

The
Rockefeller Foundation

Annual Report
1945

THE ROCKEFELLER FOUNDATION
1945

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FRANK BLAIR HANSON

On July 21, 1945, Frank Blair Hanson, Associate Director of the Natural Sciences Division of The Rockefeller Foundation, died of a cerebral hemorrhage, at the age of 59.

Dr. Hanson had been associated with the Foundation since 1930, when he became an assistant in the Paris Office, administering the fellowship program. From 1933 to 1935 he was assistant director of the Natural Sciences Division, and since 1936 had been associate director of the Division.

Dr. Hanson's forebears traveled to Ohio in a covered wagon and his family settled in Bloomington, Illinois, where he was born on July 15, 1886. As a youth he wanted to have a professional career, but because of financial problems he had to make his own way after graduation from high school. While working at a government post in Washington he attended evening school at George Washington University, where he received a scholarship in 1909 and a bachelor's degree in 1913. A required course in zoology awakened his interest and determined the course of his future career. After graduate work at the University of Illinois he was appointed, in 1916, instructor in zoology at Washington University, St. Louis, and played an important part in developing there, from inauspicious beginnings, a highly effective zoology department. Appointed professor of zoology in 1924, he became one of the University's prominent figures. In 1927-28 he obtained leave of absence from the University to present papers before the Tenth International Congress of Zoology at Budapest and the Fifth International Congress of Genetics at Berlin, and to visit laboratories and breeding stations in Europe.

His lectures, given largely without notes, were unusually lucid. His genial and mellow sense of humor, frequently embellished with a delightful whimsy of expression, was completely his own. His enthusiasm for research, unaccompanied by emotional display, kindled a like spirit in his students, many of whom now occupy important posts in biology and medicine.

Author of some 50 publications, his interest first centered in comparative anatomy and embryology. In 1923 he became interested in genetics. Following a period with Professor H. J. Muller in 1927, his investigations were concerned almost exclusively with



Photograph Excised Here

Frank Blair Hanson

radiation genetics, a field in which he made important contributions. Some of the subjects which received his special attention are vertebrate morphology, origin of development of the shoulder girdle and sternum, inbreeding, effects of alcohol fumes on the albino rat, sex ratio, effects of X-rays and radium in producing mutations in *Drosophila*. Dr. Hanson worked under grants for research from the American Association for the Advancement of Science, the Radiation Committee of the National Research Council, and the Fluid Research Fund of Washington University. He conducted field research at Woods Hole, Cold Spring Harbor and the Department of Embryology at Johns Hopkins. The Marine Biological Laboratory at Woods Hole was particularly close to his heart and he never overlooked an opportunity to further the work of that important center of biological research. In many ways the outstanding library of the Marine Biological Laboratory may be considered a lasting monument in his memory. With his family, Dr. Hanson delighted in spending the summers at Woods Hole.

He was a member of Phi Beta Kappa, Sigma Xi, Phi Sigma, and of the American Association for the Advancement of Science, American Societies of Zoologists, Naturalists, Genetics, Association of American Anatomists, Society for Experimental Biology and Medicine, and the St. Louis Academy of Science.

Never robust in health, Dr. Hanson's ability to carry on in spite of a heart condition, probably contracted in his youth, is a tribute to his courage and determination. In each phase of his career he was aided by the care and assistance of his devoted wife, the former Harriet Roman Cavender, whom he married in 1910 while still an undergraduate in Washington.

Dr. Hanson's last weeks were saddened by notification that his son, Lieutenant Frank Blair Hanson, Jr., had been lost with his ship, a destroyer escort sunk in the Atlantic by a German submarine a few days before V-E Day. This loss was naturally a great blow and seemed to contribute to his ill health.

Besides his wife, Dr. Hanson leaves two daughters, Miss Blair Hanson, assistant professor of French at Allegheny College, and Dr. Phyllis Claire Hanson, assistant in pathology at the University of Rochester.

In his twofold career as a teacher and investigator in zoology and as an officer of the Foundation, Dr. Hanson contributed importantly

in the development of modern biology and natural science. To all who had the privilege of knowing him intimately, his passing has been the source of deep regret. He will be remembered as a highly respected teacher, an effective and productive investigator, an able administrator and a most congenial companion. His immediate colleagues in The Rockefeller Foundation viewed him as an ideal officer. He examined every proposal with unfailing patience and sympathetic interest. But of even greater importance, he brought a steady and objective scientific competence to all his judgments. His standards and his goal were always high, and were always served with complete personal unselfishness.

**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, 1945, to December 31, 1945, 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 1945**

PRESIDENT'S REVIEW

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PRESIDENT'S REVIEW

THE YEAR IN BRIEF

DURING 1945 the appropriations of The Rockefeller Foundation amounted to \$11,394,210. This represents an increase of approximately a million dollars over the total for 1944. The income of the Foundation from investments during the year was \$7,700,535. This income was supplemented by a balance remaining from the preceding year.

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

Public health	\$3,500,000
Medical sciences	1,751,850
Natural sciences	1,988,570
Social sciences	1,942,400
Humanities	1,162,900

A detailed statement of the appropriations made in 1945 appears at the conclusion of this report, beginning on page 268. Of the money appropriated during the year, 64 per cent was for work in the United States and 36 per cent for work in other countries.

With the end of the struggle in Europe and the Far East, Foundation representatives have been able to make preliminary surveys in a number of war-torn countries where work had previously been carried on. Their reports, like those of all observers, reflect the staggering dimensions of the destruction. The most serious destruction has not been that of wealth; that loss is temporary and will in time be replaced, although at the cost of unprecedented suffering. The really significant

destruction has been in social and intellectual organization, and in the faiths and codes of men. The countless points of self-adjusting equilibrium which existed in all fields prior to the war are now largely blocked off; and the formal and informal codes which regulated the relations of men over wide areas have lost their power as sanctions for conduct. Nations that are physically destroyed can in time be restored; but when a nation is spiritually uprooted, the damage is so deep that no prognosis is possible.

The Foundation expects to develop its work abroad just as rapidly as the situation permits, but the resources of private agencies are bound to be tragically inadequate against the vast dimensions of the need.

THE ATOMIC BOMB

With many other organizations The Rockefeller Foundation played a part — an unwitting part — in the creation of the atomic bomb. A number of the leaders of the project — 23 of them, in fact — had received part of their specialized training on fellowships provided by Rockefeller funds. In this list are such names as Oppenheimer, Lawrence, Fermi, Allison, Smyth and Arthur Compton. Moreover, direct support had been given over extended periods to the research work of such scientists as Niels Bohr in Copenhagen and Urey at Columbia University — to mention only two who were called into the wartime emergency research which produced the bomb. The 184-inch cyclotron at the University of California, which contributed materially to the development of one of the phases of the project, was financed by the Foundation. The departments of physics and chemistry at such institutions as Princeton and the University of Chicago, which provided many

key figures on the staff of the project, had received liberal support from Rockefeller boards.

This record is set down solely to emphasize the point that when these various grants were made, no one was thinking of an atomic bomb. The only motive behind this support was to extend the boundaries of knowledge, to stimulate the search for truth, in the belief that there is no darkness but ignorance. The 1940 issue of this *Review*, in describing the 184-inch cyclotron for which funds had recently been made available to Professor Lawrence, made the following comment: "The real case for building a great cyclotron rests upon its ability to make accessible a new infinitesimal world — the interior of atomic nuclei, with all the possibilities of fresh knowledge that may there reside. It is an adventure in pure discovery, motivated by the unconquerable exploring urge within the mind of man. In this sense, therefore, the new cyclotron is more than an instrument of research. Like the 200-inch telescope, it is a mighty symbol, a token of man's hunger for knowledge, an emblem of the undiscourageable search for truth which is the noblest expression of the human spirit."

But it is this same search for truth that has today brought our civilization to the edge of the abyss, and man is confronted by the tragic irony that when he has been most successful in pushing out the boundaries of knowledge, he has most endangered the possibility of human life on this planet. The pursuit of truth has at last led us to the tools by which we can ourselves become the destroyers of our own institutions and all the bright hopes of the race. In this situation what are we to do — curb our science, or cling to the pursuit of truth and run the risk of returning our society to barbarism?

It is on the basis of this dilemma that serious questions are forming in the public mind. Unless research is linked to a humane and constructive purpose, should it not be subject to some kind of restraint? Can our scientists afford to be concerned solely with fact and not at all with value and purpose? Can they legitimately claim that their only aim is the advancement of knowledge regardless of its consequences? Are we justified in saying to the scientist: "We look to you to distinguish between that truth which furthers the well-being of mankind and that truth which threatens it"?

One of the scientists who played a leading role in the development of the atomic bomb said to the newspapermen: "A scientist cannot hold back progress because of fears of what the world will do with his discoveries." What he apparently implied was that science has no responsibility in the matter and that it will plunge ahead in the pursuit of truth even if the process leaves the world in dust and ashes.

Is that the final answer? Offhand, this disavowal of concern for the social consequences of science seems callous and irresponsible. When Professor C. E. M. Joad, the English publicist, heard that atomic energy had been harnessed to a bomb, he called it "the greatest single disaster in the history of mankind." "Will nobody stop these damned scientists?" he asked.

But how do we stop the scientists? How can we foresee the use to which knowledge will be put? Almost any discovery can be employed for either social or antisocial purposes. The German dye industry was not created to deal with either medicine or weapons of war; and yet out of that industry came our sulfa drugs and mustard gas. When Einstein wrote his famous transformation equation in 1905, he was not thinking of its possible

military applications; but out of that equation came one of the principles upon which the bomb was based. The great 200-inch telescope that is just being completed on Mount Palomar in California will expand our comprehension of the distant limits of space and the remote depths of time; but this same instrument, probing the secrets of astrophysics, could conceivably lead to more frightful methods of destruction than those involved in atomic energy. Willard Gibbs was a gentle spirit whose life was spent in his study at Yale University and who never dreamed that his work in mathematical physics might have even a remote relationship to war; and yet it is safe to say that his ideas gave added power to the armaments of all nations in both World War I and World War II.

The good and the evil that flow from scientific research are more often than not indistinguishable at the point of origin. Generally they are by-products, or they represent distortions of original purpose, none of which could have been foreseen when the initial discovery was made.

We are driven back to a question of human motives and desires. What do we choose to do with our knowledge? To what purposes shall we devote it? We can use it constructively to increase the happiness of mankind, or we can employ it to tear the world to pieces. There is scarcely a scientific formula or a process or a commodity or an instrument which cannot be used destructively if that is what we elect to do with it. In brief, the gifts of science can be used by evil men to do evil even more obviously and dramatically than they can be used by men of good will to do good.

The way out of the dilemma is not as simple as the questions now being asked seem to imply. In the long

run there is probably no method of sifting out the bad from the good in scientific research. The towering enemy of man is not his techniques but his irrationality, not science but war. Science merely reflects the social forces by which it is surrounded. When there is peace, science is constructive; when there is war, science is perverted to destructive ends. The weapons which science gives us do not necessarily create war; they make war increasingly terrible, until now it has brought us to the doorstep of doom.

The mighty imperative of our time, therefore, is not to curb science but to stop war — or, to put it in another way, to create the conditions which will foster peace. That is a job in which everybody must participate, including the scientists. But the bomb on Hiroshima suddenly woke us up to the fact that perhaps we have very little time. The hour is growing late and our work has scarcely begun. Now we are face to face with this urgent question: Can education and tolerance and understanding and creative intelligence run fast enough to keep us abreast with our own mounting capacity to destroy?

That is the question which we shall have to answer one way or the other in this generation. Science must help us in the answer, but the main decision lies within ourselves.

THE APPROACH TO THE PROBLEM

Our analysis comes down to this: Men are discovering the right things but in the wrong order, which is another way of saying that we are learning how to control nature before we have learned how to control ourselves. But where is the control to come from? Where do we look for the reservoirs of understanding and tolerance and moral agreement? As Professor Hocking has re-

cently pointed out, moral decisions are individual and cannot easily be achieved on the mass level which the present emergency seems to require.

Indeed, that is the trouble with our humanistic and social studies: They are predicated on an assumption which may no longer be valid, i.e., that there is time for intelligence to take hold, time for evolutionary processes to find the answers to complex moral and political problems. And yet that assumption has to be maintained, because adequate answers cannot be extemporized. There is no penicillin, no sulfa drug, for the sickness which afflicts our civilization. No social or ethical atomic bomb can be devised to neutralize the weapons with which we have armed our own savage instincts.

Consequently, whether there is time or not, we have to build brick by brick. It is true, as Mr. Ruml points out, that we can divide the vast undertaking into long-term and short-term programs, and undoubtedly there are day-to-day efforts that can be made to lessen the tensions and dissolve the suspicions that exist in many parts of the world. But the crux of the problem is ignorance and prejudice and moral inadequacies, which do not yield to quick and simple solutions.

The approach to a solution has to come from many different directions. The economists, political scientists and sociologists must help us, but so must the physicists, the biologists and the doctors. And we must rely, too, on the humanists — the teachers, the philosophers, the historians, the poets, the novelists, the dramatists — all those who interpret ideas and concepts that give meaning and value to life. It is these leaders in every field who must build the moral and psychological sense of the fundamental unity of mankind — the community of mutual interests which binds all men together every-

where. The lack of underlying forms and forces of cohesion is the principal handicap in our attempts to create a world organization. We cannot use legal devices alone to bridge the chasms which exist between nations; other bridges must be built, too.

Over all our efforts in the years immediately ahead will hang this threatening question: Have we time? Fear and uneasiness will dog the steps of this generation like menacing shadows. There will be no escape from them. Perhaps, as Einstein has said, they will act as a spur in our efforts to achieve a united world. But unless we succeed in building a moral basis for such a world, even the spur of fear will not get us very far.

THE SOCIAL SCIENCES

Traditionally, the program of The Rockefeller Foundation has been the widening of understanding and the development of rallying points of unity, around which men of differing races, cultures and faiths can join. These areas of common interest have been in the fields of science, agriculture, public health, medicine, the humanities and the social studies; and this report attempts to illustrate some of the activities that were initiated in 1945.

Approximately \$2,000,000 was appropriated in the field of the social sciences. Of this amount 50 per cent was devoted to the broad area of international relations and went to the support of institutions and agencies devoted to research, to teaching, to public education and to the training of specialized personnel. Among the organizations receiving grants were the Council on Foreign Relations, the Foreign Policy Association, the Royal Institute of International Affairs (London), the Swedish Institute of International Affairs and the

Economic, Financial and Transit Section of the League of Nations, which during the war has been carrying on fundamental studies in Princeton.

Among special grants was one to make possible a history of the war and the peace settlement from 1939 to 1949 by Professor Arnold Toynbee of the Royal Institute of International Affairs in London; and another to ensure the publication of the minutes and records of the United Nations Conference at San Francisco. The sum of \$25,000 was appropriated for expenses in connection with preliminary conferences on the social implications of the atomic bomb.

Grants totaling \$300,000 were made to the Social Science Research Council for the continuance of its program of aid in the reconversion of the ablest young social scientists whose training had been interrupted by the war. A total of 112 appointments has now been made of men and women of unusual ability and promise — economists, sociologists, political scientists, statisticians and others. Like the atomic bombs, this is a stock pile for the future, but the purpose is to build a world, not to flatten it.

RELATIONS WITH RUSSIA

Two vast continental systems have emerged from the war — Russia and the United States — facing each other across the Pacific. In ideology and practice they stem from widely differing cultures and traditions. Although they both use many of the same words, like "freedom" and "democracy," these words convey opposing concepts. Each country believes in its own system with passionate conviction; each believes that its values will contribute more substantially to cultural and economic advance.

Here in the United States the assertion is frequently made that the Russian form of government and western democracy are essentially incompatible. If this statement means that the two forms of government are separated by an ideological chasm, that is an interpretation that most of us would share. But if, on the other hand, it implies that the two nations have no basis on which they can cooperate in common causes, then the assertion is a counsel of despair that menaces the future of the world. In the sixteenth century our European ancestors asserted that Protestantism and Catholicism were essentially incompatible, and as a result they drowned the Continent in blood.

Our relations with Russia are too immediately important, too freighted with all sorts of possibilities, to be left to the mercy of uninformed emotion, whether ecstatic or denunciatory. What is required is a determination to be accurately informed, to see things as they are. It may not be possible to bridge the ideological chasm, but certainly a wider and deeper knowledge on our part of Russian ideas and motivations, and a reciprocal attitude on the part of the Soviet Government, will afford a basis of mutual understanding on which the two nations can live together in the same world.

In 1945 The Rockefeller Foundation made a grant of \$250,000 to Columbia University toward the development of a Russian Institute. The Institute will have two interlocking objectives: first, the training of students as American specialists who will understand Russia and the Russians, and will thus prepare themselves for work of authority and influence; and, second, the direct advancement of knowledge in the Russian field, through the coordinated research work of faculty and students. The curriculum will include courses in Rus-

sian language, literature, economy, law, history, government, ideology and foreign relations.

If different systems of ideas and government are going to work harmoniously together, there must be agencies of understanding like the Russian Institute at Columbia — agencies that are competent, objective and adequate to the task, and that are motivated by Chiang Kai-shek's penetrating maxim: "To know is difficult, to act is easy."

THE HUMANITIES AND THE FAR EAST

In 1945 the Foundation, through its Division of the Humanities, continued its support to a number of American institutions for the teaching, on both the graduate and undergraduate levels, of Russian, Chinese, Japanese and other Far Eastern languages and cultures. Grants amounting to approximately \$325,000 were made to four universities, bringing to a total of considerably more than a million dollars the funds which, during the last ten years, the Foundation has appropriated for this purpose.

As one reviews the development of this work in the United States over the last decade, the impression grows that, perhaps because of its immediate relevancy, the field has attracted young men and women of unusually conspicuous ability. Certainly many American colleges and universities are now facing up to the need of putting the study of the life and peoples of the East more nearly on a par with the established study of the West. Any rational view of education for world citizenship would seem to require that knowledge of the Far East, of the Slavonic world, and of the world of Islam as well, should be as accessible, and as general in its effects, as that which relates to the languages, history and thought of

the West and of classical antiquity. If the present supply of teachers and scholars is not yet adequate for the study of Eastern languages and cultures — and one fears that it is not — then it should be stimulated and encouraged.

It is from the humanist, with the access to knowledge which his command of languages provides, that we have in large measure gained whatever understanding of other peoples we possess. If until recently humanists in the United States and elsewhere have seemed pre-occupied with the peoples and traditions of the West, others are now appearing, or must be found, to serve as interpreters between us and the fourteen hundred millions of our fellow men who make up the population of these great regions of the East. It is to these new interpreters that we must look for help in laying some of the bricks that will build the intellectual and moral basis of world unity.

But first we must have trained interpreters. The quality of their contribution — its grasp and penetration — will depend on the quality of the minds involved. The supply of able minds in the service of the humanities and the opportunities such minds have to grow are, therefore, of primary importance.

In 1944 and 1945 the Foundation appropriated \$200,000 for postwar fellowships to be awarded to humanists of intellectual and creative promise. At the end of 1945, 60 appointments had been made, with others to follow in the first months of 1946. Except for a few candidates already well advanced in teaching and research, the awards went to younger men and women from whom will be drawn the next generation of teachers and scholars in American colleges and universities. Not all of these appointments were in Far Eastern studies, although there were more in this category than in

any other single classification. The appointments represented, as well, such fields as history, English, philosophy and drama. The point is that if able younger minds in the humanities have room and opportunity to grow, the relevance of their work to the problems which hang over us will have a greater chance of demonstration, no matter in what field they may operate.

BRAZIL SPEAKS TO EGYPT

Of all the mosquitoes known to man the *Anopheles gambiae* is probably the most deadly. Its home is in the African tropical belt, extending from the southern border of the Sahara Desert south to the Zambesi River. It is the scourge of Central Africa, a carrier of a serious and often fatal type of malaria, sometimes complicated by the so-called blackwater fever.

It was this mosquito that in 1930 crossed the Atlantic from Africa to Brazil, probably by airplane, and started on a campaign of destruction that ultimately covered an area of 12,000 square miles and brought death and crippling illness to countless people. The story of this invasion has been told in earlier issues of this *Review*. Against this invasion a counter-offensive was launched, supported by the Ministry of Health of Brazil and The Rockefeller Foundation. Its aim was first to confine the enemy to the area he already occupied, and then to exterminate him by attacks on all fronts. As a result, the *gambiae* in Brazil was finally eradicated to the last mosquito, but the battle was won only at great labor and cost and after enormous suffering.

In 1942 the *gambiae* started on another invasion from its home in Africa -- this time in a different direction. It struck north through the Nile Valley in Upper Egypt, pushing its attack to within two hundred miles of

Cairo, and causing the most serious epidemic of malaria recorded in Egyptian history. In 1943 a committee of investigation appointed by King Farouk reported that 130,000 people in the infested area had died of this *gambiae*-transmitted disease.

A few months later the Egyptian Government requested the assistance of The Rockefeller Foundation, and a plan of campaign was developed under which the Government financed the entire cost of the project, while the Foundation assumed the responsibility for its direction. The Ministry of Health already had at its disposal, in its mosquito-control organization, an army of more than 4,000 men, and this group was made available to Dr. Fred L. Soper of the Foundation staff, who had been in charge of the campaign in Brazil, and his associates, Dr. D. B. Wilson, Dr. J. A. Kerr and Dr. S. S. Stevenson. The Egyptian Government also provided insecticides, headquarters, field stations and extra funds for emergency needs.

The plan of campaign followed the Brazilian experience and involved the extermination of the *gambiae* in the infested area. There is no such thing as partial success in species eradication. Estimates of progress based on the traditional methods of the malariologist, such as spleen rates, blood parasite rates, clinical attack rates, infant infection rates, become invalid and subordinated to the simple question, "Is the species under attack still present in the area being worked?" This was the test in both the Brazilian and the Egyptian campaigns, and it was pushed to its logical conclusion, i.e., the extermination of the last surviving pair of the disease-carrying mosquitoes.

In Egypt, Paris green was the principal insecticide, and it was applied in the marshy regions, water holes

and other potential breeding places, following the technique used in Brazil. In addition to pyrethrum, half a ton of DDT was also employed in the spray-painting of railroad cars, automobiles and river boats that might serve to harbor and transport the insects from one region to another. An elaborate control and inspection system was developed to confine the *gambiae* within the area occupied and then to exterminate it in house-to-house warfare.

By February 1945 the *gambiae* had completely disappeared from the infested area. Careful search since then has failed to discover any of this species, even during the autumn floods when pools and other breeding places multiply and the worst epidemics are apt to occur. The danger appears to be over, and for the moment at least this public health battle has been won.

Thus in two countries it has been demonstrated beyond doubt that with proper organization an invading species of anopheline mosquito can be exterminated. Whether anophelines can be exterminated in their native habitat has yet to be proven, but it is hoped that an opportunity for such a test will soon be provided in the island of Sardinia.

In a world that is haunted by fear and torn by hate, public health can be one of the rallying points of unity. It can be one more bridge across the political and ideological gulfs that divide mankind. Health is something that all nations desire, and no nation by the process of gaining it takes it away from another. There is not a limited supply of health for which nations must compete. Rather, every nation by promoting its own health adds to the better health of other nations, just as by assisting in the public health efforts of other nations it protects itself.

Public health work, therefore, becomes one of the techniques of international cohesion. It provides a new language by which Brazil can speak to Egypt, and the knowledge and experience of one nation can be available to all.

THE HARVARD SCHOOL OF PUBLIC HEALTH

The largest grant made by The Rockefeller Foundation in 1945 was a million dollars to Harvard University for its School of Public Health, the money to be used over a ten-year period. This School, originally created with the aid of the Foundation, was opened in 1922. With the Johns Hopkins School it has led the way in establishing standards for public health education in the United States. The importance of such education is paramount. Federal, state and local health departments, as well as many voluntary agencies operating in the health field, are relying to an increasing extent upon schools of public health for their technical personnel. The ordinary medical school education is not enough, since it fails to supply special training in the scientific principles, the administrative methods, the engineering techniques and the point of view of preventive medicine and public health.

The Harvard School, over the last two decades, has made distinguished contributions in particular fields, notably in industrial medicine, in child and maternal hygiene and in sanitary engineering. The Foundation's appropriation in 1945 was designed to give the School a greater degree of independence and to strengthen its capacity to meet the increasing load in the preparation of health personnel.

Including this recent grant, the Foundation's appropriations to the Harvard School amount to \$4,687,103.

The Johns Hopkins School has received \$8,030,800 from the Foundation; the School at the University of Toronto, \$1,394,070; and the University of Michigan School, \$535,000.

THE MEXICAN AGRICULTURAL PROGRAM

Secretary Henry A. Wallace said recently that if anyone could increase the yield per acre of corn and beans — or of wheat, rice or potatoes — in the countries where nutritional standards are inadequate, he would contribute more effectively to world peace and to the development of the arts of civilization than by any other method that could be devised.

For many years The Rockefeller Foundation has been interested in agricultural science as related to improved human nutrition. The fields of organic chemistry, plant disease and pest control, agricultural statistics, plant breeding and soil science are among those which have been given support in various ways. Not until recently, however, has the Foundation considered the possibility of entering the field of agriculture on an operating basis. One such program now exists in Mexico in cooperation with the government of that country.

The program in Mexico had its beginning in 1941 with a request for cooperation from the Mexican Government. As a first step the Foundation sent to Mexico a committee of outstanding agricultural scientists to study the situation on the ground. This committee consisted of Dr. E. C. Stakman, professor of plant pathology at the University of Minnesota, Dr. Paul C. Mangelsdorf, professor of botany at Harvard University, and Dr. Richard Bradfield, professor of soil technology at Cornell University. The committee reported that a great opportunity for agricultural research and development

existed in Mexico, and recommended that a commission of Foundation technicians be established there to develop a program in conjunction with Mexican agricultural scientists. The committee further recommended that the major projects should include research with corn, wheat, beans and other basic food crops from the standpoint of genetic improvement, disease and pest control, as well as soil and fertilizer studies, and that, when opportune, a project in animal husbandry be begun.

The program was formally initiated in February 1943 under the leadership of Dr. J. G. Harrar, formerly professor of plant pathology at the State College of Washington. At present there are 7 North American scientists and 22 Mexican agricultural scientists organized as the Oficina de Estudios Especiales, S.A.F., and engaged in field and laboratory research directed toward the objectives of the program. The broad aims are covered in a memorandum of agreement between the Secretaría de Agricultura y Fomento of Mexico and The Rockefeller Foundation. The three American scientists who made the original study are serving as a continuing advisory committee to the project.

During the three years in which the cooperative program has been in force, measurable progress has been made. Each year some results of immediate value to Mexican agriculture have been obtained, and others from which future benefit will doubtless be derived. The field work has grown from a single small experimental plot to experimental fields in the states of México, Morelos, Querétaro, Guanajuato, Aguascalientes, Puebla, Michoacán, Coahuila and Sonora. Thus it is possible to consider important agricultural problems with respect to regional limitations. It is fully

recognized that agricultural progress is necessarily deliberate and that to be successful the program will have to be considered on a long-time basis. One of the interesting features of the program has been the use of fellowships by which promising young Mexican agricultural scientists are given the opportunity for advanced work both in their own country and in the United States.

The following items constitute a partial résumé of current activities:

1. The most complete collection of corn varieties from Mexico ever made, with the result that an immense bank of genetic material has become available for future utilization, and a number of superior varieties for Mexico have been located.
2. Improvement of existing corn varieties through collection, testing, selection and genetic recombination.
3. Testing of introduced and local wheat varieties for rust and smut resistance, and the production of improved varieties through modern genetic practice.
4. Soil and fertilizer studies leading to fertilizer recommendations for corn and wheat in Mexico and soil improvement techniques for increasing yields.
5. Classification, selection and improvement of local varieties of beans ("frijoles").
6. Collection, introduction and testing of forage crops of potential value for Mexico.
7. Research on derriengue of cattle leading to the establishment of the cause of this disease as a virus of the pseudorabies group, and proof that the disease is regularly transmitted by the vampire bat.

