (RF 42068)	12,250.00	. . . . .	7,000.00
Columbia University, New York City			
Research on constitutional aspects of disease (RF 39005, 42064)	46,892.23	. . . . .	16,376.67
Teaching and research in neurology (RF 38080)	18,810.31	. . . . .	9,999.11
Cornell University, Ithaca, New York			
Research in reflex behavior in relation to neuroses (RF 41012)	1,500.00	. . . . .	1,500.00
Dalhousie University, Halifax, Nova Scotia			
Development of teaching in psychiatry (RF 41072)	8,310.14	. . . . .	4,277.30
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)	113,664.55	. . . . .	25,000.00
Forman Schools, Litchfield, Connecticut			
Studies on apraxia and related phenomena in children (RF 39065)	25,458.89	. . . . .	Cr. 3,773.91
Harvard Medical School, Boston, Massachusetts			
Teaching and research in Psychiatry (RF 42018, 43015)	24,000.00	96,000.00 ✓	48,000.00
Harvard University, Cambridge, Massachusetts			
Research in epilepsy at Harvard Medical School and Boston City Hospital (RF 40007, 42109)	128,100.00	. . . . .	18,098.73
Research in industrial hazards (RF 42019)	20,000.00	. . . . .	6,987.03
Research in neurophysiology (RF 36125)	1,954.19	. . . . .	Cr. 657.41
Studies at the Psychological Clinic (RF 40102)	42,000.00	. . . . .	6,000.00
Institute of the Pennsylvania Hospital, Philadelphia			
Research and teaching in psychiatry (RF 40129)	32,630.15	. . . . .	18,406.49
Studies on apraxia and related phenomena in children (RF 43002) . . . . .	. . . . .	16,440.00 ✓	9,440.00
Institute for Psychoanalysis, Chicago, Illinois			
General activities and training analyses (RF 38021)	8,165.59	7,500.00

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	APPROPRIATIONS		1943
	PRIOR YEARS	1943	PAYMENTS
MEDICAL SCIENCES — Continued			
Psychiatry, Neurology, and Allied Subjects — Continued			
Johns Hopkins University, Baltimore, Maryland			
Development of neurology (RF 40008).....	\$3,072.06	\$.....	\$2,180.56
Research and training in psychiatry (RF 42020, 43053).....	18,325.00	190,000.00 ✓	33,854.54
Judge Baker Guidance Center, Boston, Massachusetts			
Children's psychiatric consultation center (RF 42099, 43087).....	15,000.00	17,000.00 ✓	15,000.00
London County Council, England			
Research in psychiatry at Maudsley Hospital (RF 38061).....	67,398.37	.....	18,252.73
McGill University, Montreal, Canada			
Maintenance of a Department of Psychiatry (RF 43046).....	.....	150,000.00 ✓	13,509.38
Research in epilepsy and dementia (RF 38068).....	5,675.58	.....	.....
Medical Research Council, London, England			
Research in endocrinology, psychiatry, neurology, and allied subjects (RF 39002)	28,722.30	.....	8,089.96
National Committee on Maternal Health, New York City			
Administrative and research expenses (RF 42100).....	10,500.00	.....	7,209.05
New York University, New York City			
Teaching and research in Department of Psychiatry (RF 43078).....	.....	50,000.00 ✓	.....
Tufts College Medical School, Boston, Massachusetts			
Research in brain chemistry (RF 40027).....	13,502.26	.....	5,995.46
Research in neurology (RF 40009).....	11,250.56	.....	4,987.72
Tulane University, New Orleans, Louisiana			
Maintenance of subdepartment of psychiatry (RF 42021).....	5,000.00	.....	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).....	75,000.00	.....	43,560.28
University of Cincinnati, Ohio			
Research in neurology in relation to nutrition (RF 37107).....	687.08	.....	.....
Research in neurophysiology (RF 43004).....	.....	9,750.00	3,250.00
University of Colorado, Denver. School of Medicine			
Teaching of psychiatry (RF 39022, 42022).....	6,365.00	.....	3,410.29
University of Edinburgh, Scotland			
Research in psychiatry, neurology, and neurosurgery (RF 41055, 42063, 43079) ..	15,114.62	20,750.00	15,536.25
University of Illinois, Urbana			
Development of neurology and neurosurgery (RF 41091).....	7,000.00	.....	6,911.13
Teaching and research in psychiatry at the Medical School in Chicago (RF 39023)	574.52	.....	.....
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).....	37,000.00	.....	14,500.00
University of Toronto, Canada			
Research in psychiatry (RF 39001).....	54,347.68	.....	19,697.80
Washington University, St. Louis, Missouri			
Support of Department of Neuropsychiatry (RF 41027).....	79,755.97	.....	50,000.00
Research in neurophysiology (RF 38017).....	30,589.96	.....	12,000.00
Worcester State Hospital, Massachusetts			
Research on dementia praecox (RF 40057).....	5,807.70	4,872.00

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	APPROPRIATIONS		1943
	PRIOR YEARS	1943	PAYMENTS
MEDICAL SCIENCES — Continued			
Psychiatry, Neurology, and Allied Subjects — Continued			
Yale University, New Haven, Connecticut, School of Medicine			
Development of psychiatry (RF 37114, 42108).....	\$337,500.00	\$.....	\$49,889.69
Endocrinology			
Columbia University, New York City			
Research in endocrinology (RF 40011, 42065, 43012).....	10,043.79	44,400.00	603.18
McGill University, Montreal, Canada			
Research in endocrinology (RF 41074).....	17,292.97	.....	4,507.82
Massachusetts General Hospital, Boston			
Research on the parathyroid hormone and calcium and phosphorous metabolism (RF 38082, 43003).....	2,000.00	12,000.00	4,000.00
National Research Council, Washington, D. C.			
Committee for Research in Problems of Sex (RF 41011).....	85,755.62	.....	44,768.08
University of California, Berkeley			
Research on hormones and vitamins (RF 39062).....	22,737.92	.....	15,000.00
Medical Education			
American Film Center, Inc., New York City			
Developing the use of films in teaching medicine and public health (RF 41075)...	4,500.00	.....	3,000.00
American Library Association, Chicago, Illinois			
Expenses of survey of Army Medical Library (RF 43047).....	.....	20,000.00	10,000.00
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).....	.....	25,000.00	9,744.26

Harvard University, Cambridge, Massachusetts			
Development of legal medicine (RF 43017)	\$.....	\$15,000.00	\$2,500.00
Medico-legal research (RF 41013)	6,000.00	.....	4,000.00
Johns Hopkins University, Baltimore, Maryland			
Institute of History of Medicine (RF 38022)	82,500.00	.....	15,000.00
School of Medicine, Research Fund (RF 39004)	15,000.00	.....	10,000.00
Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York City			
Research, teaching, and professional care (RF 41024, 43018)	30,000.00	75,000.00	54,838.47
Postwar appointments for medical graduates from Armed Services (RF 43103) ..	.....	320,000.00	.....
Research Council of the Department of Hospitals, New York City			
Research on chronic diseases (RF 40104)	33,649.13	.....	21,105.63
Stanford University, Palo Alto, California			
Fluid Research fund in medicine (RF 38060)	10,000.00	.....	10,000.00
Research in kidney diseases (RF 40010)	3,500.00	.....	3,500.00
University of Buenos Aires, Argentina			
Institute of Physiology Research (RF 40128, 43054)	9,118.24	25,000.00	7,186.84
University of Iceland, Reykjavik			
Scientific equipment for School of Medicine (RF 42039)	9,700.74	.....	6,415.16
University of Manitoba, Winnipeg, Canada			
Development of teaching of preventive medicine (RF 40061)	10,800.00	.....	3,245.08
University of Rochester, New York			
Fluid research fund in medicine (RF 41053)	45,000.00	.....	29,467.47
University of Utah, Salt Lake City			
Fluid Research Fund in the School of Medicine (RF 43102) .....	.....	15,000.00	.....
Washington University, St. Louis, Missouri			
Maintenance of Departments in the School of Medicine (RF 38059)	224,079.29	.....	40,000.00

	APPROPRIATIONS		1943
	PRIOR YEARS	1943	PAYMENTS
MEDICAL SCIENCES — Continued			
Medical Education — Continued			
West China Union University, Chengtu			
Support of public health practice field (RF 40063)	\$1,694.03	\$.....	\$1,645.20
Yale University, New Haven, Connecticut. School of Medicine			
Development of teaching of public health and preventive medicine (RF 40062) ..	2,898.72	.....	917.63
Group Medicine and Medical Economics			
Committee on Research in Medical Economics, Inc., New York City			
Expenses of operation (RF 42111)	15,000.00	.....	7,500.00
Group Health Cooperative, Inc., New York City			
Operation and development of medical insurance program (RF 42067, 43019)....	5,000.00	59,500.00	51,725.00
Medical Administration Service, Inc., New York City			
General budget (RF 43001) .....	.....	30,000.00	30,000.00
National Health Council, Inc., New York City			
Study of the organization, interrelationships, policies, and opportunities of voluntary agencies in the field of public health (RF 41089)	46,534.75	.....	23,910.40
University of Chicago, Illinois			
Research in industrial diseases (RF 43016) .....	.....	100,000.00	.....
Fellowships and Grants in Aid			
Fellowships			
Administered by The Rockefeller Foundation (RF 40065, 41057, 41113, 42133, 43118)	99,779.51	50,000.00	36,238.66
National Research Council, Washington, D. C.			
Medical Sciences (RF 40056, 42040)	65,544.57	.....	7,228.11
Welch fellowships in internal medicine (RF 41028)	166,573.75	.....	4,539.01
Scholarships for British medical students (RF 40127, 42005, 42110, 43101)	179,183.47	50,000.00	52,285.03
Grants in Aid			
(RF 40094, 40138, 41117, 42137, 43122)	227,291.02	110,000.00	86,461.52
TOTAL — MEDICAL SCIENCES	<u>\$3,053,652.69</u>	<u>\$1,529,040.00</u>	<u>\$1,139,573.91</u>

NATURAL SCIENCES

Experimental Biology

Amherst College, Massachusetts

Research in genetics, experimental embryology, and growth problems (RF 39104) \$17,401.16 \$..... \$7,500.00

Brown University, Providence, Rhode Island

Researches in genetics (RF 39032)..... 831.14 800.00

California Institute of Technology, Pasadena

Developments of chemistry in relation to biological problems (RF 42081)..... 55,235.80 28,857.56

Researches in serological genetics (RF 40073)..... 5,000.00 3,000.00

Research on the structure of antibodies and the nature of immunological reactions (RF 41051, 42049, 43050)..... 26,500.00 13,300.00 27,650.00

Catholic University of America, Washington, D. C.