The work in Mexico has already given indications of what can be accomplished through cooperative relation-

ships of the sort now existing. Both the Foundation and the Mexican Department of Agriculture realize that accomplishments to date are necessarily of a preliminary nature and that the greatest benefits can be derived only as the result of future concerted efforts to solve basic agricultural problems. The Foundation has supported the cooperative work in Mexico through appropriations which will total \$453,180 by December 31, 1946, and it is gratified by the support given its personnel in Mexico by government authorities and scientific workers. This is a pioneer experiment, but as a contribution to the development of agricultural science it may have wide significance.

ANIMAL HUSBANDRY IN ICELAND

Iceland in area is about the size of Kentucky. It is not a fertile land and life is hard. With industry and frugality, the country supports a population of 120,000. Its people have learned successfully to live together because they have had no other choice. Its traditions, which are ancient, are distinctly democratic. Its University is an indigenous institution, admirably adapted to the needs of the country.

But, because it is an island, isolated by its geography for the greater part of its history, Iceland is peculiarly vulnerable to any impact from the outside world. Beginning in 1940 British, Canadian and American troops were based in Iceland. They came from countries long friendly to Iceland but were nevertheless foreigners, with customs and habits of their own. Quite unwittingly, they brought severe strains to the island's ancient economic and social structure. The success of the occupation was due in no small measure to the tolerance, understanding and generosity of the people of Iceland.

The island has from time to time been vulnerable to other and more dangerous invasions. Although the fisheries industry dominates Iceland's export trade and provides the cash crop of the country, the backbone of national strength is agriculture. Agriculture provides more employment for Icelanders than any other industry; it more than feeds the island. Practically all farming in Iceland is based on the cultivation of grass and is, in consequence, concerned predominantly with animal husbandry. Cattle and horses are raised in considerable number, but it is sheep which characterize the industry. There are, in fact, 650,000 sheep in the country, or approximately six to each inhabitant. Unfortunately, Icelandic sheep have always been susceptible to imported diseases. In continental areas, where contact with other parts of the world is frequent, resistance is built up and a rough working balance is maintained between immunity and disease. Iceland, with its relative isolation, has never been able to maintain a stable health economy in its livestock. In 1933, for instance, a number of rams were imported from Germany in an effort to improve the native stocks. Subsequently, new diseases appeared in the local herds and it seems evident that they were imported with the rams.

In 1945 the Foundation contributed \$150,000 to the University of Iceland toward the cost of building and equipping an Institute of Experimental Pathology in connection with the Icelandic School of Veterinary Medicine. This contribution makes possible the completion of a much-needed project which has already had generous support from the government of the island. A former fellow of the Foundation, Dr. B. Sigurdsson, who recently returned from two years' study in the United States, has been appointed director; and the In-

stitute will be closely associated with the Department of Pathology in the School of Medicine of the University of Iceland at Reykjavik.

THE SUPPORT OF PSYCHIATRY

As in previous years, the Foundation in 1945 continued its active support of psychiatry. The word "psychiatry" has always been interpreted broadly to include a wide range of related subjects like psychology and neurophysiology. It is not a field easily susceptible to the application of scientific method, nor is there an abundance of well-trained men to carry on the work. And yet, with all its difficulties, it is perhaps the most significant, as it is the most challenging, field in which modern medicine is engaged.

The widely publicized figures recently supplied by Selective Service for the incidence of mental abnormalities in men of military age have emphasized the vast dimensions of one aspect of the problem — the care of mentally incapacitated patients. Such individuals are, of course, the primary interest of the psychiatrist. By his experience with them, however, the psychiatrist gains an insight into normal human behavior which can have a much wider application. The mentally ill merely present in exaggerated and dramatic form aspects or properties of human nature which must be taken into account by all who are responsible for the functioning of the modern world and the design of its institutions. Fear, hate, guilt and aggressiveness, so clearly demonstrated by the disintegrated personality, are the same forces which bring about the disintegration of human society.

Psychiatry as a science is still primitive and imperfect, but enough has been accomplished to justify the appli-

cation of some of its principles to wider fields than the treatment of the mentally ill. Most of the pressing questions which confront us today, from the settlement of strikes to the formation of a world order, are fundamentally problems in human relations. The search is for institutions which will provide satisfaction for man's needs while compensating and controlling his ineradicable defects. The old method of allowing these institutions to grow out of a struggle of opposing forces is no longer possible when the power at our command is so easily capable of destroying everything we have inherited. In the future we shall have to provide social arrangements through conscious planning and mutual agreement. Such processes may reasonably look for help from those who make a profession of studying the impulses and longings of individual human beings.

In 1945 the Foundation appropriated roughly \$400,000 to eight institutions for work that falls within the definition of psychiatry, thus bringing to nearly \$15,000,000 the amount which it has spent in this field in the last decade and a half. All the institutions included in the 1945 appropriations were located in the United States except the Karolinska Institute in Sweden. The grant to the University of Illinois was for research in schizophrenia; the Columbia University grant was for the investigation of genetic factors in nervous and mental diseases peculiar to old age. The funds allotted to the American Psychiatric Association were for its Committee on Psychiatric Nursing, which is endeavoring to develop more adequate nursing care and improve the standards of psychiatric personnel. At Vanderbilt University support was given to continue a study of the emotional reactions of patients about to undergo surgical operations. Now in its third year, this relatively small-

scale effort has shown that recovery may be made more thorough and complete by helping the patient to handle the feelings aroused by the threatening experience of surgery; it has also supplied evidence that some symptoms which tempt the surgeon to operate may be alleviated by proper attention to the patient's emotional life.

THE ROCKEFELLER FOUNDATION AND LATIN AMERICA

The relations of The Rockefeller Foundation with Latin America run back more than 30 years. In 1914, at a dinner in the Pan-American building in Washington attended by diplomatic representatives from most of the Latin American nations, plans were laid for a demonstration of the control of hookworm disease. The first country in which work was begun was Panama, followed in rapid succession by Costa Rica, Nicaragua and Guatemala.

In the years that followed, the International Health Division of the Foundation carried on its work at one time or another in every country of Latin America, not only in relation to the control of such specific diseases as hookworm, yellow fever and malaria, but principally in connection with the development of state and local health services, and the training of adequate personnel to undertake their administration. For this latter purpose a fellowship program was employed, and in the years since 1914, 694 fellowships have been awarded to Latin Americans for study in public health institutes in the United States and elsewhere in such diverse subjects as public health administration, public health nursing, laboratory techniques, sanitary engineering, vital statistics, nutrition and industrial hygiene. It is gratifying to record that a large proportion of the men and women thus trained have remained in public service.

Today, representatives of the International Health Division are stationed in various centers in Latin America, and the work continues to have as its primary objective the development of public health services, although the control of specific diseases still occupies an important place in the program. At the moment yellow fever in Colombia and Brazil, and malaria in Peru and Bolivia, are engaging attention.

From the very beginning, 30 years ago, all phases of the health program in Latin America have been carried on in complete cooperation with the governments of the countries involved. Indeed, without such cooperation on the part of government officials the work would have been impossible.

Other divisions of the Foundation have also operated in Latin America, notably the divisions of the medical sciences, the natural sciences and the humanities. Here, too, the fellowship program has been extensively employed, and over the years, exclusive of the figures in public health already noted, 401 fellowships have been awarded to assist in the advanced training of promising personnel from Latin American institutions.

Three of the grants which were made in 1945 for Latin American projects are perhaps of particular interest. One was \$75,000 to the University of São Paulo in Brazil for the equipment needed in its laboratory of physics. The Department of Physics at São Paulo is one of the outstanding centers of pure science in Latin America. Under distinguished leadership and with a strong group of young investigators, it is making significant contributions in the field of cosmic ray physics. It ranks with Dr. Bernardo Houssay's Institute of Physiology in Buenos Aires in maintaining high standards of scholarship.

Another grant, also to the University of São Paulo, was in the field of the humanities. The sum of \$43,000 was given to the University Research Fund for the creation of an index of scientific periodicals which will bring together in a union catalogue all resources of special knowledge within the State of São Paulo and, to a great extent, throughout the country. This project is of basic importance for future scholarship and research in Brazil.

A third grant, of \$25,000, was given to the American Library Association to facilitate the exchange of library personnel between North and South America. Under this grant librarians from important libraries in Latin America will visit the United States, and specialists in library matters here will go to Latin American countries. Out of this two-way exchange it is anticipated that valuable results will emerge.

As a matter of fact, any work that an organization carries on in another country is always a two-way exchange. Certainly the widening understanding, over the last decades, of Latin American life has had its repercussions in the United States. Each area of the world has something to learn from every other area. The civilization of Latin America is much older than our own, and the arts of living are in many respects more mellow and mature. Our neighbors to the south have much to teach us.

REFUGEE SCHOLARS FROM EUROPE

The displacement of scholars for political and racial reasons began in Germany with the advent of Hitler. Subsequently, this abuse spread to Spain, Italy, Austria, Czechoslovakia, and then, country by country, marched with the advancing armies until nearly all the Continent of Europe was affected. Thousands of university and

research teachers were dismissed, among them some of the most distinguished in the world. Not only were they debarred from teaching and research, but, as the fury grew, they found themselves frequently in peril of their lives. Many eminent scholars, indeed, did die for no cause but their race, their religion or their intellectual integrity. Many others escaped to friendly countries. Hundreds of these, as the German armies plunged forward, were forced to flee again; scholars who thought they had found haven in Austria or France were obliged to move on to England or America. Even yet there is no accurate estimate of the extent of this vast disturbance.

Every bit of evidence, however, strengthens the conclusion that as a mass migration of scholarly personnel it is unprecedented in history.

The Rockefeller Foundation program for European refugee scholars began in 1933 and ended, with the cessation of hostilities, in 1945. Altogether the Foundation expended \$1,410,778 for this purpose and aided 303 individual scholars. The majority of the men aided have found satisfactory permanent posts in America and will become American citizens; the remainder either found posts, usually temporary, in other European countries, or, enabled to continue their productive work in American universities during the war period, have now returned or will soon return to European positions.

During the first seven years of the program, or until 1940, the Foundation took no initial responsibility in the selection of the scholar; all actions were taken at the instance of some institution in the United States or Europe. In 1940, however, with the invasion of Scandinavia, the Lowlands and France, and the intensification of the war on England, a new type of problem developed. In the previous program, the refugee scholars, in gen-

eral, were already in America when requests were received. In this new crisis, the scholar, caught at his post, was unable to escape without outside assistance.

With the consent of the State Department, therefore, and in cooperation with the Institute of International Education, the Emergency Committee in Aid of Displaced Foreign Scholars and the New School for Social Research, a special program was initiated. Under this program American institutions, with the aid of grants from the Foundation, endeavored to reach the distressed scholars by cable, offering them teaching contracts for two years and traveling expenses to the United States. The Foundation's temporary office in Lisbon was used effectively in making travel arrangements, and in many instances considerable ingenuity was needed. But aside from this, the Foundation's participation was limited to supplying a portion of the funds required. If it had not been for the leadership of Dr. Stephen Duggan, chairman of the Emergency Committee, and the devotion and resourcefulness of Dr. Alvin Johnson, director of the New School, the program could not have been successful.

Of the total of 303 scholars aided by Foundation funds, including those assisted between 1933 and 1940, 191 were German; 36, French; 30, Austrian; 12, Italian; 11, Polish; 6, Hungarian; 5, Czechoslovak; 5, Spanish; 2, Danish; 2, Belgian; 2, Dutch; and 1, Finnish. They represented a great variety of academic disciplines. Of the total, 113 had been trained in the social sciences, 73 in the natural sciences, 59 in the humanities and 58 in the medical sciences.

The enrichment of American scholarship as a result of this migration can scarcely be overstated. Seven of the refugee scientists were already Nobel prize winners; two

have been mentioned prominently in connection with the development of the atomic bomb; several are now heads of departments in American universities; many occupy important professorships, some in subjects hitherto undeveloped in the United States. In this one respect, and in this one respect only, America has profited by Europe's impoverishment.

The Foundation program has ended. One would like also to report that the problem itself has ended. Unfortunately, there are areas in the world where "liberty to know, to utter, and to argue freely according to conscience" is still challenged. The right to think and teach in freedom is not an old right nor one that has been anywhere long secure. It still has many subtle enemies, even in this country. The battle for intellectual freedom did not end when the guns were silenced. It must go on until all men are free.

FELLOWSHIPS: A FORCE FOR UNITY

In the last thirty years, both directly and through representative national agencies in various countries, The Rockefeller Foundation has given fellowships to approximately 7,700 men and women and has spent for this purpose more than \$20,000,000. These 7,700 fellows have come from 72 different countries and have represented many races, creeds, backgrounds and branches of scholarship. Although scattered throughout the world, they have shared a common experience and they speak the common language of humanism and science.

The war sharply contracted the Foundation's fellowship program, and in many instances the fellows were uprooted from the work for which they had been trained. Numbers of them perished in concentration camps or gave their lives in defending the principle of intellectual

freedom. To mention only a few, Dr. Hynek Pelc, the director of the Institute of Health in Prague, was executed by the Germans because of his sympathies with America; Adam Heydel, professor of political economy at the University of Cracow, died in the Oswiecim concentration center; Stephan Kopec, professor of embryology at the University of Warsaw, was shot.

Recently a letter was received from a former Hungarian fellow which, in its uncertain English, movingly portrays the faith and spirit that sustained these men of scholarship:

Seven years had passed away since I came home from America. Seven terrible years full with unspeakable sufferings, troubles and griefs. Humanity, altruism and love have disappeared of one part of mankind. . . . Now that all is over, one may ask whether the . . . work achieved by human benevolence was it all in vain, when all could be destroyed utterly by human wickedness? I survived all the sufferances of the past seven years, and now I try to give an answer to this question. I think the influences and impressions of my fellowship years contributed a great deal to see always the way of truth in that chaos of ideas and to be sure of their issue. I could remark also that between all Hungarian Rockefeller fellows there was an unspoken, but obvious spiritual connection, that could be considered as a basis, remained solid among the ruins, and on which the future of mankind can be reorganized. So the work was, and will not be, in vain.

In this spirit those fellows who survived the war are making themselves felt around the world. They are among the unifying forces at work on an international basis, sending their ideas along the highroads of the world, raising their voices across geographical boundaries and barriers of racial hate. They occupy positions of importance and distinction in nearly every country. They are on university faculties, rebuilding their shattered institutions in war-torn areas; they are connected

with research laboratories; they hold strategic governmental positions, a few of them with the United Nations organization; they are carrying on significant and productive work in wide fields of knowledge. Some of them, indeed, have gained outstanding recognition, such as the award of the Nobel prize.

It would be idle to assume, of course, that their leadership and their contributions to the field of knowledge are the results solely of their fellowship experience. Doubtless they would have gained eminence without this experience, or would have obtained the experience in other ways. But it is gratifying to record the success of highly promising men and women, picked carefully from the younger generation, to whom the Foundation is proud to have been of some assistance.

With the end of the war it is hoped that the fellowship program can be restored to something like its former dimensions. In 1945 a total of 196 fellowships was granted at a cost of approximately \$500,000.

THE BONES OF ANCIENT MAN

The Rockefeller Foundation has no regular program in paleontology. Its connection with the field is largely accidental. It was due to the discovery, in 1929, of a human skull in a cave 20 miles from Peking. This skull was identified by Dr. Davidson Black, professor of anatomy at the Peiping Union Medical College, as the skull of Peking man, who lived probably 500,000 years ago. Dr. Black's interest in this field led to modest support by the Foundation, and the support was continued when Dr. Franz Weidenreich succeeded Dr. Black as director of the Cenozoic Research Laboratory in China. Dr. Weidenreich escaped from China before the Japanese seizure of Peking, and his subsequent work at the

American Museum of Natural History in New York has been financed by the Foundation. A grant of \$26,500 for this purpose was made in 1945.

Dr. Weidenreich's work in the last few years illustrates both the difficulties which scholarship has encountered during the war and the gallantry with which they have often been overcome. Dr. Weidenreich has long been in touch with Dr. G. H. R. von Koenigswald, a scientist connected with the Geological Survey of the Netherlands Indies, who has carried on anthropological research in connection with his geological explorations. Just before the war blotted out communications, he managed to send Dr. Weidenreich casts of fossil bones and teeth which he had recently discovered. Then the Japanese put him in a concentration camp, and for four years no one knew whether he was alive or dead.

But on the basis of this new material, particularly of a single tooth, Dr. Weidenreich was able to construct his hypothesis of a genus of early man, not only more primitive than any hitherto identified, but huge in size. The tooth, indubitably human, is roughly three times as big as the corresponding tooth of modern man. The man who used it was bigger than Peking man, bigger than early man in Java, bigger than any hitherto known human who ever walked the earth. Perhaps the persistent reference to giants in folk-mythology will be substantiated by science.

One of the regrettable losses of the war is the skull fragments and teeth of Peking man. A few days before Pearl Harbor these precious scientific treasures were entrusted to American marines who were being evacuated from Peking. The marines were seized by the Japanese, and their baggage on the docks of Chinwangtao was captured. The Japanese soldiers probably did not ap-

preciate the significance of an old skull packed carefully in a trunk. Whether they destroyed it or kicked it into the harbor remains unknown. Casts of the skull are still intact, but a cast can never take the place of the original.

APPLICATIONS DECLINED DURING 1945

During 1945 the Foundation was obliged to decline a total of 1,028 applications for financial aid, as compared with 877 in 1944. 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 1945 may be classified under the following headings: conferences and meetings, 7; continued aid to projects, 19; cures, remedies, investigations of theories and inventions, 37; development of educational and cultural institutions and projects, 109; European refugees, 21; fellowships, travel and training grants, 382; local institutions (including hospitals, theatres, libraries, museums and churches), 90; personal and medical aid, 22; public health projects, 22; publication projects, 39; research projects, 196; miscellaneous, 84.

REPORT OF THE SECRETARY

SECRETARY'S REPORT

THE members and trustees of The Rockefeller Foundation during the year 1945 were:

Walter W. Stewart, *Chairman*

Winthrop W. Aldrich	Walter S. Gifford
Chester I. Barnard	Henry Allen Moe
Karl T. Compton	William I. Myers
Harold W. Dodds	Thomas I. Parkinson
Lewis W. Douglas	Thomas Parran, M.D.
John Foster Dulles	John D. Rockefeller, 3rd
Raymond B. Fosdick	Robert G. Sproul
Douglas S. Freeman	Arthur Hays Sulzberger
Herbert S. Gasser, M.D.	Harold H. Swift

The officers of the Foundation were:

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

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

The President, *Chairman*

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

Henry Allen Moe
Thomas I. Parkinson
Walter W. Stewart

The following served as scientific directors of the International Health Division of the Foundation during 1945:

Eugene L. Bishop, M.D.
Gordon M. Fair
Wilton L. Halverson, M.D.

Harry S. Mustard, M.D.
Thomas Parran, M.D.
Lowell J. Reed, Ph.D.

The Director of the Division

MEETINGS

Regular meetings of The Rockefeller Foundation were held on April 4 and December 5, 1945. Eight meetings of the Executive Committee were held during the year to take actions within general policies approved by the trustees.

FINANCIAL STATEMENT

A summary of the Appropriations Account of the Foundation for the year 1945 and a statement of its Principal Fund follow.

SUMMARY OF APPROPRIATIONS ACCOUNT

FUNDS AVAILABLE	FUNDS APPROPRIATED
Balance from 1944... \$3,348,003	Appropriations
Income for 1945..... 7,700,535	Public health..... \$ 3,500,000
Unexpended balances of appropriations al- lowed to lapse and refunds on prior year grants..... 936,369	Medical sciences .. 1,751,850
	Natural sciences .. 1,988,570
	Social sciences.... 1,942,400
	Humanities 1,162,900
	China program... 16,000
	Miscellaneous.... 50,000
	Administration
	Scientific divisions 652,674
	General 266,295
	<hr/>
	\$11,330,689
	Authorization for later appropriations by the Executive Committee..... 63,521
	<hr/>
	\$11,394,210
	Balance available for appropriation in 1946..... 590,697
	<hr/>
<hr/> \$11,984,907	<hr/> \$11,984,907

PRINCIPAL FUND

Book value, December 31, 1944.....	\$144,833,347
Add	
Amount by which the proceeds of securities sold, re- deemed and exchanged during 1945 exceeded the ledger value.....	1,640,178
Book value, December 31, 1945.....	\$146,473,525

INTERNATIONAL HEALTH DIVISION

INTERNATIONAL HEALTH DIVISION

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INTERNATIONAL HEALTH DIVISION

INTRODUCTION

IN THE closing year of world political conflict, the work of the International Health Division of The Rockefeller Foundation was still strongly international in character. Its staff of 70 members, toward the end of the year, was widely distributed: 21 were in the United States, 3 in Canada and Mexico, 4 in the Caribbean area, 4 in Brazil, 11 in Spanish-speaking countries of South America, 8 in Africa, 6 in Europe, 4 in the Far East, and 9 still in the armed forces or the United States Public Health Service.

During 1945 there was a continued interest in the four major problems on which the International Health Division has been occupied for a number of years: malaria, respiratory diseases, typhus fever and yellow fever. Although the Division is preparing to withdraw from its yellow fever work, many administrative aspects of which are now taken over by the public health authorities, there was a continuing interest in the research aspects of jungle yellow fever. Malaria continues to offer many opportunities for both research and control work. New knowledge of habits of the mosquitoes which carry the disease and new insecticides by which mosquitoes can possibly be controlled are strongly engaging current attention. Typhus fever, successfully combatted in wartime, is a disease which causes trouble also in peacetime. Murine typhus appears to be on the increase in southern United States. The respiratory

diseases, because of the large amount of illness which they cause, are a challenge to the ingenuity and perseverance of public health research men.

A lively subordinate interest continues to be maintained in the subjects of mental hygiene, syphilis, nutrition and tuberculosis. A fundamental objective of the International Health Division also continues to be improvement of public health practices. This improvement is stimulated by aid to state and local health services in various parts of the world. Likewise, a most effective means to advance public health work is the promotion of public health education through fellowships and travel grants. Continual effort is needed to keep up the supply of future health workers and trained leaders in the field of public health.

DISEASE CONTROL

MALARIA

During the war a number of International Health Division staff members versed in malaria control occupied posts in the armed services where their experience could be of help. In addition, malaria work of one kind or another continued to receive support in a number of countries ranging from China to Bolivia.

Dr. Paul F. Russell, head of the Division of Parasitology, Army Medical School, and a staff member of the International Health Division, points out that the greatest medical problem encountered by the armed forces in World War II has been malaria. Although the malaria in the Army was given prompt and successful treatment, malaria patients are known to be subject to relapses and a considerable number of cases of relapsing malaria will probably occur among returning servicemen. Some of them at certain times may be

carriers and capable of giving the disease to others. However, the danger of spreading imported malaria should not be exaggerated. The United States Public Health Service has formulated an extended malaria control program. Means to keep the malaria situation firmly under control are at hand. Moreover, the practicing physician has been warned that a malaria relapse is apt to follow any stimulating factor such as anxiety, shock, fright, excitement, hunger, exposure and excesses of any sort.

New York Laboratory Research. — In the Laboratories of the International Health Division in New York City the main emphasis during 1945 in malaria work was on a continuation of the chemotherapeutic studies. In human malaria several highly efficient drugs such as quinine and atabrine are used to suppress malarial infections. These drugs do not always eradicate malaria; they do not necessarily prevent a relapse. It is to find a better cure and to do away with relapses that further studies on the chemotherapy of malaria are necessary.

Present interest centers on obscure phases of the life cycle, within the human body, of the organism which causes malaria. Using an organism which causes malaria in fowls, *Plasmodium gallinaceum*, certain hitherto obscure phases in the life cycle of this organism were cleared up. The action of quinine and related drugs on fowls was studied in the light of this new information. Animals offer distinct advantages over human subjects for such studies, in that at any stage the animal may be sacrificed and examined in detail. Certain drug compounds used gave promising results.

University of Chicago. — The International Health Division has for some years given support to malaria studies at the University of Chicago carried out under

the direction of Professor W. H. Taliaferro. These include promising studies on the pre-erythrocytic stages of the malaria organism in certain animals, by Professor Clay G. Huff. This work is helping to fill in the gap in our knowledge of the events which occur between the entrance of the malaria sporozoite into the vertebrate host and the infection by this organism of the red blood corpuscle. Information on the so-called pre-erythrocytic stages of infections with *P. gallinaceum* is now fairly definite. Further studies have to do with immunity to malaria in fowls and monkeys. Among the studies conducted was one on the effect of X-irradiation on chicken malaria. Previous investigations indicated that the lymphocytes, or white corpuscles, which are among the most radio-sensitive cells in the body, play an important role in malarial immunity. Under certain conditions relapses and even fatal malaria could be induced by the use of X-rays.

Florida. — In the United States work at the Station for Malaria Research in Tallahassee, which is connected with the Florida State Board of Health, was continued during the war. This Station has been able to make significant contributions to the war effort in furnishing thousands of infected anophelines and blood smears to the Army Medical School, by giving laboratory instruction to military personnel and holding consultations and lectures. It has a unique file of case histories of induced malaria. Over 100 papers have been published as a result of the study of this material. A permanent colony of *Anopheles quadrimaculatus* is maintained and utilized in the inoculation of patients. Besides the responsibility of this Station to be of aid in developing methods of malaria therapy in neurosyphilis, many aspects of human infections are under investigation.

The Bureau of Malaria Control is an organization supported by the Florida State Board of Health and the United States Public Health Service, with which The Rockefeller Foundation has been cooperating. For the first time in the state this Bureau undertook a program for the residual spraying of the interior of houses with DDT. This campaign was designed to destroy the adult malaria-carrying mosquito in the homes of the smaller communities and on the scattered homesteads in the most malarious counties. The residual spraying of the interior and porches of unscreened homes, as well as certain public meeting places usually frequented in the evening, promises to be a valuable adjunct to the conventional engineering and larvicidal routines which, from the economic standpoint, are feasible only in places where the human population is reasonably dense.

Mexico. — Malaria field studies in Mexico begun in 1937, interrupted in 1939, were resumed in 1943. The site chosen for the control program is the region of Tierra Blanca in Veracruz. The objectives are: (1) collaboration with the state malaria program to improve its effectiveness; (2) development of an organization which can utilize effectively the resources of the state and federal governments and (3) application of new methods to the study and control of malaria. The Veracruz state-wide survey of the incidence of malaria progressed satisfactorily. Engineering work in Tierra Blanca included completion of fundamental maps and considerable ditching for the purpose of eliminating some of the worst breeding places in the town and its borders.

British Guiana. — Since 1939 a cooperative malaria project supported by the Colonial Association of Sugar Estates and the International Health Division, is more

and more assuming the aspects of a governmental malaria bureau. Malaria is the most important public health problem in British Guiana, where nearly all agriculture and more than 90 per cent of the population are located on a narrow coastal belt. The maze of canals and ditches necessary to agriculture provides favorable breeding places for *Anopheles darlingi*, the principal vector. Since malaria cannot be controlled by land drainage methods, the main effort has been to make conditions unfavorable for breeding.

Bolivia. — In Bolivia a new health unit has been doing successful malaria work by instituting mechanical and semipermanent means of control. A stream bed flushing system has been installed in Chulumani. Stream training and minor drainage in the Corico area have reduced spleen and parasite rates. At one place, Puente de la Villa, work was purposely restricted to the stream beds, leaving the hillside breeding places untouched, to see whether the relatively harmless species could safely be ignored. The International Health Division is co-operating with the National Malaria Service in this work.

Peru. — In the fertile coastal valleys of Peru, which have to cope with a serious malaria problem, the physical geography of the region makes possible unique epidemiological methods. An ambitious project is under way directed toward the complete extermination of the principal mosquito vector from one valley at a time. The valleys are so isolated one from the other that it is hoped that barriers of desert, sea and mountains will prevent reinfestation from adjacent valleys. The object of this cooperative enterprise is to get at the root of the malaria problem by eradicating a very harmful species of mosquitoes from highly productive agricultural areas.

Trinidad and Tobago. — Both Trinidad and Tobago have a malaria problem. As a result of a cooperative project between the Government of the Islands and the International Health Division the disease has been under investigation since July 1941. A survey of the two important vectors, *Anopheles aquasalis* and *Anopheles bellator*, indicates that *A. bellator* breeds only in certain epiphytic plants known as bromeliads, which attach themselves to derelict cacao and immortelle trees. The information obtained on the bromeliad-bellator relationship led to experiments with plant poisons. The results obtained from these studies have recently been successfully applied by the government and the army. A weak solution of copper sulphate applied by a gypsy moth sprayer kills the plant and eliminates the breeding places. The other culprit, *A. aquasalis*, lays its eggs on the debris on water surfaces and in clogged stream outlets. The problem here is solved by constructing what is known as a "sea head," which insures a normal flow to the sea unobstructed by sand bars.

China. — When the Japanese in 1942 were successfully attacking southwest China, they drove the malaria studies then being conducted with Foundation help in Chefang to new quarters at the National Institute of Health in Chungking. The purpose of these studies is to (1) obtain basic malariological data; (2) train personnel, staff and students; (3) demonstrate control measures and (4) develop a malaria organization and integrate it with the National Health Service. A control demonstration was set up in a suburb of Chungking, Shapingpa, which includes three university groups and an agricultural and industrial population of 100,000. Disregarding a mosquito known as *Anopheles hyrcanus*, which breeds extensively in the rice fields, attention was

concentrated on *Anopheles minimus*, the suspected culprit. It has already been proved that the control of *A. minimus* in an area is possible through the use of Paris green. Such work seems to have been successful in eliminating new infections transmitted by *A. minimus* and has suggested the need for a restudy of the role of *A. hyrcanus*. The National Health Administration of China is interested in making further use of such practical malaria control programs. A malaria course was given to a group of health officers by the National Institute of Health. This course included not merely lectures, but also laboratory work and field experience in the study areas.

Egypt.—As noted on page 19 of the President's Review section of this Report, during 1945 a campaign against *Anopheles gambiae*, the mosquito which is a vicious vector of malaria, was brought to a successful close in Egypt. The campaign there duplicated the success of a similar campaign of a few years ago in Brazil. Early in 1942 a severe outbreak of malaria traceable to this mosquito occurred in Upper Egypt. The epidemic was the most serious recorded in Egyptian history. When malaria gained momentum in 1943 the King of Egypt appointed a special committee of investigation, and this committee reported that some 130,000 deaths had been caused by *gambiae*-transmitted malaria in the two years, 1942 and 1943. In 1944 a cooperative project between the Egyptian Government and the International Health Division got under way with a sanitary army of more than 4,000 men, making use of Paris green and DDT. It was estimated that the job could be completed within a year, but by February 1945 the dreaded mosquito had already disappeared from the area in which the damage had been done. It is possible

that there may be further trouble. The present attack has been repelled, however, and it is thought that with vigilance a new invasion can be prevented.

Mosquitoes and DDT. — During the year there was published information on improvements in the equipment for killing mosquitoes with DDT. The rapid increase in the use of this insecticide for destroying mosquitoes carrying malaria has created a demand for equipment adapted to the various techniques which have been developed for applying these substances. DDT may be applied as a powder or as a liquid spray, in the form of a dry mist or a large droplet wet spray. Results obtained by numerous investigators throughout the world over a period of years has resulted in a certain amount of agreement on the types of sprays most effective under varying conditions.

YELLOW FEVER

During the year the International Health Division of The Rockefeller Foundation was engaged in various aspects of yellow fever work in Africa, South America, Panama and the United States. In the United States activities were limited to the study and manufacture in the laboratory in New York City of yellow fever vaccine, extensively distributed during the war to the armed services. In Africa and South America field studies of various kinds were continued in West Africa, Uganda, Colombia, British Guiana, Ecuador, Peru, Bolivia and Brazil.

West Africa. — In the Annual Report of two years ago, attention was called to the reopening of the Yellow Fever Laboratory at Lagos, Nigeria, West Africa, where after an interval of 17 years work against yellow fever was resumed. Historic discoveries made there in the

early days all date from June 29, 1927, when a member of the Foundation's staff was successful in isolating yellow fever virus from an African native. The subject encountered on that day was a man 28 years old whose name was Asibi. The story of how his blood was obtained for the study of yellow fever and inoculated into monkeys and other animals so that to this day that particular strain of yellow fever virus has been maintained alive, has often been told.

The resumption of work in West Africa disclosed that Asibi, the original donor of blood for yellow fever purposes, was still living. A laboratory test of his blood made 17 years after the first epoch-making experiment showed that his serum was still strongly protective. The intensive research on the virus originally obtained from Asibi led to the perfection of a vaccine, which during the war protected millions of American and other soldiers.

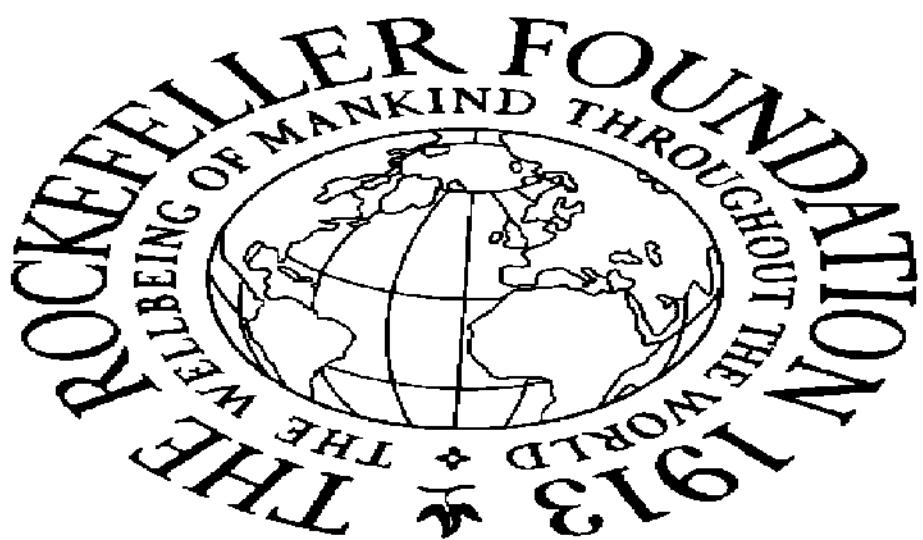
A cooperative yellow fever research program with the governments of the four British colonies in West Africa is now in operation. For this work there are utilized the laboratories built long ago in Lagos by The Rockefeller Foundation. The work here is considered an extension of that carried on by the Yellow Fever Research Institute in Entebbe. One important function is the distribution of yellow fever vaccine to various parts of West Africa, and another is to study the epidemiology of yellow fever. From protection test studies in children it is known that yellow fever has recurred near Lagos within the last few years. Immune monkeys found within 15 miles of Lagos indicate that the laboratory is in the heart and center of a yellow fever district.

Much work has been done in charting the mosquito population in the region around Lagos. At least 23



Photograph Excised Here

Type of rain forest
in Bwamba County,
Uganda, in which
mosquitoes harboring yellow fever virus
were caught.



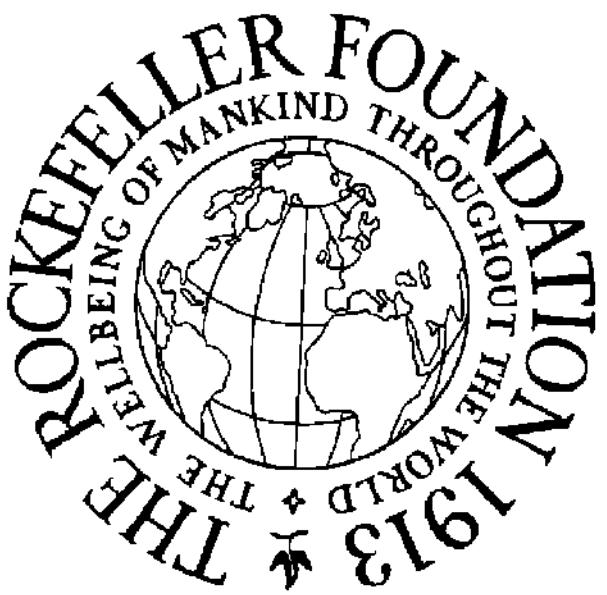
Photograph Excised Here

Clearing a canal of debris during the *Anopheles gambiae* campaign
in Upper Egypt. The laborers are working to music.

different species of mosquitoes have been found within the area, the most numerous was *Taeniorhynchus africanus*, and among the other mosquitoes found were at least four species of *Aedes*.

Uganda. — In Uganda, East Africa, The Rockefeller Foundation is supporting an epidemiological study of yellow fever in the Bwamba Forest and continuing, on a limited scale, protection tests from which can be charted more accurately the areas in which yellow fever occurs. A few years ago convincing proof was obtained that yellow fever exists in the Bwamba Forest, and since 1942 a hunt has been on to find the factors responsible for transmission of the yellow fever virus. An important part of this work consists in collecting blood samples from wild monkeys. So far, 11 species and subspecies of monkeys have been found in Bwamba, and 61 per cent of all these monkeys are immune to yellow fever, which means that they have had the disease. Some of the immune monkeys belong to the arboreal species which seldom descend to the ground and therefore presumably became immune in the trees. This points to an arboreal mosquito, biting by night when all monkeys are in the trees. There are reasons for suspecting that *Aedes (Stegomyia) africanus* Theo. may be the main local vector of monkey yellow fever. In Bwamba there was also carried out a postvaccination survey among Army personnel. Two years after vaccination, out of 300 men, 278, or 92.7 per cent, were still protected by the vaccine.

Colombia. — For the past 12 years the International Health Division has been cooperating with the Ministry of Labor, Hygiene and Social Welfare in Colombia on a yellow fever program. Two staff members and numerous Colombian physicians, all of them with experience in



Photograph Excised Here

Controlling adult anopheline mosquitoes with DDT spray, Mexico.



Photograph Excised Here

Collecting blood samples for hemoglobin determinations during a hookworm survey in Bolivia.

yellow fever laboratory research and field investigations, are engaged in the maintenance and supervision of services which include a network of stations for collecting liver specimens, a well-organized laboratory for examining these specimens, a unit for the manufacture of yellow fever vaccine, facilities for applying vaccine in strategic areas and organized means for performing mouse protection tests to indicate the presence of yellow fever.

In addition to organized routine work, special studies have been made of the epidemiology of jungle yellow fever. The important part played by the *Haemagogus* mosquito in transmitting yellow fever virus to animals and man in the jungle has been demonstrated many times in Colombia. As a point in nomenclature it has recently been decided that the main mosquito vector of yellow fever in Colombia is to be called *Haemagogus spegazzinii* var. *falco* and not *Haemagogus capricornii*. Through the study of old endemic areas with recent cases, it was thought at first that the importance of marsupials in the yellow fever cycle could be demonstrated, but recent evidence points to the relative importance of primates in the mechanism of maintaining yellow fever virus in Colombia.

British Guiana. — In British Guiana, where cooperative yellow fever work has been going on since 1939, the International Health Division is interested in an anti-*Aedes aegypti* mosquito campaign patterned after the much larger campaigns of this sort in Brazil, of which the purpose is to protect the coastal areas from the yellow fever areas in the hinterland. This is done by keeping the mosquito indices down through a system of regular inspections of water containers around houses, where *A. aegypti* breeds, and destruction of *A. aegypti* eggs and larvae found in these containers.

Ecuador. — There are high *A. aegypti* indices in some of the coastal towns of Ecuador. Posts with facilities for discovering cases of yellow fever have been established in the eastern tropical area of the country, and a National Yellow Fever Service has been established.

Peru. — The National Yellow Fever Service of Peru, with which the International Health Division is cooperating in an attempt to eradicate *A. aegypti*, is experimenting to determine whether DDT spraying should be added to the standard methods of controlling the mosquito. Several cases of jungle yellow fever were reported and confirmed in the first half of 1945. Some 4,000 persons in the threatened area were vaccinated.

Bolivia. — In Bolivia the International Health Division has been cooperating with the Health Ministry in yellow fever work since 1932. The entire country has now been free of *A. aegypti* for some time, but border towns in Brazil and Argentina are still a threat. Jungle yellow fever, not carried by *A. aegypti*, appears constantly among natives collecting rubber or building roads into the Amazon region. Five deaths confirmed by liver specimens occurred in the first half of the year.

Brazil. — For many years the Foundation, in close conjunction with the Brazilian Government has been conducting yellow fever campaigns and studies in Brazil. The International Health Division is now contributing on a 50-50 basis to the government Service for Studies and Investigations of Yellow Fever, which is in charge of the preparation of yellow fever vaccine for Brazil and neighboring South American countries and which also renders service in identifying mosquitoes and arthropods collected from airplanes arriving at Brazilian airports. Responsibility for the manufacture of yellow fever vaccine is to be turned over to the National Yellow Fever

Service at the beginning of 1946 when Brazil is ready to take over future vaccine production.

A yellow fever field study in an endemic area near Ilhéus in the southern part of the State of Baía begun in 1944 was terminated in 1945. Among the outstanding accomplishments of that study was the successful isolation of yellow fever virus from marmosets. Although convincing proof is lacking, it is probable that the haemagogus-marmoset cycle is responsible for the maintenance of the virus in the yellow fever zone around Ilhéus. It is possible that marsupials, especially *Marmosa*, play a secondary role.

In view of the reappearance of an epidemic wave sweeping across southern Brazil, it was felt that an intensive study of the way yellow fever spreads would be of great value. Therefore, a tract of country east of Ribeirão Preto, which had numerous fatal cases in 1936 and 1937, was selected as a site for carrying on those field investigations during 1946. It is planned to initiate the study before the epidemic wave reaches that area in order to secure data on what changes take place just before or at the time of the arrival of the disease.

Panama. — In an endeavor to discover silent foci of yellow fever in eastern Panama, a viscerotomy service was organized in 1941 as a cooperative project with functioning posts in Darien and a part of the province of Panama. Through June 1945 there were collected 57 liver specimens, none of which, upon laboratory examination in Bogotá, proved positive for the disease.

New York Laboratories. --- In the New York Laboratories of the International Health Division preparation of yellow fever vaccine terminated at the end of 1945. Since 1940 these Laboratories have been one of the world's principal sources of yellow fever vaccine. War

demands necessitated a sharp increase in production. Distribution of serum-vaccine from October 1940 to April 1942 amounted to between seven and eight million doses. Late in May 1942 yellow fever vaccine manufacture was continued with a different technique by which the use of human serum in the vaccine was eliminated. The total amount of serum-free yellow fever vaccine distributed from May 1942 to the present was almost 24 million doses. This figure includes about a third of a million doses sent out early in 1946.

While during the war emergency the International Health Division manufactured and distributed yellow fever vaccine free of charge, it is not the policy under normal conditions to produce biological products. Several organizations such as the National Institute of Public Health, Bethesda, Maryland; Instituto de Estudios Especiales Carlos Finlay, Bogotá, Colombia; and the South African Institute for Medical Research, Johannesburg, South Africa, have now taken up the production of yellow fever vaccine and should be able to meet future requirements. Wellcome Research Institution, London, England, and the Yellow Fever Laboratory in Rio de Janeiro, Brazil, were producing yellow fever vaccine before and during the war and are accredited institutions to continue production of this product.

INFLUENZA

New York Laboratories. — During the spring months of 1945 there were numerous small outbreaks of influenza B in camps in the United States and in some of the Pacific islands. International Health Division personnel was of assistance in diagnosing and surveying these outbreaks in the Far East. During the early winter influenza spread in eastern and central United

States. Outbreaks were investigated by the International Health Division Laboratory in five different sources: two penal institutions, a convalescent home, an industrial clinic and the student body at Yale University. The investigation among the student body involved three groups; a civilian and a Navy group which were unvaccinated, and an Army group which had been vaccinated in October. Preliminary results indicate that the vaccine offered a considerable amount of protection.

The influenza virus vaccine which was studied in the International Health Division Laboratory in the outbreak of 1943-44 was given to the entire Army during the months of October and November.

Considerable effort has been expended on a search for a suitable experimental animal for studies of the viruses of the common cold, infectious hepatitis, and atypical pneumonia. Further work is also being done on the laboratory aspects of improving influenza vaccine. With the development of new and more delicate methods of isolating influenza virus, it became possible to begin to find out how much virus is contained in throat washings. The large amount found was a surprise and makes it easier to understand the rapid spread of influenza in epidemic form.

During the year a paper was published on human immunity following vaccination with a specially prepared influenza virus among three separate units of the Army Specialized Training Program connected with Princeton and Rutgers Universities, and the College of the City of New York. Half of each group had been vaccinated with influenza virus. The epidemic was of mild character and affected about 8 per cent of untreated persons. The attack rate of the disease was 77

per cent lower among vaccinated than among control individuals, and demonstrable immunity first appeared on the eighth day after vaccination.

Michigan. — The results of a study by the United States Army Commission on Influenza during the winter of 1943-44, of which an investigation supported by the International Health Division at the University of Michigan was a part, have demonstrated the good effect of subcutaneous vaccination with concentrated, inactive virus in reducing the incidence of influenza. The incidence of typical influenza, as indicated by hospitalized cases, was 8.58 per cent in the control, or unvaccinated, group of 875 men and 2.27 per cent of the 878 vaccinated individuals. Hence, 3.7 times as many controls as vaccinated persons were admitted to the hospital with influenza. Present studies also suggest the likelihood that the length of time of immunity to influenza following vaccination is approximately three months.

California. — The Foundation has continued to support studies of influenza in California aiming to develop efficient methods of immunization. These studies are carried out in cooperation with the California Department of Public Health and the Influenza Commission of the Board for the Investigation and Control of Epidemic Diseases in the United States Army.

A comparison of two groups, one vaccinated and the other used as control, did not indicate a reduction of incidence by more than one half. The vaccine is more effective against some strains of influenza virus than others. More information is needed on variations of strains. While vaccination may elevate the antibody level of the majority of a population to a point which greatly reduces susceptibility to strains closely related

to those in the vaccine, it may fail completely in an epidemic if the responsible strains vary widely in their make-up from the vaccinating strains.

Minnesota. — The eight years of International Health Division cooperation with the Minnesota Department of Health in the maintenance of a laboratory for the study of influenza ceased in 1945. This laboratory made an early and complete study of an influenza B epidemic which occurred in 1939. By isolating influenza A virus through a technique using chick embryos, it became possible to diagnose an epidemic of influenza A within 48 hours after the first cases were observed. Much work has been done in the study of influenza among children. In 1945 a detailed report was published on the results of administering influenza vaccine to approximately 600 men of the Army Specialized Training Program unit of the University of Minnesota in an epidemic of influenza which began 11 days after vaccination. Of the vaccinated group, 2.7 per cent got influenza as compared with something over 9 per cent in the control group.

NUTRITION

North Carolina. — The International Health Division has been cooperating with the North Carolina State Board of Health with the purpose of establishing within that department a Division of Nutrition. The emphasis is on training of adequate personnel and on the establishment of a program which gears in closely with other state government activities and more particularly with the school system. At present there are three groups working cooperatively on the North Carolina nutrition program: (1) the Cooperative Nutrition Study, which is making a survey of the nutrition status of the people in North Carolina; (2) the School-Health Coordinating

Service, which is teaching nutrition in schools as a part of the general health program; (3) the Nutrition Division, which is responsible for dissemination of nutrition information through the establishment of a nutrition consultant service and a nutrition education program aimed at teaching all persons in the state. All these activities look toward the establishment of a unified nutrition division within the State Board of Health.

The cooperative nutrition study mentioned above is carried on in conjunction with Duke University School of Medicine. The International Health Division aid concerns a six-year cooperative nutrition study which drew to a close in 1945. Final activity centered on a nutrition survey of Hillsboro, Orange County, a town of 1,300 population, which was terminated at the end of March 1945. During the six years devoted to nutrition research in the field, surveys were made in the four counties of Chatham, Wayne, Alamance and Orange, and in 1945 the sum of \$10,000 was given to Duke University as aid toward the building of an animal house for basic nutrition research on animals.

Harvard School of Public Health. — Since 1942 the Harvard School of Public Health has been receiving support from the International Health Division for the establishment of a Department of Nutrition which can provide training in the public health aspects of nutrition, with a proper balance between clinical and field investigations. The head of the Department is Dr. Frederick J. Stare. During the summer of 1945, Dr. Stare spent several months in Europe as consultant in nutrition to the Surgeon General of the United States Army.

Tennessee. — The nutrition project in which the Department of Public Health of Tennessee and the Vander-

bilt University School of Medicine are cooperating was continued during the year. A portion of the work conducted by the State Department of Public Health early in 1945 consisted of an intensive nutrition survey among school children in Nashville representing different economic and social levels. Another activity consisted in the holding of "spot clinics" for the purpose of accumulating information on the prevalent nutrition problems within certain groups of underprivileged children and to serve as a stimulus in developing interest among local community leaders in nutrition in different sections of the state. Dr. William J. Darby and his co-workers in the Departments of Medicine and Biochemistry of the Vanderbilt University School of Medicine, following up the obvious similarities of the sprue syndrome in man to the manifestations of vitamin M deficiency in the monkey, have found that parenteral administration of the synthetic *L. casei* factor is effective in the treatment of cases of non-tropical sprue.

England. — During 1945 there was continued cooperation between the International Health Division and the Oxford Nutrition Survey. This survey is under the direction of Dr. H. M. Sinclair of the Department of Biochemistry at Oxford University. In 1945 the emphasis was on nutrition surveys made in devastated war areas of northwestern Europe.

As the war in Europe neared its close there arose the necessity of making nutritional surveys in liberated countries to guide relief and rehabilitation. To carry out such surveys mobile laboratory units were needed. The laboratories and clinic at Oxford had much of the apparatus needed for mobile laboratory units and were well equipped for this work. The Foundation provided financial aid for further equipment. The work in Europe



Photograph Excised Here

Members of the Child Health Camp at Chapel Hill having their daily swim in the pool of the University of North Carolina. The camp is under the auspices of the North Carolina School-Health Coordinating Service.



Photograph Excised Here

Dr. F. J. Stare, head of the Department of Nutrition of the Harvard School of Public Health, working with a student on a nutrition project.

was undertaken not only because of its immediate practical and humanitarian value in the famine areas of Europe, but also because it could serve to guide further postwar nutrition surveys to be held in Britain and elsewhere.

During 1945 at the invitation of the Netherlands Military Administration a nutritional survey was made in northwest Holland after this region had withstood six months of severe deprivation under German occupation. During the winter of 1944-45 the calorie intake in many cities fell to between 1,200 and 1,400 calories, and in March and April to between 800 and 1,000 calories. Street clinics were established at which people of all age groups were examined. In most urban areas starvation was a serious problem. By June 1945 the food situation had improved. Intake was again at the 1,500 calorie level. However, considerable time will be needed to repair the damage done.

In September nutritional surveys were made of Düsseldorf, Essen and Berlin. Approximately 3,500 persons were examined. A deficiency of energy-producing foods was found, but no starvation.

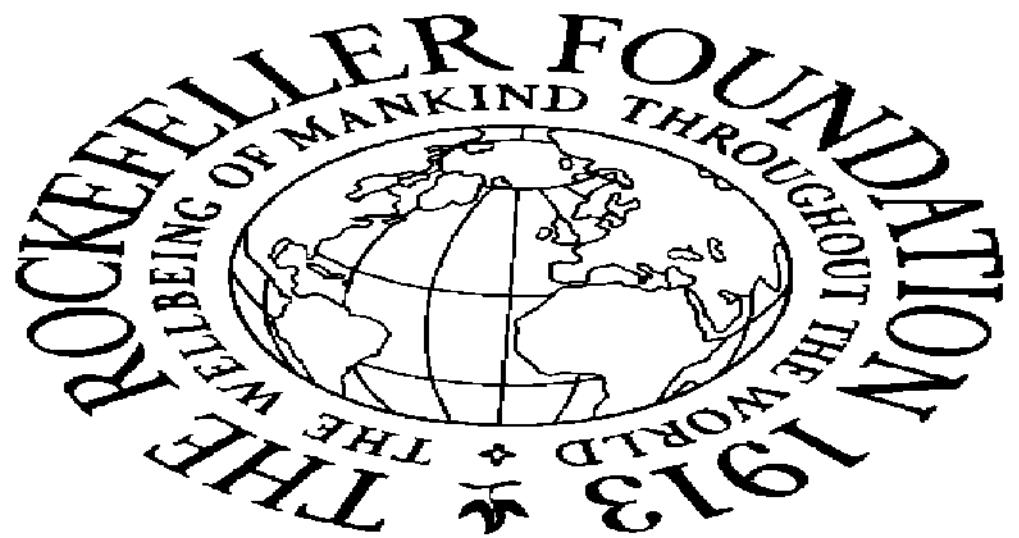
University of Toronto School of Hygiene. — The International Health Division is contributing to the studies on human nutrition at the Toronto School of Hygiene under the direction of Professor E. W. McHenry. In 1945 through cooperation with the Ontario Department of Health it was possible to conduct a study on the value of increased supplies of ascorbic acid among a group of 150 patients of the Ontario Mental Hospital from which it was concluded that gingivitis was not due to a deficiency of ascorbic acid.

Mexico. — In Mexico support is given to nutrition studies which have the object of appraising the nu-



Photograph Excised Here

Child health conference at the East York, Ontario, Health Unit,
held in connection with the nutrition program of the University
of Toronto School of Hygiene.



Photograph Excised Here

Dental service at the East York Health Unit.

tritional status of population groups, developing procedures for correcting deficiencies and conducting demonstrations of control procedures. During the year certain nutritional studies in the prenatal and post-natal clinics of the Tacuba Health Center were completed and new studies were made of two rural communities. Much help on the laboratory end of these studies was received from the National Institute of Nutrition.

All-India Institute of Hygiene and Public Health. — A new project is being supported by the International Health Division at the All-India Institute of Hygiene and Public Health in Calcutta, India. Nutrition and malnutrition are probably more significant public health problems in India than in any other country. Diet surveys have been carried out in different regions but only through the rough techniques of either diet or weighing. A detailed and careful survey based upon biochemical and other more refined techniques is indicated to provide a yardstick for assessment of the cruder but more extensively applicable techniques. The type of investigation in mind is similar to the one recently concluded by the Oxford Nutrition Survey. It is proposed to undertake such a survey in various sections of population in the Singur Health Center area attached to the All-India Institute of Hygiene and Public Health. The work will be under the direction of the Professor and Assistant Professor of Biochemistry and Nutrition in the Institute. A field laboratory already available will be supplemented by the facilities at the Institute.

OTHER DISEASES

Typhus

Mexico. — In localities in Mexico where louse-borne typhus occurs cooperative studies have been under way

to determine whether it is possible to maintain a village in a louse-free condition by the use of the new insecticides. Methods by which epidemics of typhus fever could be controlled by the local health organizations were readily developed and the incidence of body lice was reduced to a low figure which could be maintained by repeated application of DDT in powder form. Since it is of interest also to know at what intervals the material must be applied to produce the desired result, work has been carried on in a number of villages with careful re-examinations to determine the effectiveness of the insecticides. Routine methods are still too expensive for general use by health organizations. Studies are continuing in the hope of obtaining permanent results more economically.