Researches on decomposition and synthesis of certain polynuclear ring systems (RF 40059)..... 14,000.00 Cr. 1,062.73

Columbia University, New York City

Researches on electrical properties of cells and tissues (RF 41093)..... 9,800.00 Cr. 1,611.13

Research in enzyme chemistry (RF 42044)..... 12,500.00 5,000.00

Researches on problems of metabolism with the aid of chemical isotopes (RF 38026, 43026)..... 8,879.28 43,500.00 14,920.00

Researches on vitamins and related substances in relation to plant growth (RF 40107)..... 15,079.00 4,970.54

Connecticut Agricultural Experiment Station, New Haven

Researches in genetics of growth in plants (RF 40106)..... 12,300.00 1,360.63

Cornell University, Ithaca, New York

Research in the field of enzyme chemistry (RF 42050)..... 18,750.00 1,500.00

Duke University, Durham, North Carolina

Researches on physical chemistry of proteins (RF 43051)..... 9,500.00 263

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	APPROPRIATIONS		1943
	PRIOR YEARS	1943	PAYMENTS
NATURAL SCIENCES — Continued			
Experimental Biology — Continued			
Eidgenössische Technische Hochschule, Zurich, Switzerland			
Institute of Plant Physiology			
Researches (RF 43043).....	\$.....	\$1,625.00	\$765.75
Laboratory of Organic Chemistry			
Researches on constitution and synthesis of physiologically active compounds (RF 38042, 42116, 43110).....	23,371.42	10,500.00	9,822.75
Harvard University, Cambridge, Massachusetts			
Researches on the determination of heats of organic reactions (RF 41018).....	3,500.00	.....	2,297.24
Researches on the chemical and electrical behavior of proteins (RF 38038).....	41,200.98	.....	11,943.89
Indiana University, Bloomington			
Researches in cytogenetics (RF 40001).....	10,001.87	.....	3,757.18
Institute of Andean Biology, Lima, Peru			
Studies on animal fertility in Sierra regions (RF 43045).....	.....	9,775.00	6,887.00
Iowa State College, Ames			
Researches in genetics (RF 40075, 43040).....	3,787.39	19,500.00	6,708.56
Johns Hopkins University, Baltimore, Maryland			
Department of Chemistry			
Researches in biochemistry (RF 39017).....	2,470.82	.....	1,500.00
School of Hygiene and Public Health			
Researches in nutrition (RF 41019).....	8,750.00	.....	6,338.14
School of Medicine			
Researches in nutrition (RF 41050).....	15,008.00	.....	12,500.00
Karolinska Institut, Stockholm, Sweden			
Researches in biochemistry (RF 41103, 42115, 43108).....	6,142.55	6,000.00	5,658.78
Researches in biophysics (RF 42085, 43073).....	3,000.70	5,500.00	5,479.52

McGill University, Montreal, Canada			
Researches in cytology and genetics (RF 40072)	\$2,488.75	\$	\$
Marine Biological Laboratory, Woods Hole, Massachusetts			
Construction and furnishing of addition to library (RF 40037)	3,806.25	. . . . .	1,080.18
Massachusetts Institute of Technology, Cambridge			
Development of biological engineering (RF 40039)	118,846.09	. . . . .	16,231.18
Operation of the differential analyzer (RF 42080)	25,000.00	. . . . .	. . . . .
Research on concentrated food formulae (RF 42043)	5,150.00	. . . . .	5,150.00
Ministry of Public Health, Montevideo, Uruguay			
Construction and equipment of a laboratory for the Research Institute of Biological Sciences (RF 43049) . . . . .	. . . . .	30,250.00	. . . . .
National Research Council, Washington, D. C.			
Research in biophysics (RF 37020)	3,028.60	. . . . .	892.15
New York University, New York City			
Researches in cellular physiology (RF 38085)	5,000.00	. . . . .	5,000.00
Northwestern University, Evanston, Illinois			
Research in steroid chemistry (RF 42047)	12,500.00	. . . . .	5,000.00
Princeton University, New Jersey			
Researches in organic chemistry (RF 40058)	24,000.00	. . . . .	Cr. 2,466.72
Research Institute for Physics, Academy of Sciences, Stockholm, Sweden			
Researches with artificially (cyclotron) produced radioactive substances (RF 43107) . . . . .	. . . . .	6,000.00	. . . . .
Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine			
Establishing and maintaining a Mammalian Stock Center (RF 43024) . . . . .	. . . . .	35,000.00	3,875.00
Special researches (RF 40024, 43025)	2,250.00	9,000.00	4,500.00
Rothamsted Experimental Station, Harpenden, Herts, England			
Research in virus chemistry (RF 42084)	1,135.00	. . . . .	864.84
Stanford University, Palo Alto, California			
Research in biochemical genetics (RF 42121, 43114)	7,500.00	7,500.00	7,500.00

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	APPROPRIATIONS		1943
	PRIOR YEARS	1943	PAYMENTS
NATURAL SCIENCES — <i>Continued</i>			
Experimental Biology — <i>Continued</i>			
State University of Iowa, Iowa City			
Researches in general physiology (RF 40022).....	\$9,000.00	\$.....	85,000.00
Swarthmore College, Pennsylvania			
Researches in general physiology (RF 40002).....	1,750.37	.....	804.00
University College, London, England			
Department of Biometry Researches (RF 43044).....	.....	4,050.00	2,022.75
University of Birmingham, England			
Research in genetics and physiology of reproduction (RF 42119, 43113).....	3,445.00	4,050.00	3,445.00
University of California, Berkeley			
Construction and installation of cyclotron (RF 40036, 42001).....	499,184.87	.....	77,223.21
Cyclotron research (RF 39042).....	9,765.05	.....	Cr. 789.58
University of Cambridge, England			
Institute of Biology and Parasitology			
Researches in cellular physiology (RF 42117, 43111).....	3,645.25	4,860.00	3,644.25
X-ray analysis of biologically important molecules (RF 43077).....	.....	3,450.00	861.25
University of Chicago, Illinois			
Researches in molecular spectra (RF 39030, 41101).....	21,265.98	.....	6,375.00
Researches in application of spectroscopic methods to biological problems (RF 40021).....	27,524.41	.....	3,304.18
University of Edinburgh, Scotland			
Research in animal genetics (RF 42120).....	1,519.30	.....	1,519.30
University of Illinois, Urbana			
Researches in biochemistry of amino-acids (RF 38039, 43042).....	7,500.00	9,000.00	12,000.00
University of Leeds, England			
Research on X-ray analyses of biological tissues (RF 38041).....	17,532.81	.....	6,140.05

University of London, England			
Research on vitamins, sterols, and related compounds (RF 38070).....	836,960.34	\$.....	82,405.67
University of Minnesota, Minneapolis			
Application of spectroscopy to investigation of lipid metabolism (RF 42003)....	5,000.00	.....	4,557.95
Researches in lipid metabolism (RF 39031).....	4,506.51	.....	2,792.29
Researches in biophysics (RF 41062).....	10,500.00	.....	.....
Research on mechanism of osmosis (RF 39056, 42051).....	13,461.04	.....	5,300.00
University of Missouri, Columbia			
Researches in genetics (RF 39041).....	3,317.36	.....	2,410.83
University of Oxford, England			
Dyson Perrins Laboratory of Organic Chemistry			
Research on hormone synthesis (RF 42088, 43076).....	1,621.25	3,250.00	2,426.50
X-ray analysis of biologically important large molecules (RF 42086, 43074)...	607.25	1,830.00	1,062.25
Sir William Dunn School of Pathology			
Biochemical investigation of penicillin (RF 42118, 43112).....	4,860.00	4,860.00	4,856.25
University of Pennsylvania, Philadelphia			
Researches in experimental biology (RF 43038).....	.....	30,000.00	4,750.00
Researches on permeability of the red blood cell (RF 40023).....	3,751.39	.....	1,755.54
University of Rochester, New York			
Research on biological and medical problems (RF 41034).....	36,751.23	.....	24,500.00
University of Sheffield, England			
Researches in biochemistry (RF 42087, 43075).....	806.00	1,625.00	1,213.00
University of Stockholm, Sweden			
Researches in chemical physiology and embryology (RF 38024, 42114, 43106)...	11,622.33	6,300.00	7,549.50
University of Texas, Austin			
Researches on growth-promoting substances (RF 40070).....	2,004.40	.....	2,000.00
Researches in genetics of <i>Drosophila</i> (RF 41052).....	11,200.00	.....	8,800.00

	APPROPRIATIONS		1943
	PRIOR YEARS	1943	PAYMENTS
NATURAL SCIENCES — Continued			
Experimental Biology — Continued			
University of Toronto, Canada			
Research in nutrition (RF 42045).....	\$11,174.48	\$.....	\$3,886.93
University of Uppsala, Sweden			
Research on physical-chemical properties of proteins and other substances of biological and medical importance (RF 42113, 43105).....	11,250.00	11,250.00	10,776.00
Researches in biochemistry of fatty acids, lipoids, and proteins (RF 42083, 43072)	582.00	1,125.00	1,085.44
Researches on surface chemistry of the red blood cell and mechanism of gastric acid formation (RF 43109).....	.....	3,000.00	.....
University of Utrecht, Netherlands			
Research in spectroscopic biology (RF 37094).....	22,807.71	.....	.....
Researches in biochemistry of growth substances (RF 39007).....	17,343.60	.....	.....
University of Wisconsin, Madison			
Researches in biochemistry of symbiotic nitrogen fixation (RF 40071).....	11,263.17	.....	3,568.83
Research in nutrition (RF 42046).....	7,850.00	.....	2,699.25
Research in immunogenetics (RF 38073, 43041).....	2,643.77	7,500.00	3,796.15
Research in physical chemistry (RF 42048).....	12,750.00	.....	6,979.13
Washington University, St. Louis, Missouri			
Researches in carbohydrate metabolism (RF 41020).....	7,818.73	.....	5,000.00
Expenses of increased use of its cyclotron (RF 42079).....	10,440.00	.....	.....
Research in general physiology and experimental embryology (RF 38040, 43039)	13,238.64	20,000.00	4,457.05
Fellowships			
Administered by The Rockefeller Foundation (RF 38114, 41114, 42134, 43119)...	95,826.20	50,000.00	34,402.76
Brown University, Providence, Rhode Island			
Fellowships in applied mathematics (RF 42013, 43023).....	15,000.00	25,000.00	23,297.13
National Research Council, Washington, D. C. (RF 39103, 41112).....	257,779.87	.....	30,384.32

General

Agricultural Program in Mexico			
General expenses (RF 42082, 43022)	\$27,849.70	\$20,000.00	\$13,055.34
American Institute of Physics, New York City			
Expenses of its War Policy Committee (RF 42089)	11,000.00	.....	8,458.89
American Mathematical Society, New York City			
Expenses of International Congress of Mathematics (RF 37108)	5,000.00	.....	.....
Brown University, Providence, Rhode Island			
Installing microfilm photographic laboratory and supplementing through filming and resources of the library in mathematics (RF 39072)	6,505.00	.....	6,505.00
Support of research in the History of Ancient Mathematics and Astronomy (RF 43048) . . . . .	.....	41,000.00	41,000.00
China Medical Board, Inc., New York City			
Peiping Union Medical College, China			
Human paleontological research in Asia (RF 32100, 36137, 41102)	48,414.68	.....	13,605.26
Cornell University, Ithaca, New York			
Researches in molecular structure (RF 40077)	1,500.00	.....	1,500.00
Grants in Aid (RF 38110, 40108, 41087, 41118, 42138, 43123)	283,655.62	125,000.00	100,388.50
National Research Council, Washington, D. C.			
Administration budget, conferences, special studies, committees, and international scientific projects (RF 41111)	77,500.00	.....	25,000.00
Royal Society, London, England			
Emergency grant for English scientific journals (RF 42112, 43104)	15,050.00	15,050.00	15,010.83
University of São Paulo, Brazil			
Research in physics (RF 42090)	7,500.00	.....	2,227.68
Former Program			
International Commission for the Polar Year 1932-33, Copenhagen, Denmark			
Equipment and expenses (RF 34132)	12,000.00	.....	.....