China. — In China typhus is endemic in several southwestern provinces. Studies originally conducted by the Peiping Union Medical College were continued by the National Health Administration in China with funds received from The Rockefeller Foundation. The program under the auspices of the National Health Administration has been carried out in part at Kwei-yang and in part at Chengtu. The emphasis in this work has been transferred to studies of rickettsial strains and the preparation and testing of vaccines.

Infective Hepatitis

At the Hebrew University, Jerusalem, the Department of Hygiene and Bacteriology has, with Foundation aid, been studying infective hepatitis. A certain amount of progress has been made in working out a laboratory diagnosis of this disease. Although the test discovered does not conform to the strict requirements of sero-

logical diagnosis, it nevertheless demonstrates a considerable difference between the sera or blood of persons with infective hepatitis and those with other conditions.

Rabies

Since 1936 a study of rabies by modern virus research methods has been conducted with International Health Division cooperation by the Alabama State Board of Health. During the early period of this research there was completed work on the epidemiology, symptomatology and pathology of rabies in man and animals which prepared the way for an experimental approach to immunization. Further investigations now completed have established a scientific basis for the use of canine vaccination in rabies control.

It has been shown that a single injection of rabies vaccine affords a high degree of protection to a dog. However, rabies vaccination is not 100 per cent effective, and vaccinated dogs, if bitten by a rabid animal, may possibly develop the disease. The immunity produced by vaccination is not permanent, but probably persists for at least one year.

During 1944 and 1945 the disease recurred in several counties of Alabama that had discontinued the control program, but as soon as vaccination of dogs was resumed, rabies abated. It has been shown that rabies cannot maintain itself among vaccinated dogs, but in any program of rabies control it is also essential to obtain the cooperation of the public. Moreover, if canine rabies vaccination is to be effective in the field it must be under the supervision of qualified veterinarians. Vaccination will not eliminate rabies unless a constantly functioning program of picking up unvaccinated dogs found on the street is maintained.

Syphilis

At the Johns Hopkins School of Hygiene and Public Health, laboratory and epidemiological studies in syphilis under the direction of Dr. Thomas B. Turner, to which the International Health Division has contributed since 1936, have been resumed. The laboratory investigations concern primarily immunity phenomena in treponemal infections. From the beginning the epidemiological studies in syphilis, focused upon the Eastern Health District of Baltimore city, were tied in with other biosocial investigations carried out in the District. The aim of the coordinated laboratory and field study is to continue accurate measurement of the prevalence, incidence and trend of syphilis in the District, to unearth biosocial data on syphilis in its relation to the total life of the community and to develop syphilis control methods in the light of recent discoveries. In the laboratory, studies continue to center on immunological and chemotherapeutic problems.

The International Health Division cooperates with the North Carolina State Board of Health in a field epidemiological study of syphilis under the direction of Dr. J. J. Wright. The study area includes the Orange-Person-Chatham Health District and the city of Durham. The aim is a comparison of the effectiveness of control measures in a rural and an urban area. Attention is given to the changes which may be expected to take place in the attack rate of syphilis and the procedures which bring about these changes. With the return of veterans and the possible rise in incidence rates, comparison of this trend with the base line data of pre-war and wartime observations makes possible accurate assessment of epidemiological developments. The effect of changing methods of treatment of venereal diseases

both in the rapid treatment centers and in the clinics needs to be followed closely over a sufficient period of time if a true evaluation of their effect on control of the disease is to be obtained.

Tuberculosis

Since 1931 the tuberculosis study in Williamson County, Tennessee, has been receiving support from the International Health Division. Because of the nature of the disease, tuberculosis problems can be evaluated only by an analysis of data collected over an extended period of time. One of the original objectives of the Williamson County study was an investigation of the evolution of tuberculosis infection of childhood, especially of children who were in close contact with a tuberculosis patient. In attaining this objective, difficulty has been encountered by the finding of pulmonary calcification nearly as frequently in school children who were tuberculin negative as in those tuberculin positive. Recently it was found that children with pulmonary calcification who do not react to tuberculin frequently react to histoplasmin, an antigen complex derived from a pathogenic fungus. This opens a new field of investigation of clinical and public health value. The extensive data on over 900 families in Williamson County serves as a useful background for this work.

Rodent Ecology

Field investigations on rat ecology and control have been developed during the last two years under the direction of Dr. Curt Richter of the Johns Hopkins School of Medicine in cooperation with the Rat Control Division of the city of Baltimore. Much material has been gathered on problems in rat ecology, and progress

has been made in improving control procedures. The responsibility for continuing this work has now been transferred to the School of Hygiene and Public Health. The program is to be developed chiefly in the Department of Parasitology, but other departments of the School cooperate. The International Health Division is contributing \$61,500 to the School for a period ending June 30, 1948, in support of this project.

Mental Hygiene

At the Johns Hopkins School of Hygiene and Public Health support continues to be given to a study of mental hygiene in the Eastern Health District of the city of Baltimore. The study, slowed down for lack of personnel in wartime, has since 1934 been concerned with determining the prevalence of mental illness of unadvanced stages in an urban population, in an attempt to disclose causative factors and devise health services which would include community effort to alleviate and prevent mental illness. The psychiatrist in charge of the study is Dr. Paul Lemkau, who entered the Army in 1941, and who at the close of the war is now resuming his post as associate professor of public health administration. The study thus far shows that there can be little doubt but what education of nurses and pediatricians to deal with simple mental hygiene problems can be successful only when there is adequate consultation service. Such a service will now be resumed.

Diphtheria

The increase in diphtheria in many parts of the world in recent years is thought to be due in part at least to a fundamental alteration in the relationship of the human host to the diphtheria parasite. The Department of

Bacteriology of Johns Hopkins School of Hygiene and Public Health has, with Foundation assistance and under the direction of Dr. Martin Frobisher, Jr., made a study of the biological factors responsible for the enhanced virulence of the diphtheria parasite. The use of baby chicks for determining the virulence of diphtheria organisms is yielding accurate results. A part of the work concerns investigation of the synergistic effect of other organisms in enhancing the virulence of the diphtheria organism.

AID TO STATE AND LOCAL HEALTH SERVICES

STATE SERVICES

The United States. — Public health research on the Pacific coast has long been a subject of interest to the California Department of Public Health. Considerable work has been done in the Virus Diagnostic Laboratory, to which the International Health Division has given funds for personnel and laboratory supplies as well as for certain necessary travel expenses. The virus research, directed by Dr. Monroe D. Eaton, affords opportunity for a close coordination of laboratory and field studies. The Laboratory is interested in the development of new methods of isolating and propagating viruses connected with infective hepatitis, epidemic nausea, and certain respiratory diseases. A chief concern is the exploration of the possibilities of chemotherapy in virus diseases. The Laboratory offers services to physicians and health officers throughout California in the diagnosis of a number of virus diseases. Some studies have also been made of murine typhus and other rickettsial diseases on the Pacific coast.

The International Health Division and the General Education Board are giving support to a coordinated

school-health-nutrition service which is a joint activity of the State Department of Education and the State Board of Health of Mississippi. For the past two years the staff has operated on a state-wide basis, following a program which falls into five general divisions: medical correction for defective school children, promotion of school lunchrooms and teaching of nutrition, training of teachers to qualify them to train children in good health practices, school nursing service to assist teachers in discovering communicable diseases, and a state-wide program of physical education. The School-Health Service, at the request of the State College Board, has made a study of the student health services in the colleges, the college curricula in health education for teachers, and the college curricula in regard to the training of professional health educators. The state colleges operated summer workshops for in-service teachers. More than 1,500 teachers took part in these summer programs.

Since 1939 the International Health Division and the General Education Board have given support to the North Carolina State Board of Health for a School-Health Coordinating Service, which encourages school and health departments to work together for the benefit of the health of the school child through an educational program. Teachers in elementary and high schools in Catawba and Lincoln Counties have received instruction in various phases of public health through an in-service program. The School-Health Coordinating Service held child health conferences during the past summer as well as conferences at three colleges.

The Statistical Service of the New York City Department of Health is receiving aid over a five-year period for the reorganization and expansion of its services. The emphasis is on centralization and on highly qualified

personnel. This Health Department, giving direct services to seven and a half million people, at present does statistical work in 13 separate bureaus. By the end of 1945 considerable progress had been made in the direction of unification and extension of the essential statistical services which underlie progressive public health work.

Canada. — Owing to the rapid growth of industries in Manitoba which followed the outbreak of war, Dr. F. W. Jackson, Deputy Minister of Health and Public Welfare, requested in 1942 the assistance of the International Health Division to reorganize Manitoba's Industrial Hygiene Service. During the war period the Division continued its support towards the maintenance of this Service on a year-to-year basis. The Provincial Division of Industrial Hygiene has a trained staff which includes a medical director and an industrial nurse, as well as sanitary and chemical engineers. A well-equipped industrial hygiene laboratory is also maintained. This Division is responsible for the health certification of all employees of foundries, it examines miners for silicosis, and makes technical studies of other occupational hazards. Radio talks and distribution of posters and pamphlets are features of its educational program. In 1945 the silicosis survey was continued. The work of the laboratory was expanded considerably and included checks on workers exposed to lead hazards.

International Health Division aid has been extended to the Manitoba Division of Local Health Services, the purpose of which is to supervise the operation of local health districts already active and to stimulate the establishment of new health units. In 1945 Manitoba passed a Health Services Act providing machinery for full-time health services throughout the province. Three

health units were already established before 1945, and in late 1945 sufficient staff had been collected and plans completed for three additional units.

The New Brunswick Provincial Health Department has received aid over a three-year period in organizing a Division of Nutrition. Work was started in 1945 with emphasis on fellowship training and on personnel. The primary function of this Division of Nutrition will be to cooperate with other agencies in the province interested in similar work, more particularly the Departments of Agriculture and Education. The University of New Brunswick, through its Department of Biology, is cooperating in research aspects of nutrition work such as the unusual incidence of blindness in Madawaska County, which may possibly be in some way connected with nutrition.

The International Health Division has given aid since 1943 toward establishment of a Division of Health Education in the Quebec Provincial Department of Health designed especially to emphasize a school health service program. Efforts are concentrated on bridging the gap between the present-day knowledge of preventive measures and their absorption by individuals, groups, communities, and society as a whole.

Mexico. — In Mexico the Cooperative Central Office, officially a dependency of the Ministry of Health and Welfare of the Government of Mexico, is concerned with administration and accounting for various health projects. It functions as a field office of the International Health Division and it gives assistance to other divisions of The Rockefeller Foundation in connection with their activities in Mexico.

Caribbean Area. — A Public Health Engineering Unit, jointly supported by the West Indies Colonial Develop-

ment and Welfare Act and the International Health Division, was organized in 1944 with headquarters at St. George's, Grenada, to serve the federated Leeward Islands and the non-federated Windward Islands. Attention is given to instruction and field training for engineers and surveyors who work under the general supervision of the Public Health Engineering Unit in carrying out projects of rural sanitation and malaria control in the several colonies. District offices have been established at Grenada, Antigua-Montserrat, St. Vincent-Grenadines, and St. Lucia-Dominica. A Rockefeller Foundation sanitary engineer, Mr. Brian R. Dyer, is in charge of this work. Emphasis is upon rural sanitation and malaria control.

Peru. — The Government of Peru is interested in a reorganization of the National Health Department, involving the establishment of local health agencies. Legal steps have already been taken to establish the full-time principle in this field. A Peruvian has been appointed to make a study of concrete plans for the future development of the health organization. Foundation aid helps to defray salary and expenses of this expert. The International Health Division is also providing aid in the organization and setting up of a National Institute of Hygiene with six divisions, including a division of bacteriology, parasitology and immunology, and a division of personnel training.

Chile. — Tuberculosis is a leading cause of death in Chile. In the Quinta Normal area of Santiago where a health center was established two years ago, the tuberculosis rate in 1944 was 440. It is felt by the medical profession that undernourishment and low economic standards have something to do with this situation. A group of young specialists is attempting to control the

disease in a community such as Quinta Normal where special facilities are at hand for an effective campaign. Emphasis is on discovery, treatment and isolation of the greatest possible number of open cases in the district, systematic periodic examination of contacts and educational measures. The Foundation is providing funds for salaries, equipment and running expenses for this tuberculosis study.

Bolivia. — Since 1932 the International Health Division has been contributing funds for the control of yellow fever, malaria and hookworm diseases in Bolivia. Typhus and plague are also important health problems and may be eventually included in the scope of an enlarged endemic disease service.

Ecuador. — In Ecuador the National Institute of Hygiene, Guayaquil, fulfills the function of a public health laboratory. Such a laboratory is needed because much work is still to be done in the field of epidemiology. The purpose of this public health laboratory has therefore been to investigate the important diseases of the country, take steps for the control of these diseases and provide a diagnostic service. Considerable work has been done with International Health Division cooperation on malaria, hookworm disease and yellow fever. Other important problems center around high infant mortality and the prevalence of tuberculosis.

China. — Aid given to the Szechwan Provincial Health Administration was limited during 1945 because of inflationary conditions in China. Funds given were used primarily for purchasing equipment and supplies from abroad, particularly from India. The Provincial Health Administration is divided into three departments: business, medical and technical. The Technical Division includes the Provincial Training Institute for

Health Personnel, the organization of local health centers, sanitation, and the Institute of Infectious Diseases, toward which the major part of the Foundation's contribution is applied.

LOCAL SERVICES

Canada. — In Manitoba plans have been completed for the organization of a new full-time rural health unit which will include the town of Dauphin and three neighboring rural municipalities. The total population served is about 15,500 persons, of whom 4,500 reside in Dauphin. Work is now in progress and full cooperation has been obtained from all the local physicians in private practice. Emphasis is on well-baby clinics, prenatal work, diphtheria immunization and a tuberculosis survey. The latter survey, in which between eight and nine thousand persons in the district were examined, disclosed 33 previously unknown cases of tuberculosis.

The Greater Vancouver Metropolitan Health District in British Columbia, with which the International Health Division has been cooperating for a number of years, is now a well-established unit. Present Foundation aid is limited to the North Shore Unit of the consolidated metropolitan area health district, which has resulted from this effort.

In 1944 work was started in connection with the Nova Scotia Greater Sidney Metropolitan Health District, of which the Cape Breton Island Health Unit is a part. During 1945 this Unit moved into a new building located in the city of Sidney, which is now the center of public health activities in Cape Breton Island. The two diseases causing greatest concern outside of tuberculosis and venereal disease are diphtheria and paratyphoid. Since 1941 the International Health Division has co-

operated with the Halifax Health Department, which has carried out an extensive public health program under congested war conditions. Recent emphasis has been on the control of venereal disease and tuberculosis.

Mexico. — In Mexico a demonstration health unit at Tacuba, D.F., has been receiving International Health Division support since 1931. The object is to conduct a demonstration in which the local health department is used as a training station. The headquarters of the unit are in the School of Public Health. During 1945, activities of this demonstration health unit included establishment of a tuberculosis clinic, which is undertaking an intensive family-by-family survey. The training station operates as a part of the demonstration health unit and also as a part of the School of Public Health. Facilities for field training are made available not only to students of the School of Public Health but also to many groups from other public health departments and agencies.

A number of local health departments operating in small communities have received subsidies to make possible an effective staff directed by a full-time health officer and regional instructors with supervised programs and techniques.

Chile. — The Quinta Normal Health Center, to which the International Health Division is contributing, on June 1, 1945, moved into the new building provided by the Institute of Inter-American Affairs. The nursing work has been further extended. Tuberculosis control studies were started. The Health Center acts as a training field for the School of Public Health and for the University School of Nursing. A monthly bulletin published by this Health Center is widely distributed to physicians and schools throughout the country.

✓ *Bolivia.* — Aid was given for the development over a five-year period of a demonstration health center for the Departments of North and South Yungas, Bolivia. For a period of 12 years the Foundation has been co-operating with Bolivia in the direction of control of yellow fever. The present project turns this into a more general program. The health center demonstration is adapted to the local conditions of a financially prosperous agricultural community in which at times malaria has been very severe. The economy of the country is increasingly based on agriculture rather than mines, and agriculture is dependent for its man power on families from the high plateau willing to settle in the valleys below.

Peru. — In Peru it has been concluded that the first step in a well-rounded local health service is to take care of the urgent health needs of a typical population group. The inhabitants of the Department of Ica, covering three of the 50 irrigated valleys which make up the coast of Peru, have been chosen for the development of a coordinated service directed by full-time and specially trained personnel whose business it is to look after the health needs of the rural population. Malaria control is emphasized. The Institute of Hygiene at Lima has set up a branch diagnostic laboratory. The tuberculosis, venereal disease, and mother and child services are also cooperating in this work. One of the objectives is to coordinate curative and preventive medicine with environmental sanitation.

Brazil. — Steps have been taken to establish a rural health unit at Petropolis, Brazil, in connection with the School of Hygiene and Public Health of the National Department of Health. The specific purpose is to study the health problems of this district, institute effective

means of meeting these problems and provide at the same time a field training station for public health students in the School. A public health survey of the area is now under way.

India. — The Singur Health Unit, established by an agreement between the Government of India, the Government of Bengal and the All-India Institute of Hygiene and Public Health, is now in process of reorganization. It continues to serve the Institute as an experimental field in public health practices and provides a training ground for students in rural hygiene.

PUBLIC HEALTH EDUCATION

SCHOOLS AND INSTITUTES OF HYGIENE AND PUBLIC HEALTH

University of Toronto: Faculty Salaries

Canada is facing an increased public health program with emphasis on the need for trained personnel. Medical men from the armed forces to be appointed to positions in federal and provincial departments of health are anxious to obtain further instruction. To meet the increased demand, two complete sessions leading to the diploma of public health were given during the academic year 1945-46 at the University of Toronto School of Hygiene, making possible an enrollment of 84 as compared with a previous high of 29 physicians. New courses offered by the School of Hygiene also give instruction in public health to dentists, veterinarians and industrial hygiene physicians. The School, in establishing a course leading to a diploma in industrial hygiene, is receiving aid from the International Health Division which makes it possible for certain departments in the School to increase their teaching staffs.

China: National Institute of Health

China's National Institute of Health, which incorporates the former Public Health Personnel Training Institute, has received support from The Rockefeller Foundation since 1940. Most of the funds received by this Institute either from the National Health Administration or from the American Bureau for Medical Aid to China have gone in considerable part to emergency or relief assistance. The support supplied by the International Health Division of The Rockefeller Foundation has been used for public health nursing, sanitary engineering and chemistry, medical entomology and vital statistics.

All-India Institute of Hygiene and Public Health

Studies are now under way to obtain detailed information on the present status of the rural water supply in the deltaic districts of Bengal, and to evolve methods for providing a more satisfactory water supply. The inquiry so far conducted reveals that the carrier rate of pathogenic organisms is as high as 50 per cent and that infection is derived from various sources, but that, save in exceptional circumstances, water does not ordinarily play a part in spreading infection. The knowledge about the relative significance of various modes of transmission is still incomplete. The studies are to be undertaken in both urban and rural areas in an attempt to determine the sources of infection and the relative importance of the various agencies of transmission. These studies of rural water standards and water-borne diseases are an expansion and extension of the work of the All-India Institute Public Health Experiment Station, to which the International Health Division gave support from 1943 until March 1945.

Chile: School of Public Health

The University of Chile, the National Health Department and The Rockefeller Foundation are cooperating in the support of the School of Public Health in Chile, which was organized in 1943 for further training of public health officials.

University of Toronto: Field Training Facilities

In 1940 the School of Hygiene of the University of Toronto developed a cooperative undertaking with the township of East York, a suburb of Toronto, to provide adequate local health services in this municipality and, in turn, the facilities of a field training center for the School of Hygiene. The program was planned to demonstrate an effective organization for small urban municipalities and also to serve as an area for field studies by the School of Hygiene. The services of the Medical Officer of Health, the School Medical Officer and the Supervisor of Public Health Nursing for this suburb of 40,000 people, with a population density of 6,500 per square mile, are provided by the School of Hygiene.

*Johns Hopkins School of Hygiene and Public Health
Faculty Salaries*

The International Health Division continued during 1945 its aid to the Johns Hopkins School of Hygiene and Public Health to provide additional teaching personnel in crowded departments. This aid was started in 1939.

*Johns Hopkins School of Hygiene and Public Health
Field Training and Study Area*

The Eastern Health District of Baltimore provides field training facilities for the Johns Hopkins School of

Hygiene and Public Health and serves as a field for research in public health problems. Aid has been provided for this project since 1932.

Harvard School of Public Health

Since 1940 the International Health Division has given support to the Harvard School of Public Health, Department of Sanitary Engineering. This is one of a number of grants made to this School, culminating in the million dollar ten-year general support fund outlined on page 20 of the President's Review section of this volume.

SCHOOLS OF NURSING

Since 1932 the International Health Division has given funds toward the development of a School of Nursing at the University of Toronto for the express purpose of supporting more thorough work in the professional education of public health nurses. The present School, established in 1933, provides, as now organized, a direct and sustained training in public health nursing. Both graduate and undergraduate courses are given. A University degree of Bachelor of Science in Nursing is granted at the end of the basic professional course. In 1945 The Rockefeller Foundation appropriated \$300,000 toward the cost of a new building for the School.

The International Health Division has given funds since 1942 to assist in the development of the educational program of the Venezuela National School of Nursing in Caracas, chiefly in the way of providing equipment for classrooms and laboratories. In addition to the regular basic professional program a postgraduate course in public health nursing was instituted in October 1945. During that year also lectures and movies on the nursing profession as a career for young women

were given to stir up interest among students in high schools.

In cooperation with the Pan American Sanitary Bureau, the Institute of Inter-American Affairs and the Ecuador Government, the International Health Division has contributed toward the establishment of a modern School of Nursing in Quito, Ecuador. In October 1945 the first class of 20 students was graduated. An introductory public health course with one month of field experience, which included working in schools and visiting homes, was given to the senior class.

The International Health Division continued to extend aid to the School of Nursing in São Paulo, Brazil, by providing funds for equipment. Similar teaching equipment was made available to the University Nursing School in Montevideo, Uruguay, and aid was also given to the School of Nursing in Bogotá, Colombia.

The School of Nursing at Lisbon, Portugal, which is a dependency of the National Cancer Institute and aims to prepare nurses for the Institute as well as public health nurses for the National Health Department, continued to receive support during 1945. Graduation exercises were held in August for the first three classes, when 27 nurses were given diplomas.

OTHER TRAINING

Mexico: Training Station

As a part of the Demonstration Health Unit in Tacuba, D.F., a suburb of Mexico City, a training station is operated. The program is arranged in such a manner as to provide training for students from the School of Public Health and for other persons who are assigned for special training. Aid toward this training station was continued in 1945.

Mexico: Training of Health Personnel in the States

In addition to the support given for field training in the School of Public Health in Mexico, aid is given also to five cooperative training stations located at Monterrey, Coatepec, Cuernavaca, Celaya and Guadalajara. This project is an outgrowth of the "regional instruction" designed to assist Mexican health officials to inaugurate and develop a plan for regional, state and local health services on a full-time basis, and by demonstrating the value of full-time organization, to stimulate the adoption of this principle throughout Mexico. It is expected that each of the five cooperative training stations now operating may train four or five groups of from nine to 15 persons annually, or a total of between 200 to 250 persons a year, divided approximately in equal numbers between physicians, nurses and sanitary officers.

British West Indies: Public Health Training Station (Jamaica)

In Jamaica, the International Health Division is cooperating in the support of a training station in connection with a demonstration health department in St. Catherine Parish. This training station offers instruction to health officers, public health nurses, sanitary inspectors, laboratory technicians and health educators, not only from Jamaica but from other parts of the British West Indies. The war has interfered with the mobility of students from other colonies, but successful courses were given, and the training station expects a period of increased usefulness now that the war is over.

FELLOWSHIPS AND TRAVEL GRANTS

The International Health Division during 1945 provided fellowships for 115 persons. Of this number 50 were new fellows, 3 on fellowship for the second time, 58 on fellowships continued from 1944, 2 from 1943 and 2 from 1941. Five of these persons held special fellowships.

The main occupations of the fellows were: physicians 76, nurses 34, sanitary engineers 10, public health educators 2. Fifty-seven of the fellows studied public health administration, 29 nursing, 9 sanitary engineering, 5 industrial hygiene, 2 virus diseases, 2 entomology, 2 foods and nutrition and 9 miscellaneous subjects.

The fellowship holders came from the following countries: United States 23, India 14, Venezuela 11, Canada 10, Chile 9, Mexico 8, Brazil 6, British West Indies 5, Bolivia 5, China 5, Colombia 3, Ecuador 3, Argentina 2, Peru 2, Uruguay 2, Iceland 2, and 1 each from the following: Dominican Republic, Netherlands, Nicaragua, Panama, and Portugal.

Thirteen persons received fellowships from the Rockefeller Foundation Health Commission during the year. One was on fellowship for the second time. Ten fellows from Korea studied public health administration. Two came from Greece for parasitology, and 1 from Denmark for chemistry.

Thirty travel grants were made to persons from the following countries: Canada (7), India (6), United States (4), England (4), France (3), China, Ecuador, Mexico, Peru, Brazil and the British West Indies (1 each). The grants were for study of public health administration (7), public health centers (2), health organization (2), public health nursing (2), public health education (2), malaria (2), and yellow fever vaccine,

tularaemia and sylvatic plague; sanitary engineering, nursing institutions, tuberculosis, maternity and child welfare, nutrition and public health, public health engineering, hospital administration, nursing centers, nutrition development, and hygiene teaching (1 each).

The Health Commission gave travel grants to 5 persons for the study of vital statistics, biological production, public health administration and nutrition. One came from Denmark, 2 each from the Philippine Islands and France.

Toward the China Program the International Health Division gave one grant during the year for public health administration.

THE MEDICAL SCIENCES

THE MEDICAL SCIENCES STAFF

During 1945

Director

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THE MEDICAL SCIENCES

THE year 1945 saw a continuance of the Foundation's program in neuropsychiatry. Most of the grants for this purpose represent renewals of support for medical school departments of psychiatry which had in the past been started or considerably expanded by means of Foundation funds. The long-standing need for increased attention to mental disease by our medical schools has been made very clear during the war years. An uncomfortably large number of men were discovered by Selective Service to be emotionally unfitted for military service. Even in the rigorously selected, emotional reactions have interrupted or destroyed effectiveness under hazardous circumstances. One third of all hospitalized casualties were for neuropsychiatric conditions. The number of trained psychiatrists available for military service was seriously small; the knowledge of psychiatry on the part of most medical officers inadequate. Competent teaching of psychiatry to medical students remains the key to correcting our remarkable neglect of disagreeable facts.

It is surprising that it has taken so long to recognize that the structure of man's personality is no more indestructible than his obviously fragile body. Now that this recognition has made possible a really scientific approach to the problem of human relations, it seems more than ever wise to continue support for psychiatry.

Perhaps one of the most satisfactory developments of the past year is the return of many promising young medical officers ready and anxious to learn more about

modern psychiatry. The departments aided by the Foundation are all participating in the widespread effort to provide adequate training for these men. It is also a pleasure to note an awakening interest in this subject on the part of the Veterans' Administration, which has recently completed a carefully drawn set of plans for graduate psychiatric education of former medical officers.

The ending of the war has finally made it possible to re-establish contact with European medical men. But the pleasure of seeing and hearing from old friends of the Foundation has been mixed with sadness at finding so much of the intellectual life of the continent in an impoverished state. Widespread lack of elementary food supplies and shelter serve as a depressing background against which to view requests for modern medical books and periodicals, basic scientific apparatus and advanced training of personnel. These problems have engaged an increasing proportion of the energies of the Foundation. By the end of the year it was possible to make a few grants to help European medicine start on the long climb back to normal levels. The needs far exceed any existing sources of aid.

It is not out of place to call attention to some of the problems which confront the medical schools of the United States as they set about assuming the responsibilities that have recently been thrust upon them. Whether or not their hopes are justified, large parts of the world now look to the United States for the setting of medical standards, the training of advanced personnel, and leadership in the quest for new knowledge. Unfortunately our medical schools find themselves in most instances with resources totally inadequate for such demands. Young teachers have not matured profes-

ally during the war but have acquired personal responsibilities which demand larger salaries; the cost of supplies and services has increased sharply; endowment income and prospects of future gifts have, on the other hand, seriously declined. One cannot expect institutions, hardly able to maintain routine undergraduate teaching, to offer high-grade training to visitors from abroad or even to provide environments which will keep our own best research intellects from succumbing to the more immediate satisfactions of clinical practice.

In medical education the intimate blend of practice with theory exposes any competent teacher of clinical medicine to the claims, and the large rewards, of private practice. In effect, such a situation means that we shall have to protect the teaching hours of our teachers of medicine from the inroads of private practice. If not, sooner or later, we shall produce a generation both incompetent and disinclined to serve the general public as it has been served by men devoting all their abilities to teaching and research.

PSYCHIATRY AND NEUROLOGY

WASHINGTON UNIVERSITY

NEUROPHYSIOLOGY

As a basic part of the Foundation's program in psychiatry, research in neurophysiology has been supported in a number of American and European centers since the early 1930's. Dr. George Bishop and his associates at Washington University School of Medicine constitute one of the most active groups in this field. For more than ten years their investigations have been carried on largely through Rockefeller Foundation assistance. This year \$40,000 was appropriated as a final outright grant in support of this work.

Dr. Bishop's collaborators have included a physiologist with psychological training, a neuroanatomist and a neurosurgeon. The program has centered on the functions of the central nervous system, involving particularly the application of neurophysiological techniques to the analysis of the action currents of the cerebral cortex. Special attention has been given to the correlation of these action currents with the psychic aspects of sensation.

In the past seven years, 36 papers have been published. Nearly half of these are concerned with an analysis of cortical function. Nine deal with the correlation of cortical activity with sensation or behavior. The most recent papers report studies on peripheral sensation, chiefly pain. The latter reflect a trend toward an application of the knowledge acquired through experimental work on animals to the study of human beings. The program will now be further extended into the clinical field through cooperation with the members of several other departments of the School.

KAROLINSKA INSTITUTE NEUROPHYSIOLOGY

A former Rockefeller Foundation fellow, Professor Ragnar Granit of the Karolinska Institute in Stockholm, has since 1937 received a number of grants in aid from the Foundation for research in neurophysiology. Most of this work has been principally directed toward a better understanding of the fundamentals of nervous activity but it has led as well to the development of practical aids for clinical neurology. The facilities of the laboratory are extensively used for collaborative research with members of other departments of the University, and the whole group promises to play a leading

part in providing advanced training for neurophysiologists in postwar Europe.

The Karolinska Institute has recently been granted 1,500,000 Swedish crowns from the Nobel fund for the purpose of building an institute comprising three independent departments: biochemistry, neurophysiology and cell research. One third of this is available for the laboratories of neurophysiology, which will be moved from their present location in the center of the city to the medical center at Norrbacka, a northern suburb.

The operating expenses of the expanded program are being partially provided for by the Wallenberg Foundation of Sweden. In 1945 The Rockefeller Foundation appropriated \$45,000 for a period of four and one-half years beginning March 1, 1945.

UNIVERSITY OF EDINBURGH
NEUROSURGERY, NEUROLOGY, PSYCHIATRY

Since 1940 Mr. Norman Dott and Professor D. K. Henderson of the University of Edinburgh have collaborated in studying the surgical and psychological aspects of injury to the central nervous system; five Foundation grants totaling \$101,210 have been made in support of these combined studies.

A unit was formed in 1940 to study brain and nerve injuries under war conditions. This had the cooperation and support of the Department of Health for Scotland and of the Ministry of Labor, and was directed toward the rehabilitation of wounded soldiers. It served as a center for cases of severe head injuries from the armed forces of Northern England and Scotland, and from the fleets in the North Atlantic.

In view of the need for increased numbers of well-trained psychiatrists, Professor Henderson has decided

to devote himself at present to teaching and administrative work in psychiatry. The unit, having trained some younger psychiatrists and psychologists, will continue without interruption. In 1945 the Foundation appropriated \$20,750 for support of this work for one year.

Certain combat injuries offer almost unique opportunity for studying the effects of circumscribed damage to the brain on such functions as learning, memory, speech and abstract thinking. By bringing together highly trained personnel in neurosurgery, neurology, psychiatry and psychology, the unit has developed new techniques which have led to improvements in therapy.

The need for the continuance of the unit to provide adequate treatment of civilian injuries is now recognized by the Department of Health for Scotland. It is hoped that a larger building may soon be erected to house the unit close to the Royal Infirmary, which is the teaching hospital of the University of Edinburgh.

As in former years, the Foundation's grant will be used for salaries, scientific materials and supplies.

HARVARD MEDICAL SCHOOL

PSYCHIATRY

The Psychiatric Service of Massachusetts General Hospital was opened in September 1934 with ward space for 12 patients, laboratories and a small outpatient clinic. Such a service in a general hospital was something of an innovation, since it was undertaken with the purpose of bringing psychiatry into close touch with the rest of medicine. In 1940 special wards were provided, one with 15 beds mainly for psychoneurotics and the other with accommodations for four disturbed patients. The outpatient service has increased from 480 new patients in 1934 to 800 in 1941. There were 230

consultations from other services of the hospital in 1936 and an average of 420 annually in 1942, 1943 and 1944. Instruction of medical students began with a group of 18 in a voluntary course in 1934, and has now expanded into a set of courses given to an annual total of 175 students. Eighteen former assistants or research fellows are in research and teaching positions elsewhere. Over 130 research papers and five books were published by members of the staff between 1934 and 1944.

One of the most important investigations has been the study of cerebral circulation, which has resulted in increased knowledge of the factors controlling cerebral blood flow, and the vasomotor phenomena in epilepsy, migraine, syncope and arteriosclerosis. This has led to the experimental treatment of cerebral vascular symptoms by inhalations of carbon dioxide and oxygen, and the treatment of epilepsy with azosulfamide.

Earlier clinical, psychological and physiological studies on the phenomena of psychoneurosis resulted during the war in a series of tests to aid in selection of pilots for naval aviation. Aided by grants from the Office of Scientific Research and Development, other studies on such military problems as neurocirculatory asthenia and the effects of oxygen want have been carried out.

During the period September 1934-45, the Foundation supplied \$80,000 to Harvard Medical School for use by the Psychiatric Service at the Massachusetts General Hospital. In 1945 an additional \$112,000 was appropriated for the period September 1, 1945 — June 30, 1948.

UNIVERSITY OF TENNESSEE PSYCHIATRY

The School of Medicine of the University of Tennessee has, in spite of wartime difficulties, put into

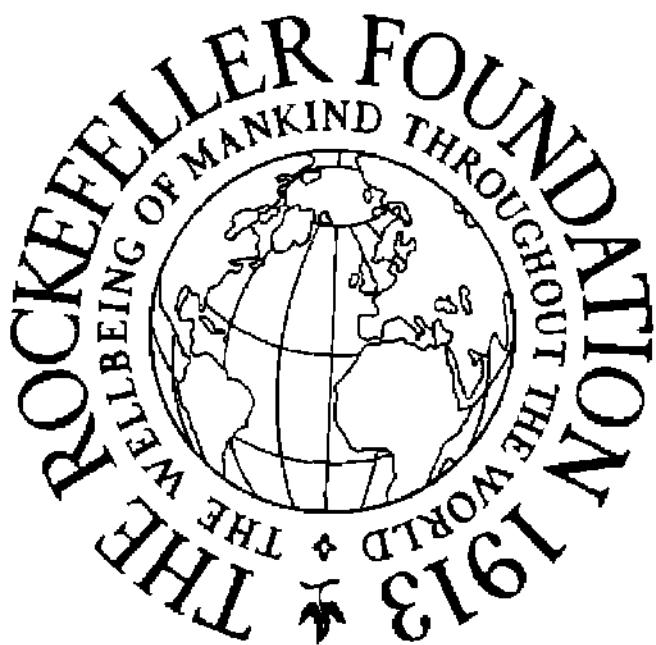
effective operation a psychiatric unit consisting of a well-equipped 40-bed hospital with a teaching staff under the direction of Dr. T. S. Hill, former professor of psychiatry at Peiping Union Medical College.

The Rockefeller Foundation in 1942 made an original appropriation of \$45,000 for the development of teaching and research in psychiatry at the University of Tennessee, and this year appropriated \$15,000 for a two-year support of neurophysiological research in the Department of Psychiatry. This will be principally concerned with the changes in the electrical activity of the brain brought on by certain pathological conditions such as syphilis and epilepsy. For these studies, a neurophysiologist experienced in encephalography, a psychometrist and a technician will be added to the staff.

VANDERBILT UNIVERSITY SCHOOL OF MEDICINE PSYCHIATRY

A patient with appendicitis, pneumonia or, indeed, any disease is not merely a "case," he is a human being whose past life, environment, thoughts, feelings and philosophy play a vital part in the course of his illness. The patient's very survival may depend to a large extent on his will to live, and his will to live on whether he feels loved and needed.

The rapid development of modern scientific medicine has tended to obscure the importance of these psychological factors, nowhere perhaps more markedly than in the dramatic but somewhat mechanical field of surgery. It is true, of course, that many successful surgeons have instinctively developed techniques for dealing with the emotional reactions of their patients. But knowledge of this sort has not been systematically put together for



Photograph Excised Here

Occupational therapy at the 40-bed hospital maintained by the School of Medicine of the University of Tennessee for the teaching of psychiatry.



Photograph Excised Here

School of Medicine, Vanderbilt University.

critical appraisal by the profession at large. Recently, however, Dr. Smiley Blanton started a study at Vanderbilt University School of Medicine for the purpose of finding out how the moods, attitudes and thinking of a patient may be modified by a surgical operation. Dr. Barney Brooks, professor of surgery, has set a notable example in his cooperation in this psychiatric study of patients on the surgical wards.

The psychiatrist and social worker together carry out a careful analysis of the personality and environmental background of each patient selected for study. Psychiatric interviews are carried on both with the patient and with various members of his family and social group. This information is supplemented by standard tests of intelligence, mood and emotional status. After the patient is discharged from the hospital, follow-up studies are made; these include a visit to the home, observation of the family situation and contact with any social agencies which may be helpful in the individual instances. As a result of this study, perceptible improvements have already been observed in the care of patients, especially in reducing their anxieties and in facilitating convalescence.

Two grants in aid of \$6,000 each were made by The Rockefeller Foundation in 1943 and 1944 for Dr. Blanton's work, and this year support was extended for an additional two and a half years with a grant of \$15,000. It will be used for the salaries of a psychiatric social worker and a secretary, and travel and office expenses.

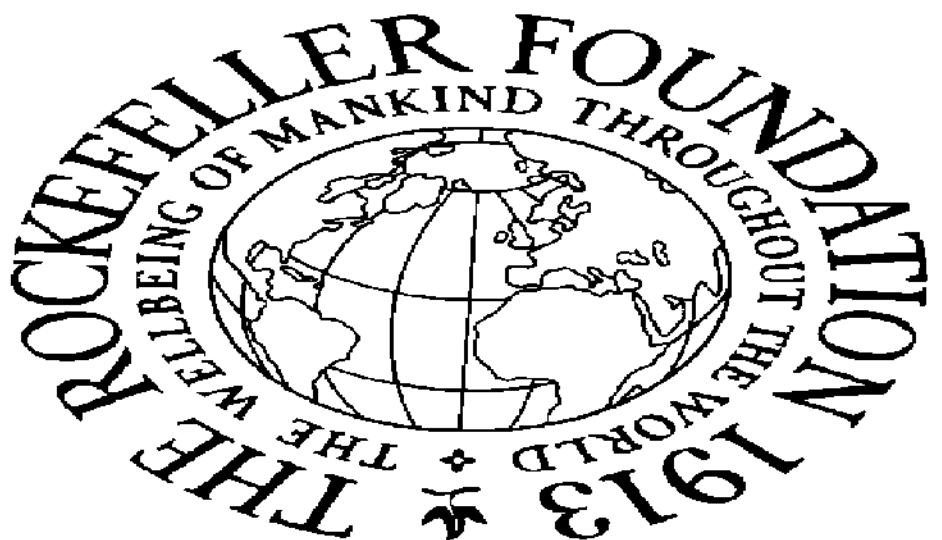
UNIVERSITY OF ILLINOIS PSYCHIATRY

The Rockefeller Foundation, starting in 1936, has made various grants to the School of Medicine of the



Photograph Excised Here

Chemical laboratory of the Research Division for Chronic Diseases, of the New York City Department of Hospitals, Welfare Island, where at the present time considerable attention is being given to chemical studies of the biological changes leading to arteriosclerosis.



Photograph Excised Here

Research at University College, London.

University of Illinois to provide more satisfactory instruction in psychiatry, and for the development of teaching and research in neurology and neurosurgery. In 1945, \$115,000 was appropriated for research in the biochemical aspects of schizophrenia under the direction of Dr. Francis J. Gerty. This money will be available over a period of four and one-half years.

The problem of immediate interest to the group is the investigation of carbohydrate metabolism in schizophrenia. Evidence accumulated during the past five years has suggested that a group of patients suffering from this disease may be distinguished by the presence of an abnormal concentration in the blood of a substance which interferes with the metabolism of the brain by antagonizing the action of insulin. Such patients are resistant to insulin and have difficulty in the storage or utilization of blood sugar. Clinical remissions in the course of the disease, whether spontaneous or induced by shock therapy, are associated with the disappearance of these biochemical abnormalities, but the mechanism of the alteration is unknown. Various types of shock are being studied from physiological and biochemical standpoints, and further basic knowledge of the oxidative sugar metabolism in the brain is being sought.

AMERICAN PSYCHIATRIC ASSOCIATION
PSYCHIATRIC NURSING

In 1940 the total number of graduate nurses employed in mental hospitals was 4,252; reliable estimates indicate that approximately 35,000 would be needed to take adequate care of civilians and servicemen with neuropsychiatric illness. In addition to this requirement for greater numbers, there is also a need for improving the quality of training provided.

Mrs. Laura W. Fitzsimmons, nursing consultant to the Committee on Psychiatric Nursing of the American Psychiatric Association, has made a survey of psychiatric nursing in the United States and Canada, including plans for the training of psychiatric attendants. Several significant points have emerged from a study of the data collected. The demand for affiliate courses in psychiatric nursing in the regular undergraduate course is growing rapidly and already far exceeds the supply. Mental hospitals are anxious to meet this demand but have been handicapped in many instances by lack of trained instructors and administrators. The first step in providing undergraduate and graduate instruction is to train leaders and teachers, and to this end six universities have set up courses to give graduate training in psychiatric nursing. These are: Catholic University in Washington, D. C., Ohio State at Columbus, the University of Minnesota, the University of Washington at Seattle, Western Reserve and the University of Colorado.

Specially trained nurses not now being available, attendants are being trained to supply part of the deficiency. Mrs. Fitzsimmons has written a *Training Manual for Attendants in Mental Hospitals*, with the aim of having training courses for attendants in the United States and Canada standardized and eventually accredited in the same way that nursing courses are now standardized and accredited. The many favorable comments on the manual received from superintendents of hospitals, departments of social welfare, the Veterans' Administration, commissioners of mental hygiene, etc., indicate that interest in improving standards of care is widespread.

During 1945 Mrs. Fitzsimmons worked in close collaboration with the New York State Hospital System in

revamping and modifying the nursing service in New York State hospitals. She also conferred frequently with various organizations and individuals interested in psychiatric nursing problems. Various universities have sought her advice in connection with establishing graduate courses in psychiatric nursing. The Committee on Psychiatric Nursing, under the direction of Dr. Charles P. Fitzpatrick, has worked in close cooperation with the National League of Nursing Education in the development of curricular standards in psychiatric nursing.

Continuing the support begun in 1942, The Rockefeller Foundation this year granted \$32,000 for the work of the Committee on Psychiatric Nursing over two and one-half years.

COLUMBIA UNIVERSITY

PSYCHIATRY

Dr. Franz J. Kallmann, associate in psychiatry at Columbia University, has for some years been carrying out research at the New York State Psychiatric Institute with support from the Carnegie Corporation on genetic factors in the incidence of nervous and mental diseases. The Rockefeller Foundation in 1945 appropriated \$24,000 in support of this work over a three-year period.

Dr. Kallmann has studied the incidence of mental disease, principally schizophrenia, in the brothers and sisters of twins admitted to New York State institutions for the insane. It has been found, for example, that if one member of a pair of identical twins has schizophrenia the other member of the pair is much more likely to have the disease than are the other brothers and sisters. The results of the work may be interpreted as evidence that genetic factors are important determi-

nants of susceptibility to mental illness. Similar studies of tuberculosis patients have added to our knowledge of the hereditary relations between tuberculosis and schizophrenia.

Dr. Kallmann applies similar methods to the study of various phenomena associated with aging, especially the senile psychoses. Little is known about the part played by constitutional factors in the development of such psychoses, and the marked increase in human life expectancy has shown the need for systematic genetic research in this field.

The Foundation's grant will be used to provide salaries for additional personnel working on this project, and for traveling expenses and supplies.

**ROSCOE B. JACKSON MEMORIAL LABORATORY
GENETIC PSYCHOLOGY**

Although our knowledge of genetics has been greatly advanced by the study of plants and insects, which reproduce rapidly and cost little to maintain, no comparable advance has been made in mammalian genetics — a subject of more immediate importance and interest to man, but a field substantially more costly both in time and money. Much advance probably must take place in our knowledge of mammalian genetics if we are to approach the study of human heredity wisely. Psychology and psychiatry, in the absence of usable knowledge of human heredity, may exaggerate the role of experience and environment in the explanation of behavior. Educational policies reflect the same tendency to disregard the influence of capacities or weaknesses which are perhaps determined by heredity.

Among higher mammals the dog presents excellent opportunities for the study of wide ranges of tempera-

ment, emotional stability, intelligence and trainability. Widely differing types can be studied and bred, and succeeding generations from controlled breedings can be tested. It seems reasonable to hope that such studies may increase our knowledge of hereditary factors in the determination of individual behavior.

The Rockefeller Foundation has appropriated \$282,000 to the Roscoe B. Jackson Memorial Laboratory for studies over a five-year period of the genetic factors underlying intelligence and emotional behavior in laboratory animals, especially in dogs. This laboratory, under the direction of Dr. C. C. Little, has in the past been principally devoted to genetic studies on cancer, using up to now a relatively primitive mammal, the mouse. For this new study several additions to the staff will be made and the laboratory space considerably extended and revised.

MEDICAL SERVICES

NATIONAL HEALTH COUNCIL

STUDY OF VOLUNTARY AGENCIES

In 1941 The Rockefeller Foundation appropriated \$75,000 over a three-year period for a study by the National Health Council, Inc., of the organization, interrelationships, policies and opportunities of voluntary agencies in the field of public health throughout the United States. At the request of the Council, the late Selskar M. Gunn was released from his duties as vice-president of the Foundation to make the study.

The survey included 712 agencies in 29 states. A 365-page report by Mr. Gunn and his assistant, Philip S. Platt, has recently been published. For aid in editing and publishing this report, \$15,000 was appropriated by the Foundation during 1945.

The voluntary health agencies constitute a distinctive American contribution to the common welfare. From small and tentative beginnings, they have multiplied into about 22,000 separate organizations, which extend into every area of medicine and public health. They collect annually from the public and from private contributors about \$50,000,000 (exclusive of the war fund of the Red Cross). They employ about 20,000 paid workers and enlist the free services of hundreds of thousands of board members, professional advisers, and volunteer workers in all parts of the country.

Although many of these organizations started out to furnish special services to people in need, they all soon discovered the importance of re-educating the public in health matters. They were among the first to bring to the public the revolutionary discoveries of Pasteur and Koch. In many fields they organized information for the public faster than the schools could assimilate the new teachings. They carried this vital instruction to countless numbers who were beyond the reach of the schools. They pioneered also in educating the public as to the value of public health regulations and services, supplemented the programs of official health agencies with services and special grants, and promoted legislation for better health measures and stronger health services.

These agencies have been pioneers in attacking special diseases or health problems for which official and other institutions were unprepared. Being free to explore and experiment where other agencies were limited by statute, inadequate budgets or geographical restrictions, the voluntary agencies have developed practical measures for general or official use.

The survey of the National Health Council suggests that the valuable and distinctive contributions of the

voluntary health agencies may be still further enhanced by greater coordination and consolidation. For example, it seems probable that funds may be provided more efficiently by cooperative campaigns on the state or even the national level than by the separate efforts of isolated groups. The report also points to a need for closer definition of the proper functions of government and private organizations.

MEDICAL ADMINISTRATION SERVICE

The Rockefeller Foundation has since 1942 been contributing to the support of Medical Administration Service, a voluntary association of laymen and physicians providing counsel and information to industries, government agencies, labor unions and private agencies which plan or maintain medical care. In 1945, \$29,000 was appropriated for this organization.

The executive agent of the Service is Dr. Kingsley Roberts. Members of the Advisory Council include G. Canby Robinson, Evans Clark, Michael Davis, Ernst Boas, Alta Dines, and others. During the past year Dr. Roberts has served as a consultant to the Crossett Lumber Company in Arkansas; the Medical Society of Alexandria, Virginia; the United Automobile Workers C.I.O. Union in Detroit; the Community Chest of Reading, Pennsylvania; the City Manager's office of Miami, Florida; the voluntary hospital in Peterborough, New Hampshire; and other private groups. The Service's valuable library has been drawn upon by government agencies and some of the magazines which have published articles on medical care.

In 1946 Medical Administration Service will give special attention to the study of desirable forms of group practice.

GROUP HEALTH COOPERATIVE, INC.

Aid for expenses in the operation and development of medical insurance programs has been granted to Group Health Cooperative, Inc., by The Rockefeller Foundation since 1942. This year \$45,600 was appropriated for a one-year period ending April 30, 1946.

Group Health Cooperative, Inc., is a non-profit organization providing physicians' services on a prepayment basis; since December 1940 it has been operating in ten counties around New York City under a license from the State Superintendent for Insurance.

Group Health Cooperative is distinctive in that it has consumer representation on its board of directors; it does not make cash indemnity payments to subscribers but pays the physicians and thus keeps in effective contact with the quality of their services; it has a higher upper limit of income of families eligible for complete insurance than do other similar organizations; it has striven for the development of group practice and as wide a coverage as possible.

The plan covers medical care in non-surgical hospitalized illness for a period of 21 days in any one year, surgery in hospital for an unlimited number of services in any one year, surgery out of hospital for an unlimited number of services for anything from a minor dislocation or infection to a serious bone fracture, maternity care including delivery and after-care in hospital or at home, and consultation with a specialist in any hospitalized care.

Three types of contract are available, with gross premiums as follows: for an individual employee \$9.60 a year, for husband and wife \$19.20, for a family including all unmarried children under 18, \$24.60. Subscribers

whose annual incomes do not exceed \$3,000 for a family, \$2,500 for husband and wife, or \$1,800 for a single person are guaranteed all the medical and surgical services described above. Subscribers of higher income who use the services of participating physicians receive indemnities according to a published schedule. More than 3,000 physicians are cooperating to provide services under this plan.

Group Health Cooperative has set and maintained the standard for other movements of the same character and has helped substantially in the preparation of the Health Insurance Plan sponsored by ex-Mayor La Guardia.

OTHER SUBJECTS

UNIVERSITY OF BRUSSELS

SOCIAL MEDICINE

In 1940 The Rockefeller Foundation made a one-year grant to the University of Brussels toward the support of teaching and research in social medicine under the direction of Dr. René Sand, but this money could not be used, since Belgium was invaded only a month after the grant was made. This year, however, application was made for a similar grant, and \$15,000 has been provided for Dr. Sand's work during 1946.

In June 1939 a new Institute of Hygiene and Social Medicine, built at a cost of 7,600,000 Belgian francs, was opened in Brussels in close proximity to the Medical School. It had been opened but a few months when the German Army converted it into hospital wards which were later used by the Allied armies. The property was restored to the University in June 1945, and after repairs and refurnishing will be ready in a few months for its original use. The Institute offers ample accommodation

for teaching and research in public health and hygiene, social medicine, industrial and school hygiene and forensic medicine.

War conditions for five years, the difficulties of repatriation, disorganization of industry and labor, the impoverishment of the country and the high cost of living have created social, medical and health problems which have turned public opinion in Belgium to a keener interest in social work and social medicine. This led to the enactment in December 1944 of social security laws requiring compulsory insurance against sickness, disability and industrial accidents and diseases.

The chair in social medicine at the University of Brussels is held by Dr. Sand, who has long had an international reputation as a leader in public health and social medicine. Not only was his course in social medicine previously elected by from 50 to 60 per cent of the medical students, but it has now been made compulsory, and the Faculty of Medicine has recommended that it be extended to other schools of the University. Already it is included in the curricula of the Schools of Criminology and of Engineering. Doctors preparing for the diploma in public health and social medicine will do graduate work and research under Dr. Sand's direction, and thus provide a group of experts in social medicine capable of securing the future of teaching and research in this field.

ARMY MEDICAL LIBRARY

CONSULTANTS

The United States Army Medical Library is one of the largest medical libraries in the world and occupies a position of especial importance by virtue of its widespread interlibrary loan service. It also has the distinction of publishing the only comprehensive cumulative

index of medical literature. In order to provide the library with the best possible advice and to stimulate wider recognition of its importance, the Surgeon General of the Army has recently assembled a group of influential physicians actively interested in its welfare. This group has now been incorporated as the Association of Honorary Consultants, and includes an executive committee and standing committees on building, legislation, acquisitions, rare books, endowment and grants. Following grants to the American Library Association for a survey of the Library, The Rockefeller Foundation appropriated \$12,000 in 1945 for expenses of the Association of Honorary Consultants over a two-year period.

**ROYAL SOCIETY OF MEDICINE
CENTRAL MEDICAL LIBRARY BUREAU**

The Royal Society of Medicine, founded in 1805, which through its library, meetings and discussions keeps members informed on the scientific and technical aspects of professional work, possesses one of the largest and best medical libraries in England. Five grants in aid were given by The Rockefeller Foundation between 1940 and 1944 to enable the Royal Society of Medicine to move its more valuable books to a place of safety in the country; at the same time library facilities were maintained in London for the use of medical men of the Allied forces. Special arrangements to meet their needs included the development of a collection of scientific papers photographed on microfilm.

Following its successful wartime library service to the forces abroad and to the profession at home, the Royal Society is extending its activities by supplying microfilm, photostat and lending services more widely in Great Britain and to medical schools and libraries on the

Continent, where the doctors beset with problems arising from war devastation are in urgent need of up-to-date scientific information. The shortages of paper and labor make it impossible to provide quickly enough for these needs in any other way.

Therefore the Royal Society has created a Central Medical Library Bureau to answer the need on the Continent for English medical journals, books, reprints, photostats, microfilms and information. In addition, it will provide in Great Britain itself a coordinated medical library lending service similar to that provided by the Surgeon General's library and several other institutions in this country. Microfilm readers have been ordered and will be distributed on loan from the Bureau. A union catalogue of materials suitable for photo reproduction held by various European libraries is being made. To aid in the establishment of this Bureau, The Rockefeller Foundation in 1945 appropriated \$250,000 to be available over a four-year period.