TREASURER'S REPORT

	APPROPRIATIONS		1943
	PRIOR YEARS	1943	PAYMENTS
NATURAL SCIENCES — Continued			
Former Program — Continued			
University of Leiden, Netherlands			
Purchase and endowment of a photographic telescope for the Union Observatory, Johannesburg, Union of South Africa (RF 30021, 34100)	\$6,575.61	\$.....	\$.....
Yale University, New Haven, Connecticut			
Laboratories of Primate Biology. Maintenance (RF 39008, 42037)	153,768.44	.....	42,438.33
TOTAL — NATURAL SCIENCES	\$2,427,404.16	\$599,150.00	\$811,622.32
SOCIAL SCIENCES			
Brookings Institution, Inc., Washington, D. C.			
General program (RF 42060)	\$112,500.00	\$.....	\$75,000.00
Canadian Institute of International Affairs, Toronto, Canada			
General budget (RF 42061)	13,323.43	.....	9,017.20
Canadian Social Science Research Council, Montreal, Canada			
Stimulation of social science research in Canada (RF 42076)	15,556.25	.....	4,518.75
Research on the problems of Arctic Canada (RF 43117) .....	.....	10,000.00	2,237.50
Canton of Geneva, Switzerland			
Department of Public Instruction			
Graduate Institute of International Studies (RF 38045)	115,000.00	.....	67,500.00
Columbia University, New York City			
Study of economic aspects of public finance (RF 42031)	16,750.00	.....	5,159.38
Study of the theory of public utility rates (RF 43034) .....	.....	24,000.00	3,350.00
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 38015, 42122, 43115)	73,135.79	60,800.00	55,700.00

Dalhousie University, Halifax, Nova Scotia			
Program of training and research in public administration (RF 41080).....	\$6,620.32	\$.....	\$4,514.07
Escola Livre de Sociologia e Política de São Paulo, Brazil			
Support of research and training in the social sciences (RF 43081).....	.....	15,000.00	1,250.00
Fellowships			
Administered by The Rockefeller Foundation (RF 37131, 38115, 39114, 40136, 41115, 42135, 43120).....	102,228.16	50,000.00	3,199.35
Social Science Research Council, New York City (RF 40119, 41078, 42078).....	152,400.00	.....	33,503.88
Foreign Policy Association, New York City			
General budget (RF 41110).....	55,000.00	.....	55,000.00
Research program (RF 43068).....	.....	100,000.00	.....
Grants in Aid (RF 40101, 41081, 42093, 43059, 43124).....	280,124.65	165,000.00	110,541.01
Special fund for study in Latin American countries (RF 41032).....	15,768.09	.....	208.33
Harvard University, Cambridge, Massachusetts			
Graduate School of Public Administration			
General budget (RF 39109).....	20,000.00	.....	10,000.00
Research in social sciences (RF 35086).....	52,000.00	.....	9,407.04
Harvard University and Radcliffe College, Cambridge, Massachusetts			
Research in field of international relations (LS 993).....	13,336.17	.....	13,317.72
Institute for Advanced Study, Princeton, New Jersey			
Work in Economics (RF 40033, 43014).....	17,500.00	70,000.00	147.44
Work of American Coordinating Committee of International Studies Conference (RF 40018).....	390.74	.....	.....
Institute of International Affairs, Stockholm, Sweden			
General budget and special studies of postwar organization (RF 42012, 42123, 43116).....	16,723.50	11,250.00	15,547.69
Institute of Pacific Relations			
American Council, New York City			
General Expenses (RF 42124, 43066).....	30,000.00	15,000.00	15,000.00

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	APPROPRIATIONS		1943
	PRIOR YEARS	1943	PAYMENTS
SOCIAL SCIENCES — Continued			
<i>Institute of Pacific Relations — Continued</i>			
International Secretariat			
Studies of issues involved in present situation in Far East (RF 38013)	\$1,726.62	\$	\$1,726.62
Pacific Council, Honolulu, Hawaii			
General expenses, research program, and emergency fund (RF 42125, 43067) . .	107,000.00	41,000.00	47,250.00
Iowa State College, Ames			
Study of governmental policies affecting production and distribution of food (RF 42091)	5,000.00	. . . . .	5,000.00
League of Nations, Princeton, New Jersey			
Economic, Financial, and Transit Department			
Research programs (RF 42034, 43027)	45,000.00	50,000.00	45,000.00
London School of Economics and Political Science, University of London, England			
Emergency Fund (RF 39095)	20,095.15	. . . . .	14,347.50
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)	17,500.00	. . . . .	5,000.00
National Bureau of Economic Research, New York City			
Support of general programs and special programs of research in finance and fiscal policy (RF 42033)	220,000.00	. . . . .	110,000.00
National Institute of Economic and Social Research of Great Britain, London			
General budget (RF 37049, 43082)	35,703.25	48,600.00	13,481.35
National Institute of Public Affairs, Washington, D. C.			
Training of personnel for the federal services (RF 40099, 43055)	61,250.00	105,000.00	35,000.00
National Research Council, Washington, D. C.			
Toward the work of the Ethnogeographic Board (RF 43009) . . . . .	. . . . .	20,000.00	20,000.00

New School for Social Research, New York City			
Study of social and economic controls in Germany and Russia, and general research assistance (RF 41044)	\$ 8,750.00	\$	\$ 8,750.00
Studies of postwar reconstruction in Germany (RF 42126)	14,175.00	.....	14,175.00
Pacific Northwest Council of Education, Planning, and Public Administration, Spokane, Washington			
Administration and special studies (RF 40123)	10,750.00	.....	10,750.00
Princeton University, New Jersey			
Budget of Bureau of Urban Research (RF 42062)	11,250.00	.....	7,500.00
Royal Institute of International Affairs, London, England			
Research program (RF 42077, 43057)	8,153.31	64,800.00	24,246.69
Social Science Research Council, New York City			
Administrative budget (RF 39107, 43058)	15,000.00	150,000.00	30,000.00
Committee on Social Security			
Exploratory studies, conferences, and small projects (RF 40088)	6,724.56	.....	4,423.94
Work in social security (RF 39081)	133.87	.....	.....
Conferences and planning (RF 41076, 42059)	103,239.71	.....	25,000.00
Expenses of office in Washington to further effective utilization of social science personnel (RF 42017)	6,250.00	.....	.....
General research projects (RF 31126)	87,349.72	.....	3,697.28
Grants in aid of research (RF 41077)	62,300.00	.....	13,800.00
Public Administration Committee			
General expenses, exploratory studies, conferences, and small projects (RF 42035)	42,500.00	.....	30,000.00
Research in economic history of the United States, the islands, and near-by territory (RF 40116)	247,500.00	.....	24,375.00
Spelman Fund of New York, New York City			
Work in public administration (RF 38049)	700,000.00	.....	250,000.00
Stanford University, Palo Alto, California. Food Research Institute			
Research program (RF 40046, 43056)	10,000.00	45,000.00	17,500.00

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	APPROPRIATIONS		1943
	PRIOR YEARS	1943	PAYMENTS
SOCIAL SCIENCES — <i>Continued</i>			
Syracuse University, New York. School of Citizenship and Public Affairs			
Training course in public administration (RF 39058).....	\$14,000.00	\$.....	\$8,000.00
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).....	77,500.00	.....	50,000.00
School of Social Service. Administration			
Current expenses (RF 39045).....	3,773.52	.....	3,203.16
Study of wartime price controls (RF 42032).....	5,587.50	.....	5,587.50
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).....	20,250.00	.....	8,402.00
University of Oxford, England			
Social Studies Research Committee (RF 42036, 43028).....	6,112.50	22,680.00	17,377.00
University of Pennsylvania, Philadelphia, Wharton School			
Industrial Research Department. General budget (RF 40047).....	36,195.39	.....	13,900.00
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).....	6,488.50	.....	3,054.48
Yale University, New Haven, Connecticut. Institute of International Studies			
Research program (RF 41040).....	26,500.00	.....	18,250.00
Study of certain issues in international relations (RF 42127).....	31,000.00	31,000.00
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TOTAL — SOCIAL SCIENCES.....	\$3,243,380.14	\$1,068,130.00	\$1,413,916.88

HUMANITIES

Studies in Language and Foreign Cultures

American Council of Learned Societies, Washington, D. C.

Cataloging American collections of Chinese and Japanese books (RF 37120)...	\$23,216.52	\$.....	\$12,659.02
Committee on Far Eastern Studies (RF 41029).....	10,865.82	.....	460.28
Developing personnel and resources in teaching modern languages (RF 43008).....	.....	85,000.00	42,375.75
Development of a center of English study at the Escuela Normal Superior, Bogotá (RF 43007).....	.....	10,000.00	3,750.00
Preparing materials for Slavic studies in the United States (RF 43099).....	.....	50,000.00	.....
Special intensive instruction in the Chinese, Japanese, and Russian languages (RF 41082).....	13,678.39	.....	Cr. 134.99
Special summer institute for intensive study of the Spanish and Portuguese languages, and preparation of texts (RF 41005).....	5,000.00	.....	4,780.65
Studies in Chinese history (RF 42132).....	6,000.00	.....	6,000.00
Summer seminars in Far Eastern studies (RF 38088).....	1,500.00	.....	1,425.76
Work in field of Latin American studies (RF 40067, 40097).....	19,869.26	.....	12,569.78

Argentine-North American Cultural Institute, Buenos Aires

Development of program of teaching English, drama, and creative arts (RF 40081).....	3,810.28	3,810.28
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Brown University, Providence, Rhode Island

Increasing collections of material on early American history and Hispanic culture (RF 40069).....	19,840.31	4,675.26
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Colegio de México, Mexico City

Expenses of Center for Historical Research (RF 42095).....	25,672.50	11,002.50
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College of Chinese Studies, Peiping, China

General expenses (RF 41007).....	7,216.10
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Columbia University, New York City

Visiting lecturer on Japanese cultural history (RF 39093).....	6,000.00	1,000.00
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Cornell University, Ithaca, New York

Far Eastern studies (RF 38087).....	500.00	500.00
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TREASURER'S REPORT

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HUMANITIES — <i>Continued</i>	APPROPRIATIONS		1943
	PRIOR YEARS	1943	PAYMENTS
<i>Studies in Languages and Foreign Cultures — Continued</i>			
<i>Cornell University, Ithaca, New York — Continued</i>			
Russian studies (RF 40052)	\$ 5,250.00	\$	\$ 2,500.00
Slavic studies (RF 43097) .....	.....	25,000.00	.....
Intensive summer courses in Russian civilization (RF 43035) .....	.....	10,000.00	10,000.00
Summer programs in history and culture of the Far East, the British Commonwealth, and Latin America (RF 42010)	7,875.00	.....	4,875.00
<i>Duke University, Durham, North Carolina</i>			
Purchase of books and other documentation in field of Latin American studies (RF 40049)	15,000.00	.....	7,000.00
<i>Harvard University, Cambridge, Massachusetts</i>			
Development of Slavic studies (RF 43098) .....	.....	25,000.00	.....
<i>Institute of Pacific Relations, American Council, New York City</i>			
English translations of source materials on Chinese history (RF 42070)	46,325.00	.....	17,959.79
<i>Library of Congress, Washington, D. C.</i>			
<i>Hispanic Foundation</i>			
Development of the Archive of Hispanic Culture (RF 43061) .....	.....	17,650.00	8,825.00
Expenses of organizing and developing collections of Slavic materials (RF 43062) .....	.....	12,000.00	6,000.00
<i>National Institute of Anthropology and History, Mexico City</i>			
Development of its program (RF 40130)	7,358.91	.....	5,153.55
Development of teaching and research program and reorganization of library resources (RF 43083) .....	.....	70,000.00	16,775.00
<i>Oberlin College, Ohio</i>			
Development of Far Eastern studies (RF 43036) .....	.....	5,000.00	.....
<i>Orthological Institute of China, Yunnan, China</i>			
General budget (RF 40028)	1,302.84	.....	1,275.92

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	\$.....
Princeton University, New Jersey			
Development of Far Eastern studies (RF 38029).....	1,799.27	.....	736.75
Royal Ontario Museum of Archeology, Toronto, Canada			
Teaching and research in Far Eastern subjects (RF 37121).....	78.11	.....	.....
Stanford University, Palo Alto, California			
Development of Far Eastern studies (RF 39053).....	4,601.42	.....	1,300.93
Tulane University, New Orleans, Louisiana			
Purchase of books and other documentation in field of Latin American studies (RF 40051).....	7,200.00	.....	3,600.00
United Engineering Trustees, Inc., New York City			
Preparation of Dictionary of Japanese Technical Terms (RF 41108).....	7,500.00	.....	7,500.00
University of California, Berkeley			
Intensive teaching of Far Eastern languages (RF 42015).....	24,000.00	.....	12,000.00
University of Chicago, Illinois			
Books and teaching materials in Far Eastern-languages (RF 38031).....	7,814.44	.....	7,814.44
Development of Chinese studies (RF 41098).....	10,056.00	.....	4,508.96
University of Michigan, Ann Arbor			
Program of teaching English to advanced students of Spanish-American background (RF 41085).....	4,500.00	.....	4,500.00
University of New Mexico, Albuquerque			
Materials for Latin American studies (RF 42073).....	20,000.00	.....	5,000.00
University of North Carolina, Chapel Hill			
Purchase of books and other documentation in field of Latin American studies (RF 40050).....	10,000.00	.....	6,000.00
Yale University, New Haven, Connecticut			
Work in Far Eastern studies (RF 42071).....	8,070.00	5,380.00

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	APPROPRIATIONS		1943
	PRIOR YEARS	1943	PAYMENTS
HUMANITIES — Continued			
North American Studies			
American Council of Learned Societies, Washington, D. C.			
Preparation of a critical history of the Federal Arts Projects (RF 42029).....	\$21,250.00	\$.....	\$6,250.00
Carolina Art Association, Charleston, South Carolina			
Work of Charleston Civic Services Committee (RF 42056).....	18,500.00	.....	8,250.00
Colonial Williamsburg, Inc., Williamsburg, Virginia			
Compiling an index to the <i>Virginia Gazette</i> for the years 1736 to 1780 (RF 42028).....	16,950.00	.....	5,474.56
Cornell University, Ithaca, New York			
Studies of the York State region (RF 42074).....	15,750.00	.....	4,500.00
Henry E. Huntington Library and Art Gallery, San Marino, California			
Regional studies of the Southwest (RF 43096).....	.....	50,000.00	.....
Library of Congress, Washington, D. C.			
American studies (RF 43095).....	.....	100,000.00	.....
Special grant in aid fund for planning and coordination of regional studies bearing on the cultural tradition of North America (RF 41106).....	10,111.76	.....	32.73
Texas State Historical Association, Austin			
Southwestern history study (RF 42130).....	15,000.00	.....	2,500.00
University of Chicago, Illinois			
Completion of materials for Dictionary of American English (RF 41097).....	10,000.00	.....	10,000.00
Development of a central archive of source materials relating to the early history of the Upper Mississippi Valley and Canada (RF 43069).....	.....	14,500.00	1,500.00
University of Kentucky, Lexington			
Studies in Southern history (RF 43031).....	.....	8,500.00	3,000.00
University of Minnesota, Minneapolis			
Studies in Northwestern history (RF 43030).....	.....	50,000.00	15,000.00

University of Missouri, Columbia			
Program of American history research and teaching (RF 42129).....	\$15,000.00	\$.....	\$5,000.00
University of Saskatchewan, Saskatoon, Canada			
Studies in Western history (RF 43037).....	.....	15,000.00	2,519.14
Libraries			
American Library Association, Chicago, Illinois			
Canadian Library Council			
Establishing microphotographic and general advisory services for Canadian libraries (RF 42025).....	17,500.00	.....	.....
Book catalog of Library of Congress card indexes for foreign distribution (RF 42069).....	37,500.00	.....	12,500.00
Development of a library school in São Paulo, Brazil (RF 43006).....	.....	27,500.00	5,000.00
Expenses of developing union catalog of library holdings in Mexico (RF 43005).....	.....	13,000.00	13,000.00
For work of its Board on International Relations (RF 42094).....	25,000.00	.....	10,000.00
American Library in Paris, Inc., France			
General budget (RF 40042).....	20,000.00	.....	.....
British Museum, London, England			
To enable the Museum to offer to American libraries, at a discount, subscriptions to the new edition of its Catalogue of Printed Books (RF 30076).....	80,831.54	.....	840.06
National Central Library, London			
General operations and maintenance of Bureau of American Bibliography (RF 37059, 42053, 43086).....	2,555.64	8,910.00	5,159.97
Princeton University, New Jersey			
Index of Christian Art (RF 38100).....	23,000.00	.....	6,000.00
Society of the Friends of the Bibliothèque Nationale, Paris, France			
Printing of the General Catalogue (RF 29089).....	1,000.00	.....	.....
University of Buenos Aires, Argentina			
Expenses of establishing a bibliographical center and an institute of library practice (RF 42128).....	47,250.00	15,815.05

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	APPROPRIATIONS		1943
	PRIOR YEARS	1943	PAYMENTS
HUMANITIES — Continued			
Libraries — Continued			
University of Chile, Santiago			
Development of its central library (RF 39094).....	8810.83	\$.....	\$.....
University of Oxford, England			
Development of the Bodleian and other University libraries (RF 31121).....	502,174.74	.....	19,739.93
Drama, Film, and Radio			
American Film Center, Inc., New York City			
General budget (RF 42131).....	50,000.00	.....	25,000.00
American Foundation for the Blind, New York City			
Development of dramatic training work (RF 40109).....	3,777.07	.....	3,777.07
Columbia University, New York City			
Office of Radio Research (RF 41045).....	25,000.00	.....	12,500.00
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 cataloging, analyzing, and making available for use the motion pictures deposited with the Library of Congress under the National Copyright Act (RF 42011, 43010).....	5,000.00	40,000.00	23,750.00
Museum of Modern Art, New York City			
Film Library (RF 40068).....	5,000.00	.....	5,000.00
National Film Society of Canada, Ottawa			
General budget (RF 39054, 41030, 43063).....	9,663.24	6,000.00	5,742.14
National Theatre Conference, Cleveland, Ohio			
General expenses and revolving fund to cover royalty fees on plays for noncom- mercial production (RF 38054).....	1,021.29	.....	1,000.00
Support of activities and projects (RF 40131).....	28,447.04	.....	9,130.46

THE ROCKEFELLER FOUNDATION

Rocky Mountain Radio Council, Denver, Colorado				
General budget (RF 40043, 42072)	\$14,000 00	\$	\$6,500 00	
Smith College, Northampton, Massachusetts				
Development of program in drama (RF 42055)	10,500 00	. . . . .	7,000 00	
Stanford University, Palo Alto, California				
Work in drama (RF 40030)	2,500 00	. . . . .	2,500 00	
Stevens Institute of Technology, Hoboken, New Jersey				
Research in control of sound and light for dramatic purposes (RF 39075)	1,350 35	. . . . .	Cr. 208 37	
University of North Carolina, Chapel Hill				
Work in drama (RF 42075)	9,750 00	. . . . .	7,245 26	
Other Subjects				
American Council of Learned Societies, Washington, D. C.				
Expenses of its Committee on the Protection of Cultural Treasures in War Areas (RF 43060, 43085) . . . . .	. . . . .	24,000 00	8,250.00	
General Support (RF 41029, 42024, 43100)	140,268 27	80,000 00	53,747 54	
Microfilming projects (RF 41005, 41083)	118,638 37	. . . . .	25,618 92	
American Philosophical Association, Middletown, Connecticut				
Study of the function of philosophy in liberal education (RF 43029) . . . . .	. . . . .	10,000.00	8,500 00	
American School of Classical Studies, Athens, Greece				
Museum to house objects excavated in the Agora (RF 37089)	138,354 94	. . . . .	. . . . .
Delegates of the Press, University of Oxford, England				
Aid to refugee scholars (RF 42054)	2,500 00	. . . . .	2,500 00	
Harvard University, Cambridge, Massachusetts				
Research in field of criticism and in uses of languages (RF 39018)	15,132.66	. . . . .	4,240 62	
Library of Congress, Washington, D. C.				
Studies of communication trends in wartime (RF 42057)	16,500 00	. . . . .	16,500 00	
Museum of Modern Art, New York City				
For work of its Educational Project (RF 42096)	12,000 00	6,000 00	

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	APPROPRIATIONS		1943
	PRIOR YEARS	1943	PAYMENTS
<i>HUMANITIES — Continued</i>			
<i>Other Subjects — Continued</i>			
National Buildings Record, London, England			
Documentation of architectural records (RF 41071, 43033)	\$5,852.55	\$16,200.00	\$8,085.50
New School for Social Research, New York City			
Study of totalitarian communication in wartime (RF 42030)	4,935.00	.....	4,935.00
Princeton University, New Jersey			
School of Public and International Affairs			
Studies of public opinion (RF 41109)	25,000.00	.....	25,000.00
Support of program in the humanities (RF 43011) . . . . .	.....	12,500.00	.....
Special microfilming projects in England in connection with the program of the American Council of Learned Societies (RF 41084, 43064)	15,964.28	12,150.00	6,238.02
Stanford University, Palo Alto, California			
School of Humanities			
Development of program (RF 42058)	37,500.00	.....	13,750.00
Vanderbilt University, Nashville, Tennessee			
Support of program in the humanities (RF 43071) . . . . .	.....	7,500.00	1,875.00
Wesleyan University, Middletown, Connecticut			
Support of program in the humanities (RF 43070) . . . . .	.....	5,000.00	.....
<i>Fellowships and Grants in Aid</i>			
Fellowships administered by The Rockefeller Foundation (RF 40090, 41116, 42136, 43121)	82,042.61	50,000.00	36,760.13
Grants in Aid (RF 40100, 41095, 42141, 43032, 43125)	289,960.65	175,000.00	144,866.88
TOTAL — HUMANITIES	\$2,285,308.84	\$1,055,410.00	\$871,465.24

PROGRAM IN CHINA

Associated Boards for Christian Colleges in China, New York City

Emergency grants to private foreign universities and colleges in China (RF 43020)	\$.....	\$50,000.00	\$50,000.00
Chinese Mass Education Movement, Peipei, Szechwan			
General budget (RF 42041)	4,000.00	.....	4,000.00
Emergency Fund (RF 39016)	1,793.70	.....	.....
Fellowships — Foreign and Local (RF 37047, 39050, 40044, 41037, 42041, 43021) ..	92,991.04	14,000.00	27,697.50
Grants in Aid (RF 39050, 40044, 41037, 42041, 43021)	40,204.13	44,000.00	20,665.90
Nankai University, Institute of Economics, Shapingpa, Chungking			
General budget (RF 42041)	2,000.00	.....	2,000.00
National Council for Rural Reconstruction, Peipei, Szechwan			
General budget (RF 41037, 42041)	711.11	.....	Cr. 1,737.96
University of Nanking, Chengtu, Szechwan			
Department of Agricultural Economics (RF 40044, 42041)	5,764.74	.....	2,000.00
Yenching University, Chengtu, College of Public Affairs			
General budget (RF 39050, 40044, 41037, 42041)	15,217.21	.....	4,000.12
TOTAL — PROGRAM IN CHINA	<u>\$162,681.93</u>	<u>\$108,000.00</u>	<u>\$108,625.56</u>

TREASURER'S REPORT

MISCELLANEOUS

American Library Association, Chicago, Illinois			
Committee on Aid to Libraries in War Areas			
Selection and purchase or microfilming of American scholarly journals for insti- tutions, chiefly in Europe and Asia (RF 42107, 43094)	\$70,000.00	\$70,000.00	\$70,000.00
History of The Rockefeller Foundation (RF 37037)	2,285.53	.....	1,424.03
New School for Social Research, New York City			
Administration of grants to European refugee scholars (RF 40083, 42098, 43065)	13,677.52	11,800.00	12,633.29
Grant in Aid Fund for refugee scholars (RF 41021)	984.49

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	APPROPRIATIONS		1943
	PRIOR YEARS	1943	PAYMENTS
<i>MISCELLANEOUS — Continued</i>			
Royal Society, London, England			
Microfilm apparatus, to facilitate the circulation of current foreign periodicals (RF 41096)	\$1,989.57	\$.....	\$101.67
Special Research Aid for European Scholars (RF 39092)	2,000.00	.....	Cr. 1,342.40
TOTAL — MISCELLANEOUS	\$90,937.11	\$81,800.00	\$82,816.59
ADMINISTRATION AND SCIENTIFIC SERVICES			
Scientific Services			
1941	\$9,086.52	\$.....	\$4,162.18
1942	34,393.84	.....	17,004.41
1943	551,723.00	.....	512,636.42
1944 .....	.....	552,091.00	.....
General Administration			
1941	9,955.98	.....	270.47
1942	26,426.75	.....	18,676.87
1943	242,858.00	.....	220,139.55
1944 .....	.....	241,368.00	.....
TOTAL — ADMINISTRATION	\$874,444.09	\$793,459.00	\$772,889.90
	\$16,758,549.13		
LESS			
Unused balances of Appropriations allowed to lapse			
The Rockefeller Foundation	\$775,114.18		
International Health Division	202,373.13	977,487.31	
GRAND TOTALS	\$15,781,061.82	\$7,684,989.00	\$7,096,177.25