Personnel trained in microfilming became available on December 1, 1945, with the discontinuance of a wartime institution, the Association of Special Libraries and Information Bureaux (ASLIB), which provided microfilm, photostats, reprints and books on loan to the armed forces. The Royal Society plans to purchase, remodel and equip a building near its London headquarters as a center for storage, filming and distribution, while temporarily using the Victoria and Albert Museum quarters formerly occupied by ASLIB.

NEW YORK CITY DEPARTMENT OF HOSPITALS
RESEARCH COUNCIL

In 1937 Dr. S. S. Goldwater persuaded the City of New York to provide not only new and enlarged hospital

facilities for patients with chronic diseases, but a new arrangement for collaboration between the City and the medical schools. A Research Council was formed with a scientific advisory committee to guide the commissioner of hospitals in securing from the medical schools the best possible collaboration in the study and care of patients with chronic diseases.

The College of Physicians and Surgeons, aided by funds from The Rockefeller Foundation and other sources, staffed a research unit in the new \$5,500,000 Goldwater Memorial Hospital on Welfare Island and placed Dr. David Seegal in charge. The City provided hospital beds, a budget adequate for hospitalization of selected patients, nursing, dietetic and social services, laboratory space and, through the Research Council, \$20,820 for the salaries of research workers. The Rockefeller Foundation added \$22,000 annually for salaries of research workers, assistance, and supplies and equipment.

For the year 1944-45 the funds from the municipal budget were increased to \$37,260 and the Lasker Foundation contributed \$10,000. In 1945 The Rockefeller Foundation's participation was extended for two years with a grant of \$44,000.

This collaboration has demonstrated that the combination of research and teaching with custodial care of the chronically ill results in the improvement of all three functions. The patients receive the regular attention of a first-class staff. Medical students have been stimulated to an interest in the problems of the chronically ill and are enthusiastic about their tour of duty on this service. The investigations of the staff have led to methods for controlling cirrhosis of the liver which set standards of therapy for this disease. More recently, attention has

turned to a chemical study of the biological changes leading to the development of arteriosclerosis.

COLUMBIA UNIVERSITY
STUDY OF HUMAN CONSTITUTION

Dr. George Draper and his assistants, Dr. C. Wesley Dupertuis and Dr. John L. Caughey, Jr., have been engaged in investigative work as a group, called the Constitution Clinic, in the Department of Medicine of Columbia University. The purpose of their studies is to determine types of patients which may be distinguished by their physical measurements, bodily functions, immunological reactions and psychological characteristics, and the extent to which recognizable types of persons are susceptible to certain diseases. The work of observing, measuring, recording and comparing patients in this way is laborious and slow, but it is pioneering in a field of considerable promise, closely linked with psychiatry and psychology. The Department of Medicine provides office space and laboratories, together with freedom to observe and examine ward patients.

The Rockefeller Foundation this year made a grant of \$8,100 toward salaries, equipment and supplies, continuing support which has been given to this project since 1936.

UNIVERSITY COLLEGE, LONDON
PHYSIOLOGY

Although striking advances have been made during the war in the application of scientific principles to the practical handling of disease, research in the sciences basic to medicine has on the whole declined both in quantity and quality. Productive young investigators were diverted from fundamental research in physics,

chemistry, anatomy and physiology to occupations more immediately useful to the war effort. Many of them now return less sure of their own capacity for creative scientific work and burdened by increased family responsibilities. Temptation beckons to leave research for the practice of medicine.

University laboratories with distinguished records of achievement face the problem of ensuring future productivity on the same scale as in the past. A notable example is the Physiology Laboratory at University College, London. Under the direction of Dr. A. V. Hill since 1923 this department has made many contributions especially to our knowledge of muscular function. It has provided advanced training for no less than 72 young investigators from different countries. Fortunately the physical equipment of the laboratory was not damaged by the intensive bombing which the surrounding part of London suffered. In the coming years Dr. Hill wishes to attract and hold together a promising young group of physiologists in order to prepare them to lead the way to future developments in British medical science.

The Foundation made available in 1945 the sum of \$72,900 toward the expenses of this department for the next six years.

**GRADUATE MEDICAL EDUCATION
EIGHTH SERVICE COMMAND**

Beginning July 1, 1943, a program of graduate medical education was put into effect in the hospitals of the Eighth Service Command, under the command of Brigadier General W. Lee Hart and with the advice and counsel of Colonel Walter Bauer. Medical books and journals were purchased to bring hospital libraries up

to an efficient level. Clinical-pathological case histories and slides were secured and put into use by groups of physicians serving in the base and station hospitals. Civilian physicians, usually from the staffs of medical schools, were invited to visit a series of military hospitals in company with the medical, surgical, orthopedic or psychiatric consultant, for the purpose of instructing, criticizing and stimulating the physicians in military service. The object of the program was to improve the morale and practice of the military medical officers. The program continues the success described in the Annual Report last year.

The period of mobilization and training of medical officers for overseas which centered principally about the station hospitals has now ended. A second phase of the project has seen increasing activity in the general and convalescent hospitals and has been marked by some exchange of medical personnel with various theaters of operations. With the end of the war, the population of general and convalescent hospitals has further increased and a larger number of medical officers who have served in combat theaters have returned to these hospitals. Since many of these officers had little opportunity to do professional work during their period of service, the program gives them important aid in re-establishing themselves along professional lines.

The Foundation has aided this activity since its beginning, and this year appropriated \$25,000 for the one-year period ending June 20, 1946.

MASSACHUSETTS GENERAL HOSPITAL
CASE HISTORIES FUND

The clinical-pathological conference as a teaching exercise consists in the presentation of a patient's

clinical history followed by an illustrated discussion of the findings at postmortem examination. Exercises of this sort have been carried out at the Massachusetts General Hospital for the past 25 years and have spread in one form or another to almost all medical schools and many independent hospitals.

The Eighth Service Command has been able to obtain these presentations with funds provided under the Foundation grants described above, but the Army itself has no way of appropriating money for such purposes and so hospitals outside this Command have been unable to obtain the material they desire. The great pressure of other duties in Army hospitals has made it difficult for them to prepare their own teaching conferences, and Dr. Benjamin Castleman, of Massachusetts General Hospital, has received many requests for such material. The Rockefeller Foundation in 1945 therefore appropriated \$9,500 to the Massachusetts General Hospital for the expenses of preparation and distribution of case material for clinical-pathological conferences in various Army hospitals. It is hoped that such an educational program will improve the standards of care to patients in military hospitals and reduce part of the postwar problem of rehabilitating medical officers for civilian practice.

BINGHAM ASSOCIATES FUND OF MAINE POSTGRADUATE MEDICAL EDUCATION

The Bingham Associates Fund of Maine is a non-profit corporation set up for the purpose of advancing medicine in the State of Maine. The Fund supplied money to build in Boston the Joseph H. Pratt Diagnostic Hospital, which has close connections with the Tufts College Medical School.

Together these organizations have for the past ten years been developing a program for raising the level of medical practice throughout the State of Maine. They have organized 25 rural hospitals into two groups centered about two base hospitals in Lewiston and Bangor, which in turn are affiliated with Pratt Hospital. A free interchange, between the school center and the affiliated hospitals, of practicing physicians, teachers, hospital services and patients has extended to even small rural hospitals some of the advantages that characterize a teaching hospital.

Physicians from the outlying hospitals receive graduate courses in the various specialties at Pratt Hospital, and consultants from Boston make regular teaching rounds and conduct staff conferences in the member hospitals. The laboratory and diagnostic facilities of the member hospitals have greatly improved. Unusual problems or cases are referred to Pratt Hospital; after diagnosis these are immediately referred back to the original physician together with a careful report of findings, recommendations for future handling and a brief abstract of the relevant literature. Before the war, joint residencies enabled their holders to divide their time between the Pratt Hospital and various of the outlying hospitals. Residents proved to be almost ideal teachers for the local profession. This aspect of the program is now being rapidly advanced to meet the needs of returning medical officers. Plans are under way for exchange of undergraduate students and interns as well.

The Rockefeller Foundation in 1945 appropriated \$250,000, available over a five-year period, for the development of a similar program in three areas in Massachusetts. The grant will be used for salaries of pathologists and radiologists for rural hospitals, grad-

uate scholarships, salaries of visiting residents and technicians, travel of visiting consultants, and library and secretarial service.

FELLOWSHIPS

In 1945 a total of \$70,000 for fellowships was administered by the Medical Sciences Division of The Rockefeller Foundation; \$75,000 has been appropriated for 1946. There were 26 fellows in 1945, 25 of them studying in the United States and 1 in Sweden. Subjects studied were bacteriology, surgery, biochemistry, pharmacology, preventive medicine, clinical endocrinology, anatomy, physiology, pediatrics, internal medicine, infectious disease, obstetrics and gynecology, genitourinary surgery, neurophysiology, cancer, thoracic surgery, psychiatry, nutrition, psychoanalysis and pathology. The fellows came from the following countries: 4 each from Brazil, Chile, China and Peru; Venezuela 3; United States and Canada 2 each; 1 each from Denmark, Mexico and Finland. Twelve of the fellowships were new in 1945, 11 were continued from 1944, and 3 from 1943.

In addition to these grants to individuals, the Foundation made appropriations to organizations in the United States, Great Britain and Australia which administer fellowship programs of their own.

Funds given to the National Research Council of the United States continued a program of long standing and provided in 1945 for 5 fellowships in the medical sciences, the holders of 3 of which were appointed for the first time.

From 1923 to 1937 the Foundation appropriated \$249,000 to the British Medical Research Council for fellowships for study in the United States and on the

Continent. The use of the final grant was interrupted in 1939 by the war. In all, 101 appointments were made with this support. From a study made in 1936 of the first 70 fellows, 64 were found to be holding teaching and research posts, including 12 professorships. Well-defined administrative methods have been established, and the record of past British fellows has been so satisfactory that Foundation support was renewed in 1945 with a one-year grant of \$20,000.

Although the Foundation during the years 1924 to 1933 awarded 15 direct fellowship grants to Australians for study in medicine in the United States or Europe, it has not, before 1945, set aside funds specifically for use by Australian students. This year, however, \$15,000 has been appropriated to the National Health and Medical Research Council for fellowships in the medical sciences. This action was taken because of the comparative isolation since 1939 of Australia's university medical schools, which before the war maintained close contact with other parts of the world, largely through sending their junior staff members to the United States and Great Britain for additional training and experience. Now there is accumulated need of traveling fellowships for younger teachers, and the Foundation grant is designed in part to fill this need, under an arrangement similar to the one with the British Medical Research Council.

GRANTS IN AID

The Rockefeller Foundation in 1945 awarded 39 grants in aid, ranging in amount from \$250 to \$7,500 and totaling \$119,530. Aid went to such institutions as the Universities of Chile, São Paulo, San Marcos in Lima, Buenos Aires, and Oxford; the Serafimer Hospital and

Karolinska Institute in Stockholm; the American University of Beirut, Syria; the London County Council; Oswaldo Cruz Institute, Rio de Janeiro; Catholic University, Santiago, Chile; and the Committee on Research in Medical Economics, Inc., New York. Two grants were made to Radcliffe College to provide fellowships under the Management Training Program, an experiment in the application of psychology to personnel problems in business administration. The grants covered a wide area and include such subjects as child psychology, electrophysiology, industrial hygiene, physiology, radiology, anatomy, neuroanatomy, psychiatry and parasitology.

Many of the grants provided for the visits of scientists to the United States and Canada; these were made to the Universities of Lyon, Paris, Oslo, Bern, Philippines, Leiden, Breslau, Charles University in Prague and the University of Otago, New Zealand. Another grant was for the visit of a commission representing medical institutions in Sweden. A grant to Dikemark Hospital, Oslo, was for the purpose of visits to Great Britain and the Continent.

The geographical distribution of the grants was as follows: United States, 8; Chile, 5; Norway and England, 4; Sweden and France, 3; Brazil, 2; 1 each for Peru, Argentina, Syria, Switzerland, Philippines, New Zealand, Netherlands, Poland, Mexico and Czechoslovakia.

**SPECIAL EMERGENCY GRANT-IN-AID FUND
FOR SCIENTIFIC EQUIPMENT IN THE NETHERLANDS**

Dr. Alan Gregg, director of the Medical Sciences Division of the Foundation, visited universities and technical schools in Holland in October 1945. Through

bombing, shelling or looting, all schools visited had lost an important part of their scientific equipment, without which teaching and research in medicine can not continue. The main needs are for machine tools, microscopes and textbooks.

The Rockefeller Foundation has for many years given support to universities in Holland in the fields of medical education, medical sciences and natural sciences. While it is impossible to replace the overwhelming losses, aid in procuring some of the most-needed materials will enable laboratories to begin work again. Therefore a special emergency grant-in-aid fund of \$80,000 was appropriated as a joint natural sciences-medical sciences project, to be allocated by the officers to medical and natural science laboratories of universities and technical schools in the Netherlands during the period ending December 31, 1946.

THE NATURAL SCIENCES

THE NATURAL SCIENCES STAFF

During 1945

Director

WARREN WEAVER

Associate Director

FRANK BLAIR HANSON¹

Assistant Director

HARRY M. MILLER, JR.

¹Died July 21, 1945.

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THE NATURAL SCIENCES

THE Natural Sciences Division of the Rockefeller Foundation in 1945 awarded 23 grants totaling approximately \$1,426,000 to research projects in the field of experimental biology. In addition, six grants amounting to \$245,800 were made for research in paleontology; for cosmic ray physics in Brazil; for the design and construction of a new high-voltage electrostatic generator; for the coordination and development of physics research in this country; for research in infrared spectroscopy; and for applied mathematics fellowships.

Emphasis in the field of biology was on long-term research projects concerned with such subjects as enzymes and their role in nutrition and metabolism; cell physiology; the synthesis of artificial antibodies; development of new chemotherapeutic agents through understanding of drug action and metabolism; study of growth-substance deficiencies and growth inhibitors; investigation of physiologically active natural substances; protein chemistry, with studies of nucleic acid, the amino acids and protein stabilization. Some of the work was aimed at better understanding of the constituents of blood and their components and functions. Another project involves X-ray and electron microscope studies of the molecular structure of proteins.

Genetical activities were concerned with the serological induction of mutations in bread mold; with *Drosophila* genetics; with the cytology and genetics of the evening primrose; and with cytoplasmic inheritance in

Protozoa. Aid was given for the development of an Institute of Experimental Pathology in Iceland to study the diseases and the improvement of farm animals, especially sheep. Grants were made to two laboratories using small cyclotrons to produce radio-active isotopes for biological and medical research. The Mexican agricultural program was continued, with appropriations for general expenses and for the improvement of substations for agricultural research and demonstrations.

EXPERIMENTAL BIOLOGY

COLUMBIA UNIVERSITY

ENZYME CHEMISTRY

The study of enzymes provides a basic approach to many fields of biochemistry and medicine. Living systems carry on their activities through myriads of chemical reactions collectively referred to as intermediary metabolism. Growth, reproduction, nerve conduction, and muscular contraction are all illustrations of chemical events in intermediary metabolism which are not spontaneous, but which require the presence of highly specialized protein catalysts known as enzymes. Recent research seems to indicate that there is a different enzyme for practically every reaction.

Research in enzymes is closely related to the study of nutrition. The study of nutrition and the study of enzymes represent two sides of the same coin. If all the enzymes present in a particular organism were known, it would be possible to determine the complete nutritional requirements. Conversely, it is possible to use the science of nutrition to ferret out information about enzymes.

Among the basic research projects in enzyme chemistry receiving support from The Rockefeller Founda-

tion is the work at Columbia University by Dr. David E. Green, whose views are reflected in the remarks of the preceding paragraphs. The sum of \$10,000 was appropriated to Columbia University in 1945 to support this work for two years. The project is an outgrowth of similar aid in 1942 to chemical investigations in connection with the nutritional and biochemical aspects of rheumatic fever carried on by Dr. Green and Dr. A. F. Coburn. Most of the specific research supported under the former grant has been completed. The new work now under way includes isolation of an enzyme related to vitamin B₆. An example of this type of enzyme is transaminase, which is found in all tissues and is one of the most powerful of the known enzymes.

WASHINGTON UNIVERSITY
BIOCHEMISTRY

Since 1938 The Rockefeller Foundation has been supporting research in carbohydrate metabolism under the direction of Professor Carl F. Cori of the Department of Pharmacology of Washington University. This year he was awarded a one-year grant of \$7,000.

Professor Cori's work is primarily concerned with the isolation of enzymes from tissues and the study of the chemical reactions catalyzed by these substances — particularly enzyme systems concerned with the use of carbohydrates. During the period of Foundation support he has isolated the enzyme phosphorylase, which brings about both the formation and breakdown of glycogen and starch. Information of this sort will make it possible to learn how poisons, drugs and other chemical agents act on living organisms. Such investigations are contributing to the scientific foundation for pharmacology as well as forming an important part

of the newer knowledge in biochemistry and physiology.

Although various vitamins have long been known to enter into enzymatic systems, it has been somewhat surprising that no similar connection has been established between hormones and enzymes. But last year Professor Cori demonstrated that a hormone from the anterior lobe of the pituitary gland and another from the adrenal cortex inhibit a certain enzyme, while insulin cancels this inhibitory action. This discovery may eventually prove to be as outstanding as Dr. Cori's discovery of the role of phosphorylase.

YALE UNIVERSITY
ENZYME CHEMISTRY

The close participation of proteins in the activity of living matter gives them an outstanding place in any picture of the chemical events in normal and pathological cells and tissues. Proteins are formed only in living cells; so far it has been impossible to synthesize them in the laboratory. It is a remarkable feature of the biological formation of proteins that, under normal conditions, each tissue creates the same protein molecules precisely and repeatedly. In order to perform this formidable synthetic task by successively introducing the appropriate amino acids into their appointed places in the protein molecule, the tissues must be provided with enzymes which possess a most delicate and precise specificity of action. These enzymes must be able to choose, from among a large number of possible syntheses of amino acids into peptides, only a restricted number which will be catalyzed selectively.

Professor Joseph S. Fruton, of the Department of Biochemistry of Yale University, is following three main

lines of investigation of the role of enzymes in the metabolic transformations of proteins: first, investigation of the specific chemical reactions which provide energy for the synthesis of peptide bonds in biological systems; second, purification and study of the mode of action of several of the intracellular proteolytic (protein-digesting) enzymes; third, exploration of several pathways of biological peptide synthesis by mechanisms which do not require the participation of proteolytic enzymes. This work is a continuation of researches which Professor Fruton carried on for ten years in the Rockefeller Institute, under Dr. Max Bergmann.

Partial support of this work over a three-year period is provided by a grant of \$10,700 from The Rockefeller Foundation.

KAROLINSKA INSTITUTE

GENERAL BIOCHEMISTRY AND GENERAL BIOPHYSICS

Important research on many aspects of medical and fundamental biological problems is being carried out at the Karolinska Institute in Stockholm. The Rockefeller Foundation has appropriated \$75,000 for equipment in the Department of Biochemistry and the Department of Cell Research in the new Medical Nobel Institute attached to the Karolinska Institute.

For more than 20 years, Professor Einar Hammarsten has been a leading figure in the Karolinska Institute, and since 1928 he has been professor of chemistry. Himself a distinguished investigator, he has devoted much time to the training of young men in research. Among the numerous gifted young chemists developed under his tutelage are Professor Hugo Theorell and Professor Torbjörn Caspersson. The former was appointed the first research professor of the Medical Nobel Institute

in 1938, and the latter was appointed to a specially created professorship of cell research in 1944.

Both investigators have until recently continued to work in the Chemistry Institute directed by Professor Hammarsten, but the quarters available for their expanded programs were quite inadequate. Provision for a single new Medical Nobel Institute building to house the separate departments of which Professors Theorell and Caspersson are directors, was made by the allocation of money from the Nobel Institute funds. The Wallenberg Foundation has also granted funds for a special extension of the building for a subdepartment of genetical cytology under Professor Caspersson, and for costs of equipment and research in that field.

Professor Theorell's principal field is enzyme chemistry, especially hemin ferments and their action in the blood. Work has also been done on the purification and production on a large scale of a new antibiotic substance, bactericidic against tuberculosis bacteria. Professor Theorell has worked with distinguished investigators in Germany, France and the United States, and has lectured widely in Europe. Professor Caspersson's research is in the field of cytology and cell physiology, directed chiefly toward understanding of the chemical processes in the individual cells governing growth and cell function. He visited the United States for the first time in the fall of 1945, when he attended an international congress on cytology as related to cancer.

CALIFORNIA INSTITUTE OF TECHNOLOGY IMMUNOLOGY

The Rockefeller Foundation has since 1941 been supporting research in immunology at California Insti-

tute of Technology under Professor Linus Pauling of the Gates and Crellin Laboratories of Chemistry and Professor A. H. Sturtevant of the William G. Kerckhoff Laboratories of the Biological Sciences. This year \$19,000 was appropriated in support of their work.

Professor Pauling's research indicated that it may prove to be possible, in the laboratory, to convert a normal protein into one with the properties of an antibody to a specific antigen. He calls such a solution an "artificial antibody." An interesting possibility is the use of human blood globulin as the protein from which to manufacture artificial antibodies, thus eliminating the danger of serum sickness. Investigations in this field are long term and difficult, but of great potential importance.

Professor Sterling Emerson, an associate of Professor Sturtevant's, has made discoveries on the serological induction of mutations in *Neurospora*, or bread mold. Such physical agents as X-rays, radium and ultraviolet light readily produce mutations, but thus far chemical agents have usually failed to modify the germ plasm.

HARVARD UNIVERSITY

CHEMOTHERAPY

Since 1940 the International Health Division of The Rockefeller Foundation has supported the research on chemotherapy in relation to malaria by Professor Louis F. Fieser of the Department of Chemistry of Harvard University. Working under a government contract, Professor Fieser has been investigating a new series of compounds of a unique chemical type which are endowed with remarkable biological potency, and which appear to have an action quite different from that of known antimalarial drugs.

Professor Fieser is trying to break away from the conventional and purely empirical scheme of chemotherapeutic research and to develop a rational method for the discovery of new chemotherapeutic agents through research that will provide some understanding of the phenomena of drug action and metabolism.

In 1945 the Natural Sciences Division of The Rockefeller Foundation appropriated \$54,900 for support of Professor Fieser's research over a period of four years. After his government contract expires, he will undertake work on other comparable problems in chemotherapy.

COLUMBIA UNIVERSITY

PLANT GROWTH

William J. Robbins, professor of botany at Columbia University, and director of the New York Botanical Garden, has for some years been investigating the fundamental factors governing the growth process in plant tissues. This research is divided into two main parts: the study of growth-substance deficiencies, that is, the inability of an organism to make some compound necessary for its growth; and the study of growth inhibitors, the so-called antibiotic substances. The material used in the investigations consists of excised roots of higher plants, filamentous fungi, and a few yeasts and bacteria.

In the study of growth-substance deficiencies, one technique employed is to grow excised roots in completely synthetic media to which various substances are added under controlled conditions. Excised tomato roots have been maintained in a mineral-sugar-thiamine solution for 113 passages extending over a period of about nine and one-half years; no one has ever before approached this extended period of culture using a completely synthetic medium. Nearly 200 species of fungi

have also been surveyed for growth-substance deficiencies, and for nearly 50 of them specific vitamin deficiencies have been identified. Some of them, however, have deficiencies not satisfied by vitamins or amino acids, and research is being carried out to identify the factors, yet unknown, which are necessary for plant growth.

The control of growth depends not only upon furnishing the essential substances which the organism is unable to make with its own metabolic machinery, but also upon the presence within or outside the organism of growth inhibitors. A study of these antibiotics is the second phase of Professor Robbins' work. Penicillin is an important example of a natural substance, produced by mold, which inhibits the growth of other organisms. Professor Robbins' group has studied between 450 and 500 fungi, chiefly the *Basidiomycetes*, for the production of growth-inhibiting substances. A preliminary survey showed that nearly one-third of these fungi produce antibacterial substances. Some 30 of the fungi evidence considerable activity, and the antibiotic substances in four of them have been concentrated to a point where they are active against *Staphylococcus aureus*, the bacterium causing boils and abscesses, even when diluted from two to five million times. (Penicillin is active in one part to one hundred million.) Results up to the present indicate that the antibiotic substances produced by the molds are not penicillin or any other known substance. Further refined chemical work on these antibiotics is necessary, as well as their testing for toxicity and effectiveness in laboratory animals. This work offers the possibility of controlling parasites which are untouched by antibiotics now available. The Rockefeller Foundation in 1945 appropriated \$25,000 for support of this project during the next five years.

CORNELL UNIVERSITY
PROTEIN CHEMISTRY

Living organisms are chiefly built of the very large and complex protein molecules. These have so far defied attempts at synthesis, and only a beginning has been made in studying their structure. Because of the basic importance of proteins in an understanding of the functions of life, The Rockefeller Foundation's natural sciences program over the last decade has placed special emphasis on protein research. This year \$50,000 has been appropriated to Cornell University for research in protein chemistry under the direction of Professor John G. Kirkwood of the Department of Chemistry, over a period of three and a half years.

Relatively adequate theoretical methods are now available for the interpretation of the thermodynamic, visco-elastic, optical and electrical properties of globular proteins such as hemoglobin and other proteins possessing a comparatively rigid molecular structure. Methods of interpretation are lacking, however, for the fibrous proteins such as myosin, the muscle protein, and fibrinogen, the blood-clotting protein, the molecules of which are thought to be long and flexible. Professor Kirkwood's program will be devoted to the development of new methods, both theoretical and experimental, for determining the physicochemical properties of the fibrous protein molecules.

STANFORD UNIVERSITY
BIOCHEMISTRY OF NUCLEIC ACIDS

A three-year grant of \$10,000 was made by The Rockefeller Foundation in 1945 to Stanford University for research in biochemistry under Professor Hubert S. Loring of the Department of Biochemistry.

A most important constituent of the nucleus of the cell is nucleoprotein, a combination of nucleic acid with simple proteins. An understanding of the chemistry and metabolism of nucleic acids would, therefore, provide insight into the fundamental unit of life itself, the cell. This problem has bearings on the questions of cell growth and multiplication in normal tissues as well as of virus reproduction and malignant growth.

Professor Loring has been working on the biochemistry of nucleic acids since 1935, when he began a four-year association with Dr. W. M. Stanley of The Rockefeller Institute for Medical Research at Princeton. Here he carried out investigations of the nature of tobacco mosaic and other plant viruses. During the past six years he has been engaged at Stanford University in a successful research program on the chemistry and metabolism of nucleic acids.

UNIVERSITY OF ILLINOIS

NUTRITION

A description was given in last year's Annual Report of research on the biochemistry of the amino acids which is being carried on under the direction of Professor W. C. Rose of the Department of Chemistry at the University of Illinois. This work has two main phases: the first concerns the problem of which amino acids are required in the diets of human beings, and in what amounts. Proof has been obtained that at least eight amino acids are essential for the maintenance of nitrogen equilibrium in man. For three of these, minimum daily requirements and recommended daily intake have finally been established; this type of measurement is now in progress for two more amino acids. Tests are being made to discover whether the recommended daily intakes are

sufficient, provided a simple source of nitrogen such as urea or ammonium salts is supplied for the synthesis in the body of non-essential amino acids. It must also be determined whether microorganisms in the alimentary tract play a significant role in synthesizing amino acids for the use of human subjects.

The second phase of Professor Rose's project concerns the possible existence of an unidentified component of proteins necessary for maximum increases in growth. Young rats fed diets containing mixtures of the known amino acids fail to grow as rapidly as litter mates on like diets in which the nitrogen is furnished in the form of proteins. Young men receiving diets in which the nitrogen is supplied in the form of known amino acids require more calories than when the same quantity of nitrogen is furnished in unhydrolyzed protein form. A new fractionation process promises a more successful attack on this problem than has hitherto been possible.