REFUNDS ON PRIOR YEAR CLOSED APPROPRIATIONS

American Council of Learned Societies, Washington, D. C.....	(RF 39046)	\$1,505.70
American Library Association, Chicago, Illinois.....	(RF 39048)	9.68
	(RF 39047)	59.63
	(RF 42027)	1,846.46
	(RF 41105)	5,789.30
American Psychiatric Association, New York City.....	(RF 40012)	2,143.21
China Szechuen Provincial Health Administration.....	(IH 41054)	372.46
Columbia University, New York City.....	(RF 38030)	600.60
Cyprus Malaria — 1940.....	(IH 38093)	4.60
Encyclopaedia of the Social Sciences, New York City.....	(RF 32114)	858.85
Grants in Aid — 1939 — Medical Sciences.....	(RF 38109)	182.26
1936 — Natural Sciences.....	(RF 36079)	93.53
1938 — Social Sciences.....	(RF 38096)	2,271.52
1939 — Humanities.....	(RF 38112)	400.00
Harvard University, Cambridge, Massachusetts.....	(RF 40064)	106.01
	(RF 39029)	4,230.34
	(RF 40006)	5.84
India Malaria Investigations.....	(IH 41013)	234.84
International Committee of Historical Sciences, Washington, D. C.....	(RF 37141)	2,600.85
Library of Congress, Washington, D. C., Hispanic Foundation.....	(RF 41065)	146.68
McGill University, Montreal, Canada.....	(RF 36078)	1,321.32
Medical Administration Service, Inc., New York City.....	(RF 42023)	914.80
Minnesota Influenza Studies.....	(IH 40041)	4.11
National Research Council, Washington, D. C.....	(RF 32109)	1.70
	(RF 33121)	232.26
	(RF 34172)	395.05
Princeton University, New Jersey.....	(RF 40054)	10.00

REFUNDS ON PRIOR YEAR CLOSED APPROPRIATIONS — *Continued*

Rumania — Scarlet Fever	(IH 38030)	106.50	
Stanford University, Palo Alto, California	(RF 41015)	611.12	
Trinidad & Tobago — Malaria and Anopheline Survey	(IH 41082)	133.78	
University of Cambridge — Molteno Institute of Biology and Parasitology, England	(IH 41034)	94.60	
University of Chicago, Illinois	(RF 38091)	5,264.06	
University of Wisconsin, Madison	(RF 39079)	847.19	833,398.85
			<hr/> <hr/>

INTERNATIONAL HEALTH DIVISION

DESIGNATIONS DURING 1943, UNPAID BALANCES AS AT DECEMBER 31, 1942
OF PRIOR YEAR DESIGNATIONS, AND PAYMENTS THEREON DURING 1943

	PRIOR DESIGNATIONS.	1943 DESIGNATIONS	1943 PAYMENTS
CONTROL AND INVESTIGATION OF SPECIFIC DISEASES AND DEFICIENCIES			
Diphtheria			
United States			
Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health			
1942-46 (IH 42005, 43010)	\$4,939.27	\$4,000.00	\$1,836.40
Infective Hepatitis			
Near East			
Hebrew University, Jerusalem, Palestine			
1943-44 (IH 42016)	20,300.00	.....	5,210.56
United States			
California			
1943-44 (IH 42016)	9,700.00	.....	.....

Intestinal Parasites, including Hookworm

United States

Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health

1941-43 (IH 41028, 42023) \$560.35 \$4,025.00 \$3,033.07

Malaria

Caribbean Area

Cuba

1940-42 (IH 39071, 40077) 5,798.90 4,426.06

Haiti

1941-43 (IH 41022, 42018) 8,388.27 7,714.80

El Salvador

1940-42 (IH 40010, 41037) 642.32 205.96

Trinidad and Tobago

1942-44 (IH 42012, 43004) 8,230.00 13,740.00 4,931.57

Europe

Portugal

1942 (IH 41039) 4,732.10 2,573.82

Far East

China

1940-44 (IH 39077, 41062, 43058) 28,037.25 20,000.00 15,243.01

India

1942 (IH 41040) 3,178.59 2,187.56

Mexico

Drainage Equipment

1942 (IH 40003) 131.78

Studies

1943-44 (IH 42058) 20,000.00 285.90

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	PRIOR DESIGNATIONS	1943 DESIGNATIONS	1943 PAYMENTS
CONTROL AND INVESTIGATION OF SPECIFIC DISEASES AND DEFICIENCIES — <i>Continued</i>			
Malaria — <i>Continued</i>			
South America			
Brazil			
<i>Anopheles gambiae</i> Control 1941-43 (IH 40033, 41083)	\$12,030.64	\$.....	Cr. \$2,533.21
<i>Anopheles gambiae</i> Survey 1943-44 (IH 43021) .....	.....	2,500.00	.....
British Guiana 1942-43 (IH 41036, 42026)	3,609.67	4,500.00	1,692.07
Peru 1942-45 (IH 41038, 42027)	2,329.67	40,500.00	10,113.02
United States			
Chemotherapy Studies 1941-44 (IH 40065)	16,552.11	.....	7,571.47
Florida 1941-44 (IH 41004, 41061, 42024)	28,992.97	10,000.00	16,941.17
University of Chicago 1942-43 (IH 40073, 42025)	2,000.00	2,000.00	3,425.19
Mental Hygiene			
United States			
Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health 1942-44 (IH 41041, 42028)	8,235.22	10,500.00	9,104.93
Tennessee 1942 (IH 41063) .....	.01	.....	.....

Nutrition			
Canada			
University of Toronto			
1941-47 (IH 41016, 43019).....	\$6,977.10	\$13,500.00	\$3,263.97
Mexico			
1942-45 (IH 41078, 43020).....	16,919.33	26,400.00	6,457.15
United States			
North Carolina			
1941-45 (IH 40038, 41042, 43012-13).....	17,464.00	43,480.00	13,242.49
Tennessee (in cooperation with Vanderbilt University, Nashville)			
1942-46 (IH 40075, 41075, 42009, 43002).....	43,707.74	32,000.00	10,123.95
Vanderbilt University, Nashville, Tennessee			
1941-42 (IH 40074).....	3,566.46	.....	.....
Rabies			
United States			
Alabama			
1942-44 (IH 42006, 42030, 43008).....	19,186.31	42,000.00	15,985.50
Respiratory Diseases			
Influenza Studies			
United States			
California			
1942-44 (IH 41044, 42031).....	26,100.00	26,100.00	25,887.92
Minnesota			
1942-44 (IH 41045, 42032).....	10,280.01	12,820.00	12,920.48
Ohio State University, Columbus			
1942-44 (IH 41071).....	12,641.12	.....	2,887.37
University of Michigan, Ann Arbor			
1941-46 (IH 40069-70, 43016).....	10,500.00	14,000.00	5,339.48

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	PRIOR DESIGNATIONS	1943 DESIGNATIONS	1943 PAYMENTS
CONTROL AND INVESTIGATION OF SPECIFIC DISEASES AND DEFICIENCIES — <i>Continued</i>			
Respiratory Diseases — <i>Continued</i>			
Respiratory Virus Research			
South America			
Argentina			
1940-44 (IH 39024, 40017).....	\$11,275.22	\$.....	\$5,582.10
Study of Respiratory Infections			
United States			
Columbia University, New York City			
1941-43 (IH 41003).....	6,265.46	.....	.....
University of California, Berkeley			
1942 (IH 41030).....	4,100.00	.....	3,793.70
Syphilis			
United States			
California			
1939-42 (IH 39008).....	4,894.64	.....	742.86
Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health			
1941-44 (IH 40067-68).....	34,790.24	.....	5,085.32
North Carolina			
1942-45 (IH 42008, 42033, 43015).....	5,575.58	14,000.00	4,931.94
Tuberculosis			
Caribbean Area			
Jamaica			
1941-42 (IH 41081).....	6,589.18	.....	Cr. 343.78
United States			
Tennessee			
1941-44 (IH 40071-72, 42034).....	8,187.14	7,500.00	10,056.00

Typhus Fever			
Far East			
China			
1942-44 (IH 41087, 43022)	\$7,000 00	\$12,000 00	\$7,000 00
Yellow Fever			
Caribbean			
Central America and West Indies			
1943-44 (IH 42060)		9,000 00	
Panama			
1941-43 (IH 41017, 42011)	6,302 81		3,217 91
Africa			
Central and East Africa			
1942-43 (IH 41051, 42039)	16,601 06	36,400 00	19,022 83
West Africa			
1942-44 (IH 42021)	28,700 00		
South America			
Bolivia			
1941 (IH 40047)	336 85		Cr. 490 21
British Guiana			
1942-43 (IH 41047, 42035)	1,818 56	2,700 00	2,697 67
Brazil			
Investigations			
1942-43 (IH 41049, 42037)	20,107 85	75,000 00	73,305 51
Studies of jungle yellow fever			
1943-44 (IH 41031, 43054)	5,604 48	4,000 00	3,770 54
Colombia			
1942-43 (IH 41048, 42003, 42036)	16,144 07	60,000 00	56,705 89
Peru			
1941-47 (IH 40048, 41008, 41050, 42038)	23,134 45	70,200 00	26,793 37

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	PRIOR DESIGNATIONS	1943 DESIGNATIONS	1943 PAYMENTS
CONTROL AND INVESTIGATION OF SPECIFIC DISEASES AND DEFICIENCIES — <i>Continued</i>			
Other Studies			
Collection and testing of wild animals for use in the study of diseases of public health interest			
1942-44 (IH 42050).....	\$39,144.60	\$.....	\$2,022.68
Far East			
India — Sanitation Research			
1942-43 (IH 41052, 42040).....	2,601.51	4,800.00	6,937.60
Statistical analyses of records of certain specific diseases			
1940-45 (IH 39047).....	478.00	.....	44.00
LABORATORIES OF THE INTERNATIONAL HEALTH DIVISION, NEW YORK CITY			
1942-43 (IH 41053, 42041).....	29,257.72	175,000.00	112,346.16
STATE AND LOCAL HEALTH SERVICES			
Public Health Administration			
Mexico			
1941-44 (IH 41064).....	6,441.26	.....	2,389.99
State Health Services			
Canada			
Alberta and British Columbia			
Sylvatic Plague and Rocky Mountain Spotted Fever Studies			
1942 (IH 41076).....	142.87	.....	.....
Manitoba			
Division of Industrial Hygiene			
1942-45 (IH 42001, 42042, 43017).....	3,910.00	7,500.00	3,159.62
Division of Local Health Services			
1942-46 (IH 42002).....	8,280.00	.....	2,428.72
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)	..	8,668.75	3,813 73
Prince Edward Island			
Provincial Laboratory			
1944-48 (IH 38035)	.....	15,300 00	.....
Quebec			
Division of Health Education			
1943-45 (IH 42056)	..	..	10,000.00
Far East			
Ceylon			
Control of Soil-Borne Diseases			
1940-42 (IH 39076)	.....	597.93	Cr. 730.65
China			
Szechuan Provincial Health Administration			
1943 (IH 42044)	.....	.....	18,000.00
South America			
Bolivia			
Division of Endemic Diseases			
1942-47 (IH 41085, 42043)	.....	19,200.00	132,000.00
Ecuador			
Division of Epidemiology and Control of Endemic Diseases			
1943-44 (IH 42064)	.....	.....	18,000 00
National Institute of Hygiene, Guayaquil			
1941-46 (IH 41025, 43006)	..	33,129.50	6,000 00
			16,155 32

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	PRIOR DESIGNATIONS	1943 DESIGNATIONS	1943 PAYMENTS
STATE AND LOCAL HEALTH SERVICES — Continued			
State Health Services — Continued			
United States			
California			
Virus Diagnostic Laboratory 1943 (IH 42052)	\$	\$5,400 00	\$
Mississippi			
Coordinated School-Health-Nutrition Service 1942-46 (IH 42007, 43011)	24,000 00	25,000 00	5,479.56
North Carolina			
Public Health Education and School Health Service 1944-47 (IH 43014) . . . . .	. . . . .	25,350 00	. . . . .
Local Health Departments			
Canada			
British Columbia			
1936-47 (IH 36021, 38024)	17,527 59	. . . . .	569 09
Nova Scotia			
1942-46 (IH 41077, 42055)	32,200 00	22,500 00	. . . . .
Quebec			
1938-43 (IH 38025)	3,369.22	. . . . .	1,568 44
Caribbean			
Cuba			
1942 (IH 41055)	1,819 86	. . . . .	1,747 50
El Salvador			
1943-44 (IH 42062) . . . . .	. . . . .	8,000 00	. . . . .
Europe			
Finland			
1940-45 (IH 40012, 40079)	18,748 85	. . . . .	. . . . .

Portugal			
1941-42 (IH 41086)	88,608 23	\$	\$3,544 71
Turkey			
1937-42 (IH 37093)	56,700 00	.. . . .	.. . . .
Far East			
India			
Bengal			
1939-45 (IH 38011, 43023)	11,962 66	3,200 00	1,717 06
Bombay			
1939-44 (IH 38097)	11,531 87		1,563 64
Mexico			
1936-44 (IH 40026, 41065, 41079, 42057, 42059)	19,076 47	9,130 00	8,069 78
South America			
Chile			
Quinta Normal Health Center, Santiago			
1942-47 (IH 42013-14)	63,600 00	.. . . .	10,664 75
Uruguay			
Florida Health Unit			
1943-44 (IH 43005)		2,200 00	.. . . .
PUBLIC HEALTH EDUCATION			
Schools and Institutes of Hygiene and Public Health			
Canada			
University of Toronto			
1940-48 (IH 39004, 42053, 43009, 43018)	19,744 61	42,670 00	8,833 09
Europe			
Spain			
National Institute of Hygiene, Madrid			
1941-44 (IH 40024)	5,498 38	Cr, 104 73
Turkey			
School of Hygiene, Ankara			
1940 (IH 39059)	1,680 61

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	PRIOR DESIGNATIONS	1943 DESIGNATIONS	1943 PAYMENTS
PUBLIC HEALTH EDUCATION — <i>Continued</i>			
Schools and Institutes of Hygiene and Public Health — <i>Continued</i>			
Far East			
China			
National Institute of Health 1940-43 (IH 40021, 40060, 41057, 42046)	\$17,918.78	\$15,000.00	\$27,252.71
Philippine Islands			
Institute of Hygiene, Manila 1941-46 (IH 40083, 41026)	10,000.00	.....	Cr. 2,500.00
South America			
Brazil			
São Paulo Health Center 1942-43 (IH 41056, 42045)	4,223.71	12,000.00	6,182.89
Chile			
School of Public Health 1943 (IH 42063) .....	.....	5,000.00	.....
United States			
Harvard University, School of Public Health, Boston, Massachusetts			
Department of Sanitary Engineering 1940-47 (IH 40004, 43009)	6,375.00	15,000.00	4,250.00
Department of Nutrition 1942-46 (IH 41070)	90,000.00	.....	20,000.00
Study of public health administrative practices 1940-43 (IH 40007)	18,000.00	.....	5,819.43
Johns Hopkins University, Baltimore, Maryland, School of Hygiene and Public Health			
Developmental Aid 1940-44 (IH 39066, 40008)	49,499.93	.....	21,749.92

Field Training and Study Area			
1942-44 (IH 41066).....	\$25,000.00	\$.....	\$12,149.16
Schools of Nursing			
Canada			
University of Toronto			
1943-45 (IH 42054).....	.....	6,250.00	1,128.91
Caribbean			
Panama			
Santo Tomás Hospital			
1937-42 (IH 37015).....	5,847.93	.....	863.80
Europe			
Portugal			
Escola Tecnica de Enfermeiras, Lisbon			
1942-43 (IH 41058, 42047).....	10,376.37	11,250.00	12,218.89
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).....	21,060.62	.....	5,721.27
Brazil			
University of São Paulo			
1941-44 (IH 41032, 41084).....	25,289.53	.....	4,153.25
Colombia			
Bogotá School of Nursing			
1943-47 (IH 42061).....	50,000.00
Ecuador			
School of Nursing, Quito			
1943-47 (IH 42065).....	23,785.00	4,250.00

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	PRIOR DESIGNATIONS	1943 DESIGNATIONS	1943 PAYMENTS
PUBLIC HEALTH EDUCATION — <i>Continued</i>			
Schools of Nursing — <i>Continued</i>			
South America — <i>Continued</i>			
Venezuela			
National School of Nursing, Caracas 1942-46 (IH 41023).....	\$14,027 80	\$.....	\$1,453 36
United States			
Skidmore College, Saratoga Springs, New York 1939-43 (IH 38019).....	3,000 00	. . . . .	3,000 00
Fellowships, Travel of Government Health Officials and Teachers of Public Health, and Training of Health Workers			
1938-43 (IH 37076, 38077, 39060, 39073, 41021, 41059, 42048).....	163,222 05	180,000 00	188,735.47
Other Training			
Caribbean Area			
British West Indies Training Station, Jamaica 1942-44 (IH 42017).....	12,750.00	. . . . .	3,310 89
Mexico			
Training Station 1942-44 (IH 41067)	4,598 64	. . . . .	1,765.45
United States			
North Carolina Public Health Education and School Health Service 1939-44 (IH 38034)	7,396 04	. . . . .	2,693.31
FIELD SERVICE			
Field Staff			
1942-43 (IH 41060, 42049)			
Salaries	8,717 69	450,000 00	435,103 70
Commutation	5,683 93	50,000 00	43,754 13

Travel	\$17,971.94	\$155,000 00	\$110,842.70
Medical examinations	606 56	1,000.00	395.28
Field Equipment and Supplies	2,161 40	4,000 00	3,074.14
Pamphlets and Charts	6,170 13	7,000 00	13,148 24
Express, Freight, and Exchange	544 56	1,000 00	408 13
Insurance and Retirement	29,236 01	57,000 00	55,193 11
Bonding	791 63	1,000 00	534 91
Field Offices			
Canada			
Nova Scotia			
1943 (IH 42051)		400 00	205 10
Caribbean Area			
Central Office			
1942-43 (IH 41069, 42051)	1,340 08	8,600 00	8,899 88
Cuba			
1942 (IH 41069)	251 03	...	250.02
Far East			
Offices of Staff Members			
1942-43 (IH 41069, 42051)	3,237 11	6,415.00	5,782.91
Mexico			
Office of Staff Member			
1943 (IH 42051)		900.00	362 13
South America			
Argentina			
1940-43 (IH 41033, 42051)	1,480 72	7,000.00	6,172.18
Bolivia			
1942-43 (IH 42004, 42051)	1,674.10	5,000.00	2,192.21
Brazil			
1942-43 (IH 41069, 42051)	5,170 21	6,000 00	4,894 94

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	PRIOR DESIGNATIONS	1943 DESIGNATIONS	1943 PAYMENTS
FIELD SERVICES — <i>Continued</i>			
Field Offices — <i>Continued</i>			
South America — <i>Continued</i>			
Chile			
1942-43 (IH 42004, 42051)	\$650.76	\$3,000.00	\$3,220.71
Peru			
1942-43 (IH 41069, 42051)	2,535.18	6,500.00	7,079.86
Miscellaneous			
1942-43 (IH 41069, 42051)	1,973.95	500.00	187.91
Director's Fund for Budget Revisions (IH 41027)	1,706.93	.....	.....
Director's Fund for Miscellaneous Expenses (IH 41014, 43001)	466.58	1,000.00	514.78
Exchange Fund (IH 33077)	21,521.44	.....	.....
	<u>\$1,680,402.24</u>	<u>\$2,198,465.00*</u>	<u>\$1,680,478.21</u>

* The Foundation appropriated \$2,200,000 for the work of the International Health Division during 1943, the undesignated balance of \$1,535.00 being allowed to lapse as of December 31, 1943.

TRANSACTIONS RELATING TO INVESTED FUNDS

SECURITIES PURCHASED

\$1,000,000	(Canadian) Dominion of Canada 3rd Victory Loan, dated Nov. 1, 1942, 1 $\frac{3}{4}$ s/46 @ 90.05	\$900,501.18
6,000,000	USA Treasury Bonds, dated April 15, 1943, 2s/50-52 @ par	6,000,000.00
5,000,000	USA Treasury Bonds, dated Sept. 15, 1943, 2s/51-53 @ par	5,000,000.00
135,000	USA Savings Bonds, Defense Ser. "F," dated Jan. 1, 1943, due Jan. 1, 1955 (12 year appreciation bonds) @ 74	99,900.00
6,350,000	USA Treasury Notes Ser. A-1947, dated July 12, 1943, 1 $\frac{1}{2}$ s/47 @ 100.576	6,386,562.50
2,000,000	USA Treasury Certificates of Indebtedness Ser. D-1943, dated Nov. 2, 1942, 7/8s/11/1/43 @ 100.102	2,002,047.46
3,000,000	USA Treasury Certificates of Indebtedness Ser. A-1944, dated Feb. 1, 1943, 7/8s/2/1/44 @ par	3,000,000.00
2,000,000	USA Treasury Certificates of Indebtedness Ser. B-1944, dated Apr. 15, 1943, 7/8s/4/1/44 @ par	2,000,000.00
2,250,000	USA Treasury Certificates of Indebtedness Ser. C-1944, dated May 1, 1943, 7/8s/5/1/44 @ par (purchased by virtue of the ownership of a like amount of .65% Certificates redeemed)	2,250,000.00
3,000,000	USA Treasury Certificates of Indebtedness Ser. G-1944, dated Dec. 1, 1943, 7/8s/12/1/44 @ 100.099	3,002,991.72
		\$30,642,002.86

SECURITIES VARIOUSLY RECEIVED AS FOLLOWS:

By Gift

\$10,000	St. Louis-San Francisco Ry. Prior Lien Ser. "A" 4s/50, received as a gift from Mr. Eugene Havas December 31, 1943 and taken into the books at the closing market price as of that date @ 33.5	\$3,350.00
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Special Distribution to Stockholders

105,970	shares Consolidated Natural Gas Co. Capital Stock (Par \$15), received by virtue of the ownership of 1,059,700 shares Standard Oil Co. (New Jersey) Capital Stock (Par \$25). This represents a distribution to holders of Standard Oil stock of record Nov. 15, 1943 and the shares received were taken into the books at the average market price as of that date at \$26.57 per share, the value being used to reduce the ledger value of the Standard Oil shares	2,815,622.90
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TRANSACTIONS RELATING TO INVESTED FUNDS— *Continued*

Securities Variously Received as Follows — *Continued*

Rights Received

135,648	Standard Oil Co. (Ohio) Rights received by virtue of the ownership of 135,648 shares Standard Oil Co. (Ohio) Common Stock (Par \$25). These Rights entitled the owner to subscribe to a new issue of Standard Oil Co. (Ohio) 4½% Cum. Pfd. Stock (Par \$100) on the basis of 1 share of the new preferred for each 8 shares of the common owned. The value of these Rights (established by sale @ .666589) was used to reduce the ledger value of the common shares.....	90,421.48
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Received Through Exchange

332,763	shares The Buckeye Pipe Line Co. Capital Stock (No par) received in exchange for the following securities in accordance with the Plan of Unification dated Nov. 10, 1942 and taken into the books at the ledger value of the shares surrendered, or \$11.79 per share Securities surrendered:	3,923,590.22
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49,693 shares The Buckeye Pipe Line Co. Cap. (Par \$50) @ \$62.768	
per share.....	\$3,119,109.72
74,535 shares Indiana Pipe Line Co. Cap. (Par \$7.50) @ \$6.70 per	
share.....	499,384.50
24,784 shares New York Transit Co. Cap. (Par \$5) @ \$6.50 per share	161,096.00
27,000 shares Northern Pipe Line Co. Cap. (Par \$10) @ \$5.333 per	
share.....	144,000.00
	\$3,923,590.22

\$6,832,984.60

In accordance with the Plan there was also received a special cash distribution of \$2.50 per share or \$186,337.50, on 74,535 shares Indiana Pipe Line Co. Capital (Par \$7.50), and a special cash dividend of \$3.00 per share, or \$81,000.00, on 27,000 shares Northern Pipe Line Co. Capital (Par \$10) which was used to reduce the ledger value of the respective issues.