The Rockefeller Foundation has appropriated \$20,000 to provide for the salaries of research assistants and the purchases of amino acids during the next two years.

STANFORD UNIVERSITY
BIOCHEMISTRY

For over two years, Professor J. Murray Luck and his associates in the Department of Chemistry of Stanford University have been working on a method to stabilize solutions of serum albumin, prepared for the armed forces to treat shock, so that even though exposed to high temperatures in the tropics or elsewhere they would not coagulate, but would remain clear and usable. Salts of the lower fatty acids have been found effective as stabilizers.

Now that the war is over, Professor Luck is turning his attention to certain more fundamental aspects of

protein stabilization. What is needed most of all is a complete theory of stabilization, so that it will be possible to predict the nature of the chemical compounds necessary for the stabilization of solutions of given proteins. It is desired to obtain effective stabilization of human serum gamma globulin, now used in controlling measles, so that aqueous solutions will last indefinitely. If native proteins used industrially, such as the cereal proteins, could be stabilized to high-temperature treatment, it is probable that their solubility relationships, general properties, and hence industrial uses could be greatly modified. Stabilization to high temperatures would also increase the usability of enzymes, all of which appear to be proteins.

In 1945 The Rockefeller Foundation appropriated \$25,500 for research by Professor Luck during a three-year period.

HARVARD UNIVERSITY
PHYSICAL CHEMISTRY

In this war, military surgeons have made extensive use of the transfusion of blood or of its constituent parts. Their understanding and utilization of the different components of blood in military medicine depend heavily upon the researches of Professor E. J. Cohn and his associates in the Department of Physical Chemistry of Harvard Medical School.

No so-called blood substitute has been found which completely replaces human blood. Whole blood is especially necessary when there has been severe blood loss or when major operations are to be performed in which great blood loss is anticipated. The red cells, which constitute about 50 per cent of the total amount of blood in the body, are responsible for the respiratory

function of the blood, carrying oxygen to the tissues; they are also needed to combat the anemia which frequently occurs in convalescence from wounds.

The other half of the total amount of blood is the fluid called plasma, one of the most important of the body fluids. Over 90 per cent of plasma is water; the second main constituent is protein, diverse in form and functions. Some proteins are concerned with the clotting of the blood, certain others with immunity from disease. Some primarily maintain the osmotic pressure and thus the water balance of the body, some are hormones or enzymes. The functions of many of these proteins remain to be discovered.

Our present knowledge of the plasma components is due in large part to Professor Cohn's research. The clotting factors, fibrinogen and thrombin, have been separated from plasma and formed into foams, clots, films and plastics, making possible operations which formerly were rarely attempted because of the danger of hemorrhages or lesions. The clotting factors are also used to treat burns and assist skin grafting.

The gamma globulins, which form another fraction of plasma, contain antibodies against some diseases which the blood donor has had. Measles, mumps and scarlet fever are among the diseases which may be combatted by the use of antibodies. During an epidemic of measles in a girls' college, 67 exposed students who had never had measles were given injections of gamma globulin; only one girl developed a typical case. Eighteen typical cases developed among 38 girls not given globulin.

Blood albumin, a unit of which occupies less than one-sixth the space of a unit of whole plasma, has proved valuable in restoring blood volume in cases of shock and blood loss.

Professor Cohn's war work for the government is being discontinued, and he plans to return to fundamental research on the physical chemistry of the proteins and related substances. The Rockefeller Foundation has supported his work since 1930, and in 1945 an outright grant of \$350,000 was made to support his further research.

UNIVERSITY OF WISCONSIN
PHYSICAL CHEMISTRY

During the war Professor John W. Williams of the University of Wisconsin cooperated with Professor Cohn of Harvard on studies of plasma proteins. More basic information about the properties and functions of the proteins in the normal blood was needed. The way in which proteins in blood from diseased patients differ from normal proteins, with interpretations in terms of the disease, will probably be a main research problem in medical research institutes and hospitals.

An important objective of Professor Williams' work is a study of protein structure. He is studying the combinations of proteins with compounds linked to them, by comparisons of the size, shape and electric charge of the naturally occurring proteins with those of fragments obtained by the action of enzymes or by chemical treatment so mild that the fundamental structure of the fragments is not disarranged.

As mentioned above, human blood has been broken down into a number of proteins, including thrombin and fibrin (bleeding control factors), gamma globulins (useful in modification of measles and other infectious diseases), and fractions used in blood grouping. Except in the case of albumin, another constituent of blood, the protein fractions have not been obtained in anything

like pure native form. Furthermore, the necessities of war have during the past few years prevented the study of a great number of proteins.

Chemical analysis has revealed the primary units of which the proteins are composed. These are amino acids for the protein itself, and carbohydrate, lipoid, nucleic acid, or other compounds which are linked to the protein. Since, however, methods of preparation and purification of plasma proteins in the native form have not been successfully worked out in the majority of cases, there has been no satisfactory characterization of them. Strong chemicals break down the proteins and make it difficult to determine the actual structure of the intact molecule. What little is known about the way in which the amino acid chains are coiled and linked to the protein molecules has so far been learned almost entirely through physical studies.

The Rockefeller Foundation in 1945 appropriated \$18,000 in support of Professor Williams' research in the physical chemistry of human blood proteins, for a period of three years.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
PHYSICAL CHEMISTRY

Another project aimed at a fundamental understanding of the proteins is the research in the physical chemistry of protein solutions being carried out at the Massachusetts Institute of Technology under the direction of Professor George Scatchard. The Rockefeller Foundation has made a seven-year grant of \$85,000 in support of this work, to be used for initial purchases of equipment, and for salaries.

Professor Scatchard has long been a collaborator with Professor E. J. Cohn of Harvard Medical School, and

during the war carried out important parts of the blood plasma program described above. From the beginning of his career Professor Scatchard has studied the shape of molecules and the way in which shape influences properties; he has steadily progressed from the more classic and abstract fields of physical chemistry to problems connected with biology and medicine. His last two groups of papers have been on osmotic pressure in protein solutions, and on the stability of albumins.

The central problem upon which Professor Scatchard is working is that of the interactions in solution between two protein molecules, and those between a protein molecule and another molecule or ion. This problem is a continuation of his war work on plasma proteins, and is also an extension to proteins of his studies on solutions in general. The field is a huge one, which has barely been touched; further research is fundamental to the fractionation of proteins, and for the understanding of their functions in the body.

UNIVERSITY OF LEEDS

MOLECULAR BIOLOGY

The multiplicity of biological molecules did not come into existence simultaneously any more than did the multitudes of living forms into which they are built. Dr. W. T. Astbury, professor of textile physics at Leeds University, England, is trying to establish a phylogeny of molecules as a basis for our present large-scale structural phylogeny.

It is difficult to assign any precise biogenetic priority among the natural chain-molecules because their mode of origin and evolution are not known, but it is generally agreed that life as we know it is inseparable from the proteins. These are overwhelmingly complex in com-

parison with other chain-molecules, but this complexity appears to be one of detail rather than principle.

The proteins may be divided into two main groups, the fibrous and the non-fibrous. The fibrous proteins are not visibly crystalline and their molecules are greatly elongated bodies, while the non-fibrous proteins often grow orthodox crystals and their molecules are rounded. But chemical evidence points to the fact that both types are constructed from complex chains of amino acids. Certain "families" of protein molecules can be established, in which the molecular make-up is different in that there is latitude in what amino acids may be used, yet similar in that the general shape of the resulting molecule is always the same. Keratinous tissue, including all mammalian hairs, nails, hoofs, horn, spines and whale-bone, has fibrous proteins belonging to the same family as those of the epidermis itself. Myosin, a protein found in muscle tissue, and fibrinogen, a constituent of the blood which, by its transformation into fibrin, is responsible for the clotting process, are molecularly related to keratin.

Extensive X-ray exploration has brought to light only two main molecular families for all the fibrous proteins. Within each of these families there is a wide range of chemical constitution, yet in each the molecular plan is kept unchanged. The cell is thus able to synthesize elastic fibrous protein of a standard molecular form, yet whose details can be adapted to a variety of purposes as the processes of differentiation demand.

Professor Astbury is pursuing studies on the inter-relations of the proteins and the nucleic acids, which combine with proteins to form the most important protein constituents of the cell nucleus. He has been using X-rays and the electron microscope for his research into

molecular structure, and part of The Rockefeller Foundation's grant of \$15,175 this year is to be used to purchase infrared apparatus, to extend the scope of investigations.

INDIANA UNIVERSITY
CYTOGENETICS

In 1945, \$95,500 was appropriated by The Rockefeller Foundation for support of research in cell structure and genetics under the direction of Professor Ralph E. Cleland of the Department of Botany and Professors T. M. Sonneborn and H. J. Muller of the Department of Zoology, during a six-year period.

Professor Muller, who joined the staff of Indiana University in July 1945, is generally recognized as one of the leading geneticists of the world. In 1927, while at the University of Texas, Professor Muller demonstrated that X-rays produce mutations or heritable variations in *Drosophila* flies. By this method the mutation rate could be speeded up to 150 times the natural rate, and entirely new forms could be created. With the assistance of a Guggenheim fellowship, Professor Muller introduced his irradiation techniques to European workers, and later, at the invitation of the Russian Government, became an investigator in the laboratories of the Russian Academy of Science, where he trained a group of young Russian scientists in modern theories and methods of genetics research.

Professor Cleland is an outstanding authority on the cytology and genetics of the evening primrose, *Oenothera*. The chromosomes of this plant are arranged in a peculiar ring-like structure, and the consequently modified behavior of the chromosomes in heredity has been a challenge to the best cytologists and geneticists since

early in the century. During the past five years Professor Cleland has secured data which trace the outlines of a unique story of evolutionary development.

Great interest has been aroused among geneticists by Professor Sonneborn's recent work on cytoplasmic inheritance in *Protozoa*, especially the races of the one-celled organism called *Paramecium aurelia*. He now has on hand promising clues regarding the structure and composition of the gene, the nature of the immediate products of gene activity, the mode of action of genes in the control of hereditary traits, the manner in which one gene interacts with other genes, the cytoplasm and the environment, the precise mechanism by which a species breaks up into many species, and how mutations in a particular gene may be induced by immunological and other environmental conditions.

UNIVERSITY COLLEGE, LONDON GENETICS

Research in genetics under the direction of Professor J. B. S. Haldane has received support from The Rockefeller Foundation since 1935. In 1945 the sum of \$5,065 was appropriated for this work.

During the war, Professor Haldane's group was allotted space at the Rothamsted Experiment Station in Harpenden, but they were able to move back to their old quarters in September 1944. The University College now plans to form a Department of Eugenics, Biometry and Genetics with Professor Haldane as its head. Dr. L. S. Penrose joined the Department in 1945 as Galton Professor of Genetics.

Ten new genes have been discovered in *Drosophila subobscura*, and provisional maps made of all its chromosomes except the microchromosome, where only one

gene is as yet known. An autosomal recessive eye color, prune, which is not at all striking in appearance, was found to cause male sterility. In view of the need of visual stimuli for mating in this species, it was tested for responses to moving contours, and found to be blind. It may well be that other genes causing male sterility act primarily through the sense organs.

Dr. Spurway has carried out a much more complete statistical analysis of the genetical data on the sex-linked genes of *D. subobscura* than exists in the literature for any other *Drosophila* material. Contrary to what is generally believed, the mutants on the whole give as good Mendelian ratios as those in plants. This work has involved the invention of new statistical techniques.

In the field of human genetics, work has been done on the data collected by an eye hospital over the period of some 30 years on retinoblastoma, a malignant eye disease of infancy. This disease appears due to a dominant gene and is generally lethal if an operation is not performed. Thus the large majority of cases are sporadic ones due to mutation. However, there are enough multiple cases to enable its dominant character to be determined. The mutation rate is about one per 30,000 life cycles. There are only two other human genes whose mutation rate is known.

UNIVERSITY OF ICELAND

INSTITUTE OF EXPERIMENTAL PATHOLOGY

The Rockefeller Foundation in 1945 appropriated \$150,000, available over a period of two and a half years, toward the cost of building and equipping the new Institute of Experimental Pathology which is connected with the University of Iceland. A former Foundation fellow in the medical sciences, Dr. B. Sigurdsson, has been appointed director of the Institute.

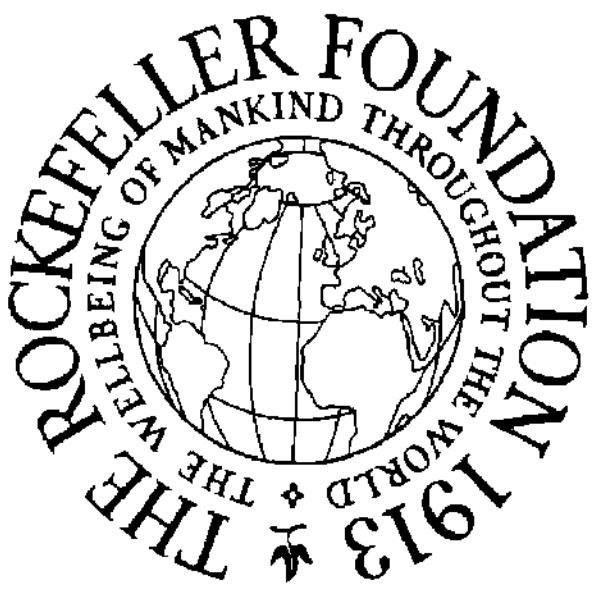
Somewhat more than a third of the population of Iceland depends upon agriculture for its livelihood. Practically all farming in Iceland is based on the cultivation of grass and is in consequence concerned predominantly with animal husbandry. Although cattle and horses are raised in considerable numbers, the sheep is the most important animal raised. A threat to the sheep-raising industry therefore constitutes a threat to the well-being and economic stability of the entire country. Unfortunately a number of animal diseases have found their way to Iceland through importation of infected animals. A veterinary institute is needed to study new diseases and assist in the production of serum.

The Institute of Experimental Pathology plans to engage in the task of breeding new strains in an effort to improve both milk and meat production of sheep and to find, if possible, disease-resisting strains. Diseases of farm animals, to some of which human beings are also susceptible, will be studied. The Institute is being built on a farm, about six miles outside Reykjavik, purchased by the Icelandic Government. Conditions of war and difficulties in obtaining materials have delayed the construction of additional buildings on this farm, but work is now under way.

RESEARCH INSTITUTE FOR PHYSICS, STOCKHOLM

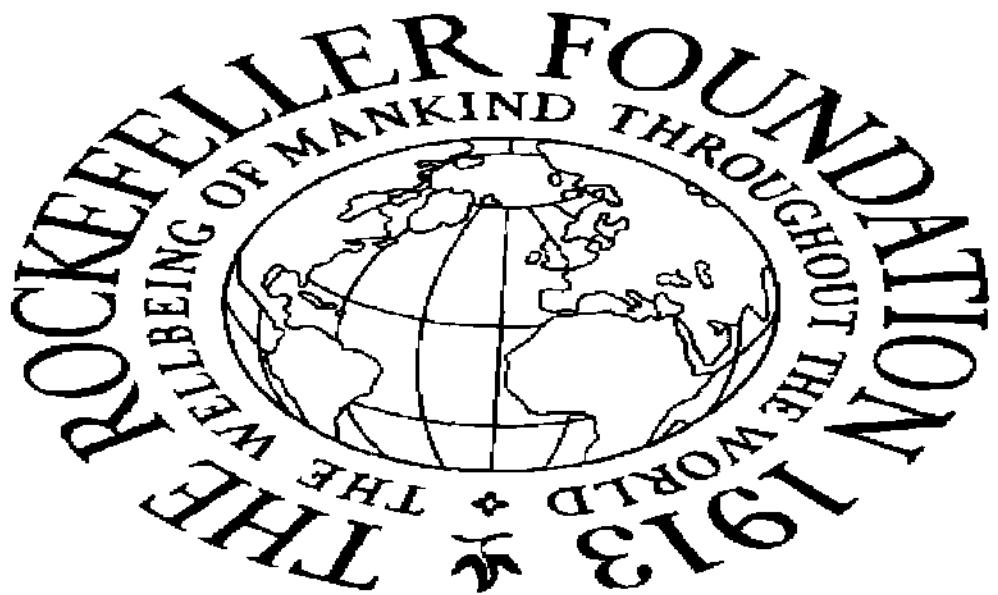
CYCLOTRON

At the Research Institute for Physics in Stockholm, a medium-size cyclotron has been in continuous operation since February 1942, with no other interruptions than those caused by experiments to improve the output. This cyclotron is used for two purposes: research work in physics and the production of radioactive isotopes for biological research and for medical treatments.



Photograph Excised Here

Professor Linus Pauling in his laboratory at the California Institute
of Technology.



Photograph Excised Here

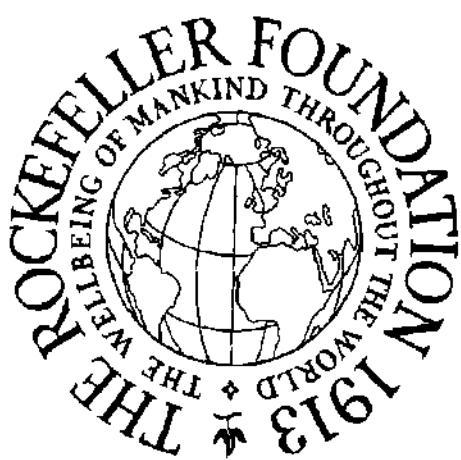
Cyclotron control room at the Research Institute for Physics,
Stockholm. The cyclotron can be observed through the water-filled
steel tube in the wall of the room.

In the physics program a group of young Swedish physicists and also a number of research workers from Norway, Denmark, Finland and Iceland are associated with Professor Manne Siegbahn, the director of the Institute. However, the major part of the output of the cyclotron is used in supplying radioactive substances to workers in the biological and medical fields. The demand for these products, not only from Sweden but from the other Scandinavian countries, far exceeds the productive capacity of the present cyclotron. Professor Siegbahn, therefore, proposes to build a second cyclotron with an output about ten times that of the present instrument. This large cyclotron would adequately meet the requirements for radioactive isotopes for all of Sweden and for other nearby countries, where in all probability no cyclotrons will be built in the immediate future.

The Rockefeller Foundation has since 1943 been contributing toward the support of Professor Siegbahn's research, and in 1945 it appropriated \$125,000 toward the cost of construction of the new cyclotron, available over a two-year period.

UNIVERSITY OF COPENHAGEN
BIOPHYSICS

A cyclotron was completed in 1939 to produce radioactive isotopes in the Institute of Theoretical Physics at the University of Copenhagen under the direction of Professor Niels Bohr. These isotopes are used by Professor August Krogh and Professor Georg von Hevesy and their associates in work on the application of the methods and techniques of physics, chemistry and mathematics to biological problems. The Foundation has supported various aspects of the work since 1934.



Photograph Excised Here

Dr. Franz Weidenreich, director of the Cenozoic Research Laboratory in Peking, at work at the American Museum of Natural History, where he has been continuing his paleontological studies since the Japanese occupation of Peking.



Photograph Excised Here

Advanced students in applied mathematics at Brown University working out problems on calculating machines.

During the first three years of enemy occupation of Denmark, the program at the Institute was not interfered with. But in the autumn of 1943 Professor von Hevesy moved to Stockholm and worked along his usual lines in the Institute for Organic Chemistry Research; and Professor Bohr was obliged to flee the country and eventually reached the United States via England. Professor von Hevesy continued uninterrupted communications with all members of the project who remained in Copenhagen, and more than 2,000 samples of material were exchanged between Sweden and Denmark without the loss of a single one. At a late date in the war, Professor Krogh went to southern Sweden but was able to keep clandestinely in touch with the group in Copenhagen.

After it became impossible for the Foundation to send funds to Denmark under its latest grant, the Carlsberg Foundation of Copenhagen advanced money at the approximate rate of 30,000 Danish crowns a year. The Rockefeller Foundation in 1945 appropriated \$38,400 to repay the Carlsberg Foundation for the advances made in support of the program in biophysics during the war.

UNIVERSITY OF UPSALA
PHYSICAL CHEMISTRY

A few research centers in Europe were able, in spite of the war, to continue their research programs without serious interruptions. The Rockefeller Foundation has given support to some of these institutions on a year-to-year basis. One such center is the University of Upsala, Sweden, which in 1945 received a grant of \$11,250 for research in physical-chemical properties of proteins and other substances of biological and medical importance, under the direction of Professor The Svedberg.

In certain directions Professor Svedberg's work has been considerably extended, and with the re-establishment of peace, activities will be further enlarged. At present he has research workers from Norway, Denmark, Finland and Switzerland in his laboratory. Some new equipment has been acquired, and experimental facilities have been developed and improved.

EIDGENÖSSISCHE TECHNISCHE HOCHSCHULE, ZURICH
ORGANIC CHEMISTRY

Like the University of Upsala, the Eidgenössische Technische Hochschule in Zurich has been receiving yearly support from The Rockefeller Foundation. The aid has been for research in organic chemistry under the direction of Professor L. Ruzicka. In 1945, \$15,000 was appropriated for this work.

Professor Ruzicka in 1945 had 65 research workers under him, including citizens of 14 foreign countries. Specific substances have been isolated from different organs and from urine, and results justify the assumption that other compounds with an action similar to the hormones will be found. Investigations are also going forward on the metabolic products of molds, steroids, heart-activating substances, and other physiologically active natural substances. A special new building for an enlarged program in organic chemistry is soon to be constructed for Professor Ruzicka.

MEXICAN AGRICULTURAL PROGRAM

The agricultural program in Mexico is based on the conviction that modern scientific methods can substantially improve the quality and yield of the basic Mexican crops, corn, wheat and beans, and that such improvements together with advances in soil manage-

ment and the betterment of domestic animals would contribute in a basic way to Mexican health and economy, helping to furnish a foundation on which further improvements can be soundly built.

This program has been adopted by the Mexican Ministry of Agriculture as an integral part of the Mexican agricultural organization, and J. George Har-rar, an officer of the Natural Sciences Division of The Rockefeller Foundation who directs the program, holds an official position as chief of special studies of the Mexican Department of Agriculture. Other members of the staff are E. J. Wellhausen, geneticist, specialist in maize genetics and breeding; W. E. Colwell, soils scientist; Norman E. Borlaug, assistant plant patholo-gist; John J. McKelvey, Jr., assistant entomologist, whose field is ecology and control of economic insect pests; and Dorothy Parker, bibliographic assistant.

The Mexican agricultural program was started in 1942, following an extensive survey by a special commis-sion of agricultural experts. While it has been evident from the start that this must be a long-term project, progress has been more rapid and satisfactory than could have been expected. Enough useful information has already been obtained so that the problem of appli-cation of this knowledge already becomes pressing. Two appropriations were made in 1945 in support of this pro-gram: one of \$160,380 to cover general expenses in 1946, and one of \$50,000 in support of a special plan for im-provement of the Mexican substations for agricultural research and demonstrations.

The latter grant is important since the climatic and physiographic variations in Mexico make it imperative that crop improvement be developed on a regional basis. Local funds will be used for permanent constructions

and for most staff additions. The Foundation grant will be used for the purchase of the proper machinery, furnishing certain temporary skilled assistance, and salaries and travel expenses of key Mexican personnel associated with the stations.

The basic research program in agriculture has a number of important projects under way. Corn, wheat, barley, oats and beans are being improved through selection, testing, breeding and disease control. There are studies of soil management through land preparation, rotations, fertilizers, both natural and artificial, and irrigation practices. A garden is being maintained for the introduction and testing of forage, legumes, grasses and other plants of potential benefit to Mexico. The cause and control of derriengue in cattle, a rabies-like disease, are being studied. A seed laboratory has been established in the Dirección General de Agricultura, and joint Mexican and Rockefeller Foundation funds have been provided for a field laboratory and seed house to be constructed at the experiment station developed on the grounds of the Escuela Nacional de Agricultura at Chapingo in cooperation with the Agricultural School and the Dirección General de Agricultura.

The program is also aiding the development of agricultural libraries, and young agricultural scientists, formerly commissioned to the Foundation group, are being trained through participation in research and fellowships for study abroad.

OTHER GRANTS

CHINA MEDICAL BOARD, INC.

PALEONTOLOGY

Anthropologists 50 years ago realized that Java was an important place for research when Eugene Dubois

announced the discovery there of Java man, *Pithecanthropus erectus*. Recent discoveries are again emphasizing that this relatively unexplored section of the world is fruitful for research into the evolution of man. Dr. G. H. R. von Koenigswald, of the Geological Survey of the Netherlands Indies, has discovered fragments proving that *Pithecanthropus* is a true hominid very like Peking man, *Sinanthropus pekinensis*, which was discovered in 1929. In addition, he found in Java a fragment of a jawbone with three teeth which is larger than any known fossil or recent human jaw, and possesses both simian and human characteristics. It is undoubtedly a human jaw, but the features which provide the identification show this to be the most primitive human skeleton part ever found. This man, *Meganthropus palaeojavanicus*, probably was as large and strong as a big male gorilla, weighing around 450 pounds.

Chinese apothecary shops are known to anthropologists as excellent places to find rare teeth and bones, and with this in mind Dr. von Koenigswald used to stop in these shops whenever possible. He found three molars in such shops, with a crown volume about six times as large as the average crown of modern man, and twice the size of the corresponding tooth of a gorilla. The occlusal surface of the teeth agrees in even the minutest details with the hominid pattern shown by the molars of *Pithecanthropus*, *Sinanthropus* and even modern man. The form of the teeth indicates a very primitive character. The possessor of these teeth was named *Gigantopithecus blacki* by Dr. von Koenigswald. This South China man is probably the biggest and earliest man whose remains have so far been discovered, and he probably lived at the beginning of the Ice Age or earlier, perhaps a million years ago. The Java giant may be one of his descend-

ants, and all other known men must have come much later in the evolutionary process.

The Rockefeller Foundation has since 1929 been supporting human paleontological research in Asia carried on at the Peiping Union Medical College, Cenozoic Research Laboratory, under the direction of Dr. Davidson Black, and, after his death, Dr. Franz Weidenreich. In addition, in 1940 the Cenozoic Research Laboratory turned over \$1,000 to Dr. von Koenigswald to enable him to continue his collecting activity. The end of the war makes possible renewed work in this important sector, and Dr. Weidenreich, who has been associated with the American Museum of Natural History for the past few years, plans to return to Asia to continue his work; \$26,500, available over a period of three years, has been appropriated for this project.

UNIVERSITY OF SÃO PAULO
PHYSICS

The State of São Paulo has authorized a loan of more than \$10,000,000 for the construction of the University City development of the University of São Paulo at a site provided for this purpose. The first buildings to be constructed will be those of the Physics Department. These will probably consist of a main building for teaching, library and administration, and two smaller units for research in cosmic rays and in electronic and pure physics.

Professor Gleb Wataghin, director of the Department of Physics of São Paulo University, has trained a group of young investigators during the ten years since his arrival from Europe, and significant contributions have been made in the field of cosmic ray physics, the main line of research of this group. Cooperation in this field,

on an international scale, began in the summer of 1941, when Professor Arthur Compton and associates at the University of Chicago went to São Paulo to carry out joint investigations with members of the São Paulo group. The departments of physics of the two universities have continued in contact by correspondence, and a young member of the São Paulo group has received a Foundation fellowship to work at Chicago for a year.