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	\$607.50	
67,500	(Maturity value) dated Jan. 1, 1942, due Jan. 1, 1954	337.50	
67,500	(Maturity value) dated July 1, 1942, due July 1, 1954	135.00	\$1,080.00
			\$37,476,067.46

SECURITIES SOLD

		AMOUNT RECEIVED	LEDGER VALUE
\$1,750,000	Baltimore & Ohio R.R. Ref. & Gen. Ser. "A" 5s/95 @ 37.45	\$655,375.00	\$1,400,200.00
495,000	Baltimore & Ohio R.R. Ref. & Gen. Ser. "F" 5s/96 @ 41.377	205,025.27	504,839.38
44,750	Calgary Protestant Public School Dist. No. 19, Province of Alberta 5s/43-48 @ 88 ...	39,380.00	38,037.50
551,000	Chicago & Alton R.R. Ref. 3s/49 @ 26.975	148,632.48	358,701.00
458,000	Chicago, Milwaukee & St. Paul Ry. Gen. Ser. "C" 4½s/89 @ 46.837	214,512.70	471,740.00
446,300	Chicago, Milwaukee, St. Paul & Pacific R.R. Fifty-year Ser. "A" 5s/75 @ 20.984 ...	93,653.01	279,366.99
201,000	Chicago & Northwestern Ry. Gen. 5s/87 @ 41.442	83,297.70	197,175.00
380,000	Denver & Rio Grande R.R. 1st Cons. 4s/36 @ 22.625	85,974.29	366,410.61
574,000	Denver & Rio Grande Western R.R. Gen. 5s/55 @ 6.0528	34,743.22	338,660.00
350,000	Edmonton School District No. 7, 5s to 4/15/53 then 4½s to 2/1/67 @ 92.25	322,875.00	283,500.00
266,250	Eric R.R. Gen. Mtg. Income Ser. "A" 4½s/2015 @ 60.494	161,066.38	127,800.00
1,233,000	Illinois Central R.R. Ref. 4s/55 @ 57.27	706,141.19	1,018,579.50
1,000,000	Illinois Central R.R. — Chicago, St. Louis & New Orleans R.R. Joint 1st Ref. Ser. "A" 5s/63 @ 57.128	571,279.45	901,500.00
775,000	Louisville & Nashville Southern Ry. Monon Coll. Joint 4s/52 @ 96.125	744,972.73	558,000.00
250,000	Mutual Fuel Gas Co. 1st 5s/47 @ 112.12	280,300.56	250,000.00
65,000	New Orleans, Texas & Mexico Ry. Non-cum Income Ser. "A" 5s/35 (C/D) @ 45.814	29,779.36	64,642.52

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TRANSACTIONS RELATING TO INVESTED FUNDS — *Continued*

		AMOUNT RECEIVED	LEDGER VALUE
541,000	Northern Pacific Ry. Ref. & Imp. Ser. "A" 4½s/2047 @ 61.085.....	330,468.37	460,643.98
1,918,500	St. Louis Southwestern Ry. Gen. & Ref. Ser. "A" 5s/90 @ 40.6.....	778,911.95	1,282,540.12
100,000	Southern Pacific Co. — Central Pacific Stock Coll. 4s/49 @ 83.148.....	83,148.25	76,000.00
100,000	Southern Pacific R.R. 1st Ref. 4s/55 @ 80.523.....	80,523.28	86,000.00
6,000,000	USA Treasury Certificates of Indebtedness Ser. D-1943, 7/8s/43 @ 100.09.....	6,005,393.22	6,001,356.60
3,000,000	USA Treasury Certificates of Indebtedness Ser. E-1943, 7/8s/43 @ 100.07.....	3,002,142.90	3,000,000.00
150,228.75	United States of Mexico Class "A" Certificates for Interest in Arrears, due Jan. 1, 1968 @ 2/10ths of 1%.....	300.46	9,013.73
2,174.80	Wabash R.R. Gen. Mtg. Income Ser. "A" 4s/81 @ 44.928.....	977.09	804.67
93,274.80	Wabash R.R. Gen. Mtg. Income Ser. "B" 4¼s/91 @ 35.249.....	32,878.12	27,516.06
435,000	Washington Ry. & Elec. Cons. 4s/51 @ 106.76.....	464,407.39	363,225.00
200,800	Western Pacific R.R. 1st Mtg. Ser. "A" 5s/46 @ 40.764.....	81,853.34	166,664.00
4,800	shares The Colorado & Southern Ry. 4% 1st Non-cum. Pfd. @ \$8.934 per share.....	42,883.54	259,200.00
3,280	shares Denver & Rio Grande Western R.R. 6% Cum. Pfd. @ \$2.214 per share.....	7,261.50	16,400.00
5,083¼	shares Erie R.R. 5% Pfd. Ser. "A" @ \$51.33 per share.....	260,950.08	165,213.75
2,857	shares Illinois Central R.R. 6% Non-cum. Conv. Pfd. Ser. "A" @ \$25.723 per share.....	73,489.35	44,283.50
4,070	shares Illinois Central R.R. Common Stock @ \$9.978 per share.....	40,610.81	39,173.75
5,721	shares International Harvester Co. 7% Cum. Pfd. @ \$171.42 per share.....	980,666.38	657,915.00
412,042	shares National Fuel Gas Co. Cap. (No par) @ \$9.82 per share.....	4,047,167.12	3,193,325.50
60,178	shares Standard Oil Co. (New Jersey) Cap. (Par \$25) @ \$56.904 per share.....	3,424,376.00	1,957,219.56
135,648	Standard Oil Co. (Ohio) Rights @ \$0.666589 each.....	90,421.48	90,421.48
430½	shares Wabash R.R. 4¼% Pfd. @ \$29.87 per share.....	12,859.66	9,255.75
		<u>\$24,218,698.63</u>	<u>\$25,065,324.95</u>

SECURITIES REDEEMED OR PAID AT MATURITY

\$420,000	Consolidation Coal Co. Secured Notes 3s/50 redeemed @ par	\$420,000.00	\$420,000.00
979,000	New York Central Ten-year Sec. S.F. 3 $\frac{3}{4}$ s/46 redeemed @ 101	988,790.00	958,912.15
350,000	New York, Lake Erie & Western Docks & Imp. Co. 1st Ext. 5s/43 paid at maturity @ par	350,000.00	315,452.15
9,000	Phelps Dodge Corp. Conv. Deb. 3 $\frac{1}{2}$ s/52 redeemed @ 103	9,270.00	9,773.49
50,000	St. Louis-San Francisco Ry. Equip. Trust Cert. Ser. "CC" 4s/43 paid at maturity @ par	50,000.00	44,827.69
2,250,000	USA Treasury Certificates of Indebtedness Ser. C-1943, dated Sept. 21, 1942 .65% due 5/1/43, paid at maturity @ par	2,250,000.00	2,250,000.00
1,910	shares Ohio Oil Co. 6% Non-voting Cum. Pfd. redeemed @ \$110.00 per share	210,100.00	197,685.00
		<hr/>	<hr/>
		\$4,278,160.00	\$4,196,650.48

SECURITIES SURRENDERED IN EXCHANGE

49,693	shares The Buckeye Pipe Line Co. Capital Stock (Par \$50) @ \$62.768 per share	\$3,119,109.72	
74,535	shares Indiana Pipe Line Co. Capital Stock (Par \$7.50) @ \$6.70 per share	499,384.50	
24,784	shares New York Transit Co. Capital Stock (Par \$5) @ \$6.50 per share	161,096.00	
27,000	shares Northern Pipe Line Co. Capital Stock (Par \$10) @ \$5.333 per share	144,000.00	
		<hr/>	<hr/>
		\$3,923,590.22	\$3,923,590.22

All of the above were surrendered in exchange for 332,763 shares The Buckeye Pipe Line Co. Capital Stock (No par) in accordance with the Plan of Unification dated November 10, 1942. There was also received a special cash distribution of \$2.50 per share, or \$186,337.50, on 74,535 shares Indiana Pipe Line Co. Capital Stock (Par \$7.50) and a special cash dividend of \$3.00 per share, or \$81,000.00 on 27,000 shares Northern Pipe Line Co. Capital Stock (Par \$10) which was used to reduce the ledger value of the respective issues.

TRANSACTIONS RELATING TO INVESTED FUNDS— *Continued*

	AMOUNT RECEIVED	LEDGER VALUE
LEDGER VALUE REDUCED		
Special distribution of \$2.50 per share on 74,535 shares Indiana Pipe Line Co. Capital Stock (Par \$7.50) used to reduce the ledger value of said stock	\$186,337.50	\$186,337.50
Ledger value of 1,059,700 shares Standard Oil Co. (New Jersey) Capital Stock (Par \$25), reduced by the value of 105,970 shares Consolidated Natural Gas Co. Capital Stock (Par \$15) which were received as a special distribution by virtue of the ownership of said Standard Oil shares and which were taken into the books at the average market price as of November 15, 1943 @ \$26.57 per share	2,815,622.90	2,815,622.90
Ledger value of 135,648 shares Standard Oil Co. (Ohio) Common Stock (Par \$25), reduced by the value of 135,648 Standard Oil Co. (Ohio) Rights received by virtue of the ownership of said stock. These Rights entitled the owner to subscribe to a new issue of Standard Oil Co. (Ohio) 4¼% Cum. Pfd. Stock (Par \$100) on the basis of one share of the new preferred for each eight shares of common owned. The value of these Rights was established by sale @ \$0.666589 each	90,421.48	90,421.48
	<u>\$3,092,381.88</u>	<u>\$3,092,381.88</u>
	<u>\$35,512,830.73</u>	<u>\$36,277,947.53</u>

			DEFICIENCY
Amount by which the proceeds of securities sold, redeemed, or paid at maturity during the year failed to equal the ledger value			\$765,116.80
Amounts credited or charged directly to "Surplus or Deficiency" as follows:			
Refund received as a former holder of \$1,750,000 Interborough Rapid Transit Co. 1st & Ref. 5s/66 (C/D) @ \$4.5978728 per \$1,000 bond and representing final distribution to the extent that funds retained by the Committee for the purpose of meeting its expenses were in excess of the amount actually required		\$8,046.28	
Liquidating dividend of \$1.25 per share on 220 shares Chehalis & Pacific Land Co. Cap. (Par \$10)		275.00	
		<u>8,321.28</u>	
Cost of converting from registered to coupon form —			
\$274,000 Kansas City, Ft. Scott & Memphis Ry. Ref. 4s/36 @ \$2.00 per \$1,000 bond...	\$548.00		
1,500,000 St. Louis-San Francisco Ry. Prior Lien Ser. "A" 4s/50 @ \$1.00 per \$1,000 bond	1,500.00		
100,000 Southern Pacific R.R. 1st Ref. 4s/55 (104 pieces @ \$1.00 each)	104.00		
Payments to bondholders' committees:			
Re: \$1,500,000 St. Louis-San Francisco Ry. Prior Lien Ser. "A" 4s/50 @ 50¢ per \$1,000 bond (making a total of \$4,500.00 paid)	750.00		
2,500,000 St. Louis-San Francisco Cons. Mtg. Ser. "A" 4½s/78 @ \$1.25 per \$1,000 bond (making a total of \$8,125.00 paid)	3,125.00	6,027.00	2,294.28
		<u>6,027.00</u>	<u>2,294.28</u>
			<u>\$762,822.52</u>
AMORTIZATION OF PREMIUM PAID ON PURCHASE OF SECURITIES:			
\$6,600,000 USA Treasury Bonds 2s/1949-51	\$758.45		
6,000,000 USA Treasury Certificates of Indebtedness, Ser. "D" 7/8s/43	690.86		
6,000,000 USA Treasury Notes, Ser. "A" 1½s/47	1,489.40		\$2,938.71
		<u>1,489.40</u>	<u>\$2,938.71</u>

TREASURER'S REPORT

TRANSACTIONS RELATING TO INVESTED FUNDS — *Concluded*

RECONCILIATION

Ledger value of securities, December 31, 1942.....		\$162,595,207.83	
Ledger value of securities:			
Purchased.....	\$30,642,002.86		
Gift.....	3,350.00		
Special distribution to stockholders.....	2,815,622.90		
Rights received.....	90,421.48		
Received through exchange..	3,923,590.22		
Additions to ledger value.....	1,080.00	37,476,067.46	
			<u>\$200,071,275.29</u>
Ledger value of securities:			
Sold.....	\$25,065,324.95		
Redeemed or paid at maturity.....	4,196,650.48		
Surrendered in exchange.....	3,923,590.22		
Ledger value reduced.....	3,092,381.88		
Amortization of premium paid on purchase of securities.....	2,938.71	36,280,886.24	
			<u>\$163,790,389.05</u>
Ledger value of securities, December 31, 1943.....			<u><u>\$163,790,389.05</u></u>

SCHEDULE OF SECURITIES ON DECEMBER 31, 1943

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	116.25	\$78,468.75
Burlington, Cedar Rapids & Northern Ry. Cons. 1st 5s, April 1, 1934.....	64,000	101.56	65,000.00	21.	13,440.00
Canada, Dominion of, 3rd Victory Loan 1 $\frac{3}{4}$ s, May 1, 1946... Can. \$1,000,000		90.05	900,501.18	89.	890,000.00
Chicago City & Connecting Rys. Coll. Trust 5s, Jan. 1, 1927 (C/D).....	1,305,000	52.	678,600.00	16.75	218,587.50
Chicago, Milwaukee, St. Paul & Pacific R.R. Conv. Adj. Ser. A 5s, Jan. 1, 2000.....	1,785,200	36.85	657,819.58	12.25	218,687.00
Chicago Rys. Co. 1st 5s, Feb. 1, 1927 (C/D) (25% paid — 500 bonds @ \$750 each).....	375,000	96.	360,000.00	76.25	285,937.50
The Chicago, Rock Island & Pacific Ry. 1st & Ref. 4s, April 1, 1934.....	3,345,000	68.79	2,301,182.55	37.25	1,246,012.50
Chicago, St. Louis & New Orleans R.R. Cons. 3 $\frac{1}{4}$ s, June 15, 1951.....	200,000	66.	132,000.00	71.	142,000.00
Cleveland, Cincinnati, Chicago & St. Louis Ry. Gen. 4s, June 1, 1993.....	700,000	83.89	587,250.00	88.25	617,750.00
Cleveland Short Line Ry, 1st 4 $\frac{1}{2}$ s, April 1, 1961.....	500,000	95.	475,000.00	95.25	476,250.00
Erie R.R. 1st Cons. Ser. B 4s, Jan. 1, 1995.....	266,250	87.	231,637.50	103.25	274,903.13

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BONDS — Continued

NAME	PAR	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
Imperial Chinese Government Hu Kuang Rys. S.F. Loan of 1911 5s, June 15, 1975.....	£189,000	34.	\$321,300.00	20.75	\$156,870.00
Kansas City, Fort Scott & Memphis Ry. Ref. 4s, Oct. 1, 1936	\$274,000	96.56	264,562.64	69.	189,060.00
Kansas City Southern Ry. Ref. & Imp. 5s, April 1, 1950....	550,000	84.	462,000.00	73.125	402,187.50
The Laclede Gas Light Co. Ref. & Ext. 5s, April 1, 1945....	200,000	102.38	204,759.41	99.875	199,750.00
Lake Shore & Michigan Southern Ry. 1st 3¼s, June 1, 1997	926,000	87.	805,620.00	88.	814,880.00
Missouri-Kansas-Texas R.R. Prior Lien Ser. A 5s, Jan. 1, 1962.....	331,250	78.5	260,031.25	66.125	219,039.06
Missouri-Kansas-Texas R.R. Prior Lien Ser. B 4s, Jan. 1, 1962.....	331,250	64.5	213,656.25	53.25	176,390.63
Morris & Essex R.R. 1st Ref. 3¼s, Dec. 1, 2000.....	175,000	82.75	144,812.50	49.25	86,187.50
National Rys. of Mexico Prior Lien S.F. 4¼s, July 1, 1957 (Assenting).....	350,000	13.	45,500.00	10.5	36,750.00
Secured 6% Notes due Jan. 1, 1933, for coupons due Jan. 1, 1914.....	1,125	59.	663.75	.....	.....
Northern Pacific Ry. Ref. & Imp. Ser. A 4¼s, July 1, 2047..	849,000	85.15	722,896.02	61.75	524,257.50
Northwestern Elevated R.R. 1st 5s, Sept. 1, 1941.....	500,000	70.00	350,000.00	20.25	101,250.00
Pennsylvania R.R. Gen. Ser. A 4¼s, June 1, 1965.....	1,500,000	98.25	1,473,750.00	109.25	1,638,750.00
Phelps Dodge Conv. Deb. 3¼s, June 15, 1952.....	84,100	108.59	91,327.74	106.5	89,566.50
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	38.5	57,865.50
Reading Co. Gen. & Ref. Ser. A 4¼s, Jan. 1, 1997.....	333,000	94.25	313,852.50	94.875	315,933.75
St. Louis-San Francisco Ry. Prior Lien Ser. A 4s, July 1, 1950	1,510,000	72.74	1,098,350.00	33.5	505,850.00

St. Louis-San Francisco Ry. Cons. Ser. A 4½s, March 1, 1978	\$2,500,000	14.2	\$355,000.00	29.	\$725,000.00
Standard Oil Co. (New Jersey) 25 year Deb. 3s, June 1, 1961	15,000,000	98.	14,700,000.00	105.5	15,825,000.00
United States of Mexico Class A Certificates for interest in arrears due Jan. 1, 1968.....	47,857.50	5.5	2,632.16	.....	.....
United States of Mexico Class B Certificates for interest in arrears due Jan. 1, 1968.....	94,500	.5	472.50	.....	.....
United States of America Treasury Certificates of Indebtedness — 7/8%:					
Series A, due Feb. 1, 1944.....	3,000,000	100.	3,000,000.00	100.042	3,001,260.00
Series B, due Apr. 1, 1944.....	2,000,000	100.	2,000,000.00	100.078	2,001,560.00
Series C, due May 1, 1944.....	2,250,000	100.	2,250,000.00	100.106	2,252,385.00
Series G, due Dec. 1, 1944.....	3,000,000	100.1	3,002,991.72	100.094	3,002,820.00
United States of America Treasury Bonds:					
<i>Int. Dated Due</i>					
2% — May 15, 1942 — Sept. 15, 1949-51.....	380,000	100.	380,000.00	101.344	385,106.25
2% — July 15, 1942 — Dec. 15, 1949-51.....	6,600,000	100.07	6,604,550.70	101.25	6,682,500.00
2% — Apr. 15, 1943 — Sept. 15, 1950-52.....	6,000,000	100.	6,000,000.00	100.625	6,037,500.00
2% — Sept. 15, 1943 — Sept. 15, 1951-53.....	5,000,000	100.	5,000,000.00	100.125	5,006,250.00
2¼% — May 5, 1942 — June 15, 1962-67.....	6,000,000	100.	6,000,000.00	100.375	6,022,500.00
2½% — Oct. 20, 1941 — Sept. 15, 1967-72.....	500,000	100.	500,000.00	100.313	501,562.50
United States of America Savings Bonds Defense Series F (12 year appreciation bonds):					
Due May 1, 1953 — Maturity Value.....	67,500	75.4	50,895.00	75.4	50,895.00
Due Jan. 1, 1954 — " ".....	67,500	74.5	50,287.50	74.5	50,287.50
Due July 1, 1954 — " ".....	67,500	74.2	50,085.00	74.2	50,085.00
Due Jan. 1, 1955 — " ".....	135,000	74.	99,900.00	74.	99,900.00
United States of America Treasury Notes Series A, due Sept. 15, 1947 — 1¼%.....	6,350,000	100.55	6,385,073.10	100.688	6,393,656.25

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640 802 011 07

642 064 291 27

PREFERRED STOCKS

NAME	SHARES	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
Atchison, Topeka & Santa Fe Ry. 5% Non-Cum.	5,000	\$98.25	\$491,250.00	\$82.00	\$410,000.00
Atlanta, Birmingham & Coast R.R. 5% Guar. Cum.	4,062	94.00	381,828.00	68.00	276,216.00
Bethlehem Steel Corp. (Delaware) 7% Cum.	400	129.07	51,629.47	114.00	45,600.00
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	103.75	1,383,298.75
Erie R.R. Co. 5% Ser. A.	1,200	32.50	39,000.00	47.00	56,400.00
International Harvester Co. 7% Cum.	40,000	115.00	4,600,000.00	169.00	6,760,000.00
Missouri-Kansas-Texas R.R. 7% Cum. Ser. A.	10,499	41.98	440,772.00	8.625	90,553.88
Pere Marquette Ry. 5% Cum.	5,740	49.66	285,048.76	33.50	192,290.00
Standard Oil Co. (Ohio) 5% Cum.	15,000	101.00	1,515,000.00	108.50	1,627,500.00
United States Steel Corp. 7% Cum.	6,600	133.86	883,462.50	122.00	805,200.00
TOTAL PREFERRED STOCKS .....	.....	.....	\$9,911,294.49	.....	\$11,647,059.63

COMMON STOCKS

NAME	SHARES	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
American Telephone & Telegraph Co. Cap.....	5,400	\$181.67	\$981,002.50	\$156.25	\$843,750.00
The Buckeye Pipe Line Co. Cap. (No par).....	332,763	11.79	3,923,590.22	8.875	2,953,271.63
Central National Bank of Cleveland (Par \$20).....	8,482	32.11	272,397.43	19.75	167,519.50
Chcalis & 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
Cleveland Arcade Co. Cap.....	2,500	98.62	246,555.56	75.00	187,500.00
Cleveland Trust Co. Cap.....	638	192.23	122,641.62	149.00	95,062.00
Consolidated Edison Co. of New York, Inc. (No par).....	22,200	45.26	1,004,792.50	22.50	499,500.00
Consolidated Natural Gas Co. Cap. (Par \$15).....	105,970	26.57	2,815,622.90	26.25	2,781,712.50
Consolidation Coal Co. Rights to purchase common stock..	5,875		.....		.....
Continental Oil Co. (Delaware) Cap. (Par \$5).....	60,627	11.15	676,125.70	30.75	1,864,280.25
Eureka Pipe Line Co. Cap. (Par \$50).....	12,357	45.00	556,065.00	30.00	370,710.00
International Nickel Co. of Canada, Ltd. (No par).....	30,600	65.14	1,993,253.40	26.875	822,375.00
Interstate Natural Gas Co. Inc. Cap. (No par).....	33,763	14.96	505,042.25	21.50	725,904.50
Kennecott Copper Corp. Cap. (No par).....	33,100	59.78	1,978,731.03	30.50	1,009,550.00
Middle West Corp. Cap. (Par \$5).....	68,351.92	9.75	666,431.22	10.125	692,063.19
National Fuel Gas Co. Cap. (No par).....	381,018	7.75	2,952,889.50	12.00	4,572,216.00
National Transit Co. Cap. (Par \$12.50).....	126,481	12.70	1,606,308.70	11.50	1,454,531.50
Ohio Oil Co. (No par).....	94,684	35.37	3,349,446.50	18.50	1,751,654.00
Phelps Dodge Corp. Cap. (Par \$25).....	37,600	52.72	1,982,151.40	20.875	784,900.00

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COMMON STOCKS — Concluded

NAME	SHARES	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
Provident Loan Society of New York Certificates of Contribution	186,200	100%	\$186,200 00	100%	\$186,200.00
Southern Pipe Line Co. Cap. (Par \$10)	24,845	86 25	155,281.25	88.50	211,182.50
South West Pennsylvania Pipe Lines Cap. (Par \$10)	8,000	34 28	274,237.86	28.125	225,000.00
Standard Oil Co. of California Cap. (No par)	60,967	17 25	1,051,680.75	37 25	2,271,020.75
Standard Oil Co. of Indiana Cap. (Par \$25)	691,140	28.90	19,973,946.00	32 75	22,634,835.00
Standard Oil Co. (New Jersey) Cap. (Par \$25)	1,049,300	30 33	31,821,095.81	54 625	57,318,012.50
Standard Oil Co. (Ohio) (Par \$25)	135,648	24 83	3,368,602.52	41 00	5,561,568.00
Union Tank Car Co. Cap. (No par)	240,000	6.69	1,606,087.97	27.125	6,510,000.00
Wilson Realty Co. Cap.	591		1 00		.. .....
TOTAL COMMON STOCKS .....	.. ..		\$84,070,182 59	..	\$116,494,320 82

SUMMARY

	LEDGER VALUE	MARKET VALUE
Bonds	\$69,808,911.97	\$68,064,891.82
Preferred Stocks	9,911,294.49	11,647,059.63
Common Stocks	84,070,182.59	116,494,320.82
	<u>\$163,790,389.05</u>	<u>\$196,206,272.27</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, 1943, and the statements of transactions during the year ended December 31, 1943, and balances at that date, in funds, appropriations, and invested 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 considered 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, 1943, 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, March 22, 1944.

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