The work in São Paulo constitutes an important part of a future world program on cosmic rays, as no other physics laboratory with comparable qualified staff is located at so southerly a latitude, near the magnetic equator. Even with the recent wartime restrictions on pure research in Brazil, investigations and observations have been carried out on mesotron showers, which Professor Wataghin and his associates discovered in São Paulo in 1939. Professor Wataghin and Professor Marcello Damy de Souza Santos came to the United States for four months the end of last year as guests of the Foundation to select new equipment in connection with the development of the University City laboratories.

Continuing the support which has been given since 1942, The Rockefeller Foundation this year appropriated \$75,000 for research equipment, to be available over a four-year period.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY PHYSICS

To the Massachusetts Institute of Technology, The Rockefeller Foundation appropriated \$50,000 in 1945 for the design and construction of a new high-voltage electrostatic generator under the direction of Professor R. J. Van de Graaff of the Department of Physics. This sum will be available over a two-year period.

Professor Van de Graaff has spent many years developing and improving high-voltage generators. War contracts requiring the building of a number of machines have resulted in increasingly perfected designs and the assembly at the Institute of a team of experts. In addition to machines built for war purposes, Massachusetts Institute of Technology has also constructed ten large high-voltage X-ray generators for such institutions as the Massachusetts General Hospital, Huntington Hospital, the American Oncologic Hospital, and others. Smaller generators or plans for them have been sent by Professor Van de Graaff to universities all over the world.

They now plan to abandon the program of constructing such machines, and to concentrate on pure physics research. The group of experts will be broken up and scattered. Before this happens, the Institute wishes to use their services to design and build for its own use a generator embodying in one machine all the advances which have come out of the years of war research. Several foreign laboratories have requested Professor Van de Graaff to build latest model generators for them. Because of the difficulty of importing the large sums of money to pay for these instruments, the Institute is going to build a machine for its own experimental uses, and then the design will be made available, without charge, to those who wish to duplicate it.

The Van de Graaff high-voltage generator is not a competitor of the cyclotron, nor of the more recently developed betatron; it complements these instruments. For example, an outstanding need of present-day physics is a large body of quantitative and fundamental experimental observations on which a more adequate theory of the nucleus of the atom can be based. Suffi-

ciently exact data can be obtained by nuclear bombardment only if the bombarding agency is also of high precision. This requires highly concentrated parallel beams of charged particles, homogeneous in energy and of known and easily varied voltage. Beams of this type can be supplied particularly well by the electrostatic generator.

AMERICAN INSTITUTE OF PHYSICS

For more than 20 years the American Institute of Physics, located in New York City, has played an increasingly important role in the organization and development of physics in this country. It is a central organization embracing the American Physical Society, the American Optical Society, and various other professional societies composed chiefly of physicists. The war emergency resulted in so many appeals from government agencies for advice and assistance that it was found necessary to create a War Policy Committee to advise and assist the Institute's officers to meet these demands. Rockefeller Foundation aid was given toward the expenses of this Committee, in view of a long-term interest in the American Institute of Physics and confidence in its continuing importance.

The war emergency demands of government agencies on various professional groups of the physical and mathematical sciences increased so greatly that it was necessary to establish a temporary Washington office, known as the Office of Scientific Personnel of the National Research Council. This office has been supported cooperatively by the American Mathematical Society, the Geological Society of America, and the Engineering Foundation, with the aid of approved allocations from The Rockefeller Foundation's grants to the American

Institute of Physics and to the American Mathematical Society.

Although the Institute is still concerned with problems and activities arising from the war, with the termination of hostilities the demands upon the War Policy Committee have shifted in the direction of reconstruction and postwar planning, and accordingly the word "War" has been dropped from the name of the Committee. From now on the activities of this planning group will be largely devoted to constructive forward plans, intended to help assure the broadest and best balanced general development of physics in this country.

One phase of present activities of the Institute has to do with plans for the rehabilitation of young physicists in the armed services, the wide dissemination of research data which are no longer secret and have not been available to investigators in friendly countries, and preparations for effective cooperation on an advisory basis with organizations which may be set up with large federal support for research. Another important responsibility is to plan more effective coordination of and cooperation among all agencies and activities in the field of physics, in view of the wide recognition of its contributions to the war effort and the evident importance of education and research in physics in the future. The Rockefeller Foundation has appropriated \$29,300 for expenses of the Policy Committee during a three-year period.

THE JOHNS HOPKINS UNIVERSITY SPECTROSCOPY

Radiant energy (infrared heat radiation, visible light, ultraviolet light, radio waves, etc.) is of such pervasive occurrence and importance that it is invaluable to have precise and delicate methods to detect such energy and

measure its wavelength and intensity. Of particular interest is a method which applies to infrared radiation, that is, radiation which has a wavelength too long to make it visible to the eye as red light. Its importance lies partly in the fact that progress in this field has not been altogether satisfactory, and also in the information to be obtained concerning the physical and chemical processes going on within living organisms which emit infrared radiation, providing a measuring technique of sufficient delicacy, speed and resolving power is available.

The Rockefeller Foundation has appropriated \$45,000 for research in infrared spectroscopy at the Johns Hopkins University, under the direction of Professor Donald H. Andrews of the Department of Chemistry. Professor Andrews and his colleagues have developed a new method of measuring infrared radiation, based on the well-known but still mysterious fact that metals present almost no resistance to the flow of electricity if cooled to a point very near absolute zero, -273° Centigrade. This method has proved to be so powerful that, in one ten-thousandth of a second, one can measure to less than 1 per cent inaccuracy the intensity of exceedingly feeble infrared radiation. Whole new fields of investigation are thus opened up.

An infrared spectograph based on these new principles is being constructed and calibrated, and this technique can then be applied to a wide range of problems in pure science.

BROWN UNIVERSITY
APPLIED MATHEMATICS FELLOWSHIPS

Only from the universities can industry and government agencies recruit well-trained personnel. Further-

more, the universities are the main source of fundamental research which, through subsequent development in the field of applied science, is one of the chief determinants of progress in a modern community. The special program in applied mathematics at Brown University, stressing fundamental instruction and research in various aspects of mechanics, proved its worth in the war emergency.

The program at Brown University consists of two parts, instruction and research. A group of mathematical scholars of high quality is assembled there. Some of them are available for instruction, all are engaged in research. If both research papers and confidential reports to the government are included, more than 100 papers from faculty and students have been written in the past four years. Based on national tests, the student body in applied mathematics ranks with the very best in American graduate schools. There is a demand, far in excess of the supply, for persons trained at Brown. More than 250 students have enrolled there for courses in mathematics since 1941.

The Rockefeller Foundation has been contributing toward support of this program since 1942, and \$20,000 was appropriated for fellowships in applied mathematics this year. The Foundation grants are used in part to bring mathematicians to Brown from other institutions for summer courses of 12 weeks, and to provide similar stipends for the academic year. Sixteen fellows were appointed from the 1944 grant for the summer course, and 33 for part or all of the academic year 1944-45.

FELLOWSHIPS

In 1945 the Natural Sciences Division of The Rockefeller Foundation administered a fund of \$80,000 for

fellowships; \$75,000 has been appropriated for this purpose in 1946. In 1945 there were 28 fellows, whose main interests lay in the following fields: soil science, cosmic radiation, general physiology, plant physiology, corn breeding, botany, wheat breeding, plant genetics, *Drosophila* genetics, microbiology, irrigation methods, agricultural economics, veterinary pharmacology, general entomology, agronomy, plant pathology, mathematics, organic chemistry, plant breeding and statistics.

There were 8 fellows from Mexico, 6 from Colombia, 4 each from Brazil and Chile, 2 from Argentina, and 1 each from China, Venezuela, Uruguay and Peru. Twenty of the fellows received Foundation aid for the first time, 7 fellowships were carried over from 1944, and 1 from 1943. Aside from one fellow who studied in Brazil, all did their fellowship work in the United States.

In addition to the fellowships mentioned above, 18 were administered by the National Research Council, with funds provided by The Rockefeller Foundation. Of these, 13 were new in 1945 and 5 continued from other years. Subjects studied were psychology, zoology, chemistry, botany, mathematics and astronomy. Under a program for postwar predoctoral training, 114 appointments to fellowships were made by the National Research Council during the year.

GRANTS IN AID

The Natural Sciences Division of The Rockefeller Foundation in 1945 made 42 grants in aid totaling \$145,866.02 and ranging in amount from \$811.02 to \$7,500. For this purpose in 1946, \$125,000 has been appropriated.

Thirty-three of the grants in 1945 were for research in the following fields: ecology, animal genetics, agron-

omy, immunogenetics, biochemistry, plant genetics, embryology, enzyme chemistry, biophysics, plant physiology, cosmic rays, immunology, physics, genetics, botany, organic chemistry, chrystrallography, molecular biology, protein chemistry, biology and cell physiology. Other grants in aid were given to the National Institute of Sciences of India in Calcutta, for the support of scientific journals in India; Harvard College Observatory, to cover travel expenses of American mathematicians to the annual Mathematical Congress of Mexican mathematicians; the Faculty of Agronomy, National University of Colombia, to permit graduates to spend approximately a year in Mexico with The Rockefeller Foundation agricultural group; the American Institute of Physics, for allocation to the Office of Scientific Personnel of the National Research Council; The Trustees of Lingnan University, toward support of a plant exchange; and the American Mathematical Society, for the use of its War Policy Committee. Three of the grants were for expenses of travel to the United States; one to bring over the family of a Polish scientist, and the other two for trips by English and Brazilian scientists for studies in spectroscopy and physics.

Grants in aid in 1945 were distributed among the following countries: United States, 17; England, 6; Sweden, 5; Colombia, 4; 1 each in India, Chile, Venezuela, Switzerland, Poland, China, Uruguay, Brazil, France and Denmark.

THE SOCIAL SCIENCES

THE SOCIAL SCIENCES STAFF

During 1945

Director

JOSEPH H. WILLITS

Assistant Director

ROGER F. EVANS

Consultant

ANNE BEZANSON

THE SOCIAL SCIENCES

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THE SOCIAL SCIENCES

DESTRUCTURE has always been a simpler task for man than reconstruction. The task of reconstruction after World War II dwarfs any other in history. It is not just a matter of rebuilding what war has destroyed; it is the urgency for creating, for building something different and better that challenges us.

The approach to a solution of social issues has to be different and broader than the approach to the physical issues of society. There is no specific cure for a social issue as for a disease. The points of approach in social issues are multitudinous and are dispersed as widely as the decisions of all the administrators of the world and as the influence of all the teachers and writers, preachers and politicians who create ideas and values. The task of social reconstruction is one that man never solves in a final sense, but is always solving. The danger is that the totalitarian fashion of war — both spiritually and administratively — will carry over into peace and that the solution of social issues will continue to be too much resigned to central authority.

If democratic rather than authoritarian methods are sought in social reconstruction, then many lines of attack are essential: education, through all its forms directed to the growth of a broad public awareness of social problems and their immediacy; strengthening of moral teaching; scientific and scholarly analysis of facts, processes, issues and values; development of experts — administrative, scientific and educational; in-

tegration of the results of studies, interests and values into public policies; the construction of a democratic social organization which will put such policies to work. It is with such steps as these in the social world that The Rockefeller Foundation is concerned. In the social sciences, the Foundation is not an operating body. It cannot create or administer policies. With its funds it supports attempts to clarify issues through research, to train experts and administrators and to facilitate in various ways the administration of policies already adopted.

During 1945, grants in the social sciences totaled \$1,942,400. Of this amount, 50 per cent (\$961,750) went for international studies, 39 per cent (\$742,750) for research and training in the social sciences, 6.2 per cent (\$119,300) for studies in group organization and behavior and 4.8 per cent (\$93,600) for economic research. The first grant for the study of the social implications of atomic energy was made.

The grants in international relations were for the support of agencies devoted to studies, to teaching, to service to government and to public and expert education. Collectively these grants assume that it is not possible to guarantee peace but that the way to work toward it is to strengthen "the infinity of threads that bind peace together." To that end the Foundation made grants for the support of studies and related activities of the following institutions: Foreign Policy Association, Royal Institute of International Affairs (London), Swedish Institute of International Affairs (Stockholm) and the Economic, Financial and Transit Department of the League of Nations. The importance to peace of our relations with, and an understanding of, Russia was reflected in two grants to Columbia Uni-

versity for the Russian Institute of its School of International Affairs. The sum of \$60,000 was appropriated to the Council on Foreign Relations for the continuation of its war and peace studies. A special grant of \$152,000 was made to the Royal Institute of International Affairs for a history of the war and the peace settlement. The Institute for Advanced Study at Princeton received \$40,000 for a study of the problems of international civil aviation. Fifteen thousand dollars was granted to the Massachusetts Institute of Technology to aid in the development of a course in international relations for engineers.

The causes of conflict within domestic society were the concern of a series of grants in 1945. A final grant of \$10,000 was made to the University of California for the completion of the studies of the effects of Japanese migration and resettlement. An exploratory study at Columbia of the causes of group tensions was supported. Funds were voted to the College of William and Mary for a study of the impact of war on the Hampton Roads area, and Tufts College received \$30,000 to enable a psychiatrist to develop an experiment in a psychiatric approach to sociology. A new committee of the Social Science Research Council devoted to the task of analyzing methods for measuring public attitudes was voted a grant of \$43,500 for its first undertaking, a study of sampling methods.

Economic research, which received about 39 per cent of Foundation funds available for work in the field of the social sciences in 1944, received in 1945 the smallest percentage. Two studies in the field of economic history were supported, one at Columbia University in the history of economic thought and the other at Northwestern University in historical studies of wages and

prices in France, Spain and the Netherlands. Seventy five thousand dollars was granted for the research program of the Brookings Institution in Washington.

General research and training in the social sciences is the foundation upon which all other programs rest. In 1945 most of the funds for this purpose went to the Social Science Research Council for its program of re-conversion of social science personnel. Fifty-one thousand and thirty dollars will provide £12,600 for the development of empirical research and training at the University of Glasgow. The University of Chicago received a terminal grant for the research program of its Division of Social Sciences. A terminal grant of \$41,720 was also made to Oxford University for the work of the Social Studies Research Committee. In this classification are the sums set aside for the grants in aid and fellowships allocated by the Foundation.

The first appropriation for support of work in the social implications of atomic energy was in the sum of \$25,000 for conferences, studies and travel.

The various projects will be described in more detail in the following pages.

INTERNATIONAL STUDIES

COLUMBIA UNIVERSITY SCHOOL OF INTERNATIONAL AFFAIRS: RUSSIAN INSTITUTE

Increased efficiency and rapidity of transportation and communication have ended for this country the possibility of isolation, either as a physical fact or as a national policy. Those responsible for the management of the interests of the United States, whether in governmental or non-governmental capacities, will of necessity be increasingly concerned with the institutions, mores and policies of other nations and peoples. There must

therefore be developed within the United States a body of men and women with a broad understanding of international affairs who have in addition training as functional or regional specialists. Only a body of men and women so trained will provide a reservoir from which experts capable of handling the increasingly complex and intricate problems of international affairs can be drawn.

For some time Columbia University has been exploring the desirability of establishing at the University a School of International Affairs. The recommendation that such a school be created was made in 1945 and included the proposal for establishment of six institutes designed to develop special knowledge and understanding of certain of the so-called "power and problem" areas of the world. It is planned to assemble in these institutes groups of outstanding scholars who have specialized in specific geographical areas. The University suggests that a British Commonwealth Institute, a French Institute, a German Institute, a Russian Institute, an East Asian Institute, and an Institute of Latin American Affairs be created. The Rockefeller Foundation has made a five-year grant of \$250,000 to Columbia University toward the development of a Russian Institute.

The Institute will have two interlocking objectives: first, the direct advancement of knowledge in the Russian field through the coordinated research work of faculty and students; and second, the training of students as American specialists equipped to do work of competence in the Russian field. The basic requirements of the training program have been formulated. A specialty from among the following is to be selected by the student: Russian history, economy, government and

law, official ideology, social and philosophical content of literature and foreign relations. The student will be required to take considerable work in the non-Russian aspects of his Russian specialty. Research during the first two or three years will have secondary emphasis to training; but it is agreed that this aspect of the program will assume more importance as the program gets under way.

COLUMBIA UNIVERSITY SCHOOL OF INTERNATIONAL AFFAIRS: RUSSIAN STUDIES

In addition to the grant of \$250,000 to Columbia University toward the development of the Russian Institute, the Foundation in 1945 appropriated \$14,500 to Columbia University School of International Affairs to enable Dr. David Crist to undertake a study, during a two-year period, of Russian foreign policy with special reference to the Far East. Dr. Crist's project includes a study of Russian Far Eastern policy from 1895 to 1905, which he already has in manuscript form and which he wishes to prepare for publication, and a study of Soviet Far Eastern policy from 1937 to the end of the Japanese War.

COUNCIL ON FOREIGN RELATIONS

During the war the Council on Foreign Relations put major emphasis on current political problems. Its work along this line has been known as the program of war and peace studies. The purpose of the program is to investigate the effects of the war upon the interests and policies of the United States and to prepare primarily for the government's use material bearing on postwar international settlements.

These studies as well as the Council's regular research program are carried on by the study group method. The

groups' membership includes experts chosen because of their special experience and competence to deal with subjects in each field. Under the war and peace studies program three groups are now functioning: economic, political and security. In the regular research program, groups are now at work on legal problems of reconstruction, cartels, United States-Russian relations, compulsory military training and United States relations with Argentina, Mexico and Brazil.

The Foundation's appropriation of \$60,000 in 1945 to the Council on Foreign Relations provides for the continuation of the war and peace studies and is also a contribution to the general research program.

FOREIGN POLICY ASSOCIATION

The research program of the Foreign Policy Association has been focused during the war on postwar political and economic problems and on the machinery of international organization. Its publications, the weekly *Foreign Policy Bulletin* and the bi-weekly *Foreign Policy Reports* have carried analyses of the development of international organization from Casablanca to San Francisco, including special articles on the Charter of the United Nations and the Statute of the International Court of Justice. The research staff has published in the *Bulletin* a series of articles on specific subjects such as "United States Policy in Europe," "Europe's Problems as Seen from the United States," "The International Aspects of the Opium Problem," "Conditions in China," and "Postwar Latin America." Members of the staff of the Research Department have also written on certain economic problems which are assuming particular significance in the postwar period, notably the question of cartels, the Anglo-American oil agreement, the postwar

trade of the United States and the lend-lease agreements. The "Headline Books," designed to popularize the discussion of international problems, number about six titles a year.

Since the beginning of the war the membership of the Foreign Policy Association has grown appreciably and each year its publications reach a wider audience. In 1945 the *Bulletin* and the "Headline Books" were distributed to a membership of approximately 30,000. Approximately 2,500,000 copies of the "Headline Books" have been printed. Orders in quantity have been received from the War Department, the Carnegie Endowment for International Peace and the U.S.O. The 32 branches of the organization have held 250 meetings with an attendance of almost 80,000 persons. The Association has attempted without increase in staff to meet the greatly augmented demand on its services occasioned by the widespread interest in international affairs resulting from the war.

The Foundation's appropriation in 1945 of \$200,000 will be used toward the expenses of the research program over a five-year period.

INSTITUTE FOR ADVANCED STUDY
LAW OF INTERNATIONAL CIVIL AVIATION

It is clear that the future development of civil air power presents a problem of balancing two possibly conflicting interests, the national interest which requires the legitimate expansion of each nation's commerce and defense, and the international interest which requires agreement for regulation, so that civil air power does not become an instrument of unfair and nationalistic competition or aggression.

The Institute for Advanced Study, Princeton, New

Jersey, has been given an appropriation of \$40,000 toward the expenses of a five-year study of the problems of the development of civil aviation after the war viewed from the legal, the political and the economic angles. The study will be undertaken by Mr. John C. Cooper, former vice-president of Pan American Airways. A lawyer by profession, Mr. Cooper has served since 1932 as a member of United States delegations at several international aviation conferences. In 1944 he was adviser to the State Department at the International Civil Aviation Conference in Chicago and is now an adviser to the Civil Aeronautics Board.

The juridical studies will include an analysis of the early statutes and decrees looking toward aviation control, the measures taken in World War I and their practical effects, the development of international air law since that time, the conflict of laws and the experience in World War II, the policies and economics of operation of commercial aircraft during World War II and the results, advantages and trends of national economic approaches to international air transport.

INSTITUTE OF INTERNATIONAL AFFAIRS, STOCKHOLM

The Swedish Institute for International Affairs is recognized as the center in Sweden for information regarding foreign policy and for research in the field of international relations. It has not only maintained its level of activity during the war period but has enlarged its staff. The Institute issues two series of publications, one a strictly technical series and the other intended for more popular consumption. In the first series two major publications have appeared during the past year. The second, entitled "International Topics," consists of pamphlets on a variety of subjects: *New China*, *The*

Polish-Russian Conflict, the Norwegian Merchant Marine, The Economic Problems of Finland, and The Soviet Union and the Western Powers. The Press Service, to which 92 newspapers subscribe, has during the year distributed 96 articles. The *Calendar of Events*, a reference work which should be a valuable research tool, has been continued and is furnished to Norwegian organizations in Sweden as well as to Swedish groups. The Institute has also continued to arrange lectures and study groups on international affairs.

For the general budget of the Institute in 1945 the Foundation contributed \$11,250.

LEAGUE OF NATIONS: ECONOMIC, FINANCIAL AND TRANSIT DEPARTMENT

A grant of \$60,000 was voted to the Economic, Financial and Transit Department of the League of Nations at Princeton, New Jersey, for the support of research programs during 1946 related to problems of world economic and financial relations and organization. The research program of this section of the League of Nations has been aided by the Foundation since 1933. Publications of the group during 1944 and 1945 include:

The Future Population of Europe and the Soviet Union: Population Projections, 1940-1970

International Currency Experience: Lessons of the Inter-War Period
Economic Stability in the Post-War World: The Conditions of Prosperity after the Transition from War to Peace

Money and Banking, 1942-1944

Food Rationing and Supply 1944 and 1945

Model Bilateral Conventions for the Prevention of International Double Taxation and Fiscal Evasion

World Economic Survey

The Influence on the Trade of Industrial Countries of the Industrialization of Less Developed Areas

Monthly Bulletin of Statistics

The program for 1946 will include the completion of projects already in process on such subjects as raw materials, the control of inflation, the currency situation, investment and the demography of Europe. New work contemplated relates to banking statistics, the statistics of balances of payments, the problem of customs unions, debt statistics and currency conditions in Europe. In helping the Economic, Financial and Transit Department of the League of Nations to continue its vigorous program of studies in international economic policy, The Rockefeller Foundation feels that it has served the cause of public enlightenment on many vital issues of war and postwar policy.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY INTERNATIONAL RELATIONS

Believing that technology and international relations are destined to become increasingly interrelated, and that leaders in business and engineering should understand the basic facts of the relationships between states, the Massachusetts Institute of Technology in July 1945 inaugurated a senior option in international relations intended to introduce their students to this subject.

One out of 15 of the Institute's graduates go into foreign work and many more go into companies with international relations interests. As yet these engineers, like most of the engineering graduates of American colleges and universities, have had no contact with the problems of international relations during their formal education.

The new course is designed to show how some of the applications of science and technology to transportation, communications, military science and industry bear upon international relations. It will also bring out the

bearing which international relations are coming to have upon the work and responsibilities of leaders in science and engineering. The course will deal with the daily realities of international affairs and will endeavor to develop ability in intelligent appraisal of current trends and resourcefulness in handling typical problems of international relations which confront the business executive, government official, military officer and private citizen.

The Foundation's three-year grant of \$15,000 in support of this program will help the Institute to build up a library, develop the new teaching materials needed for this type of instruction, and bring outside speakers to Cambridge for lectures and conferences. The course is planned as a demonstration, from which a textbook can be prepared in the field, especially designed for scientists and engineers.

ROYAL INSTITUTE OF INTERNATIONAL AFFAIRS
RESEARCH ON POSTWAR RECONSTRUCTION PROBLEMS

The Royal Institute of International Affairs in London, aided by The Rockefeller Foundation since 1932, has during the past few years centered its general program of research on postwar reconstruction problems. Investigations are carried on by research groups and by individual specialists. The lessons to be drawn from the failure of previous attempts at international organization and the characteristics of the new security organization occupy a central position in the program.

In the last two years several significant publications have appeared. *The International Secretariat of the Future* reports the results of discussions by an international group of former officials of the League of Nations. *Britain and France* deals with Anglo-French

cooperation, European security, Anglo-French interests in the Mediterranean, Anglo-French economic and cultural relations. *Economic Lessons of the Nineteen Thirties* was drafted by the study group dealing with problems of economic and social policy. Studies in progress relate to Anglo-Soviet relations, British security and minority groups in the Near and Middle East.

In addition, several studies by individual scholars have been either completed or published during this period. The program of research by these scholars is concerned with historical studies for the clarification of contemporary thought, experience gained during and after the last war which is relevant today, British Empire and colonial problems, particular countries on which up-to-date authoritative studies are lacking, particular postwar problems.

The projected program for the next five years, which the Foundation is supporting with an appropriation of \$144,000, includes continuation of studies of the reconstruction period and the completion of two prewar programs, the *Study of History* by Professor Arnold Toynbee, Volumes VII through X, and *The Effects of Western Civilization on Non-Western Peoples*.

A series of pamphlets has been initiated under the title "Looking Forward," to assist the public in formulating an opinion on some of the principal international problems of the postwar settlement.

ROYAL INSTITUTE OF INTERNATIONAL AFFAIRS
HISTORY OF THE WAR AND THE PEACE SETTLEMENT

An additional appropriation of \$152,000 was made to the Royal Institute toward the expenses of producing during a five-year period a history of the war and of the peace settlement under the direction of Professor Arnold

Toynbee, head of the Institute's Foreign Research and Press Service, which during the war was taken over by the Foreign Office.

At the outbreak of the war in 1939 work on the *Survey of International Affairs*, an annual publication of the Royal Institute, was discontinued, as the writers were immediately called to government work. It was felt that the history of these years could be better written as a whole and in perspective when access to official information was easier and when the international situation was more settled. The present plan is to write the history of ten crucial years — 1939 to 1949 — within a period of five years — from 1945 to 1950 — before bringing the *Survey* back to the annual form. This involves the enlistment of a larger number of writers, because of the time element and importance of the subject. Also the work should gain in authority and value if its authors included persons with varying points of view and with diverse experience in the war years. In order to preserve unity, however, it is proposed to have the writers working closely together at Chatham House under the direction of Dr. Toynbee.

Like previous parts of the *Survey*, this history will be primarily concerned with international relations as distinct from the domestic affairs of the different countries and will be written as far as possible from a general viewpoint, not from that of the United Kingdom. The intention is not to duplicate the technical, administrative histories of the government departments and the fighting services of national governments.

The chaotic events of this period of world history will be studied and appealed to in the years ahead by all manner of people for all kinds of purposes. To the extent to which the record is not clear, the appeal will be likely to

lead to confusion and misrepresentation. The existence of a record by a distinguished scholar is an essential foundation for intelligent consideration of international policy in the future. The aim of the present project, furthermore, is to produce a volume which will be interesting reading as well as a valuable work of reference.

UNITED NATIONS INFORMATION OFFICE, NEW YORK

One of the elements vital to the future success of world cooperation is the immediate accessibility of the huge documentation of the United Nations Conference in San Francisco, which, by an almost unprecedented action of the Conference, was made available for prompt public examination and study. With respect to many crucial issues the really significant material is not the formal language of the Articles of the Charter, but the interpretation contained in the reports and discussions of the various committees. The Conference, however, had no means of publishing this material. The Secretariat which staffed the Conference ceased to exist at the closing of the Conference. The new Secretariat is dealing with the future rather than with the past. The United Nations Information Office, therefore, with the consent of the authorities of the Conference, is publishing the official document of the Conference in cooperation with the Library of Congress.

The task consists of reproducing by photo-offset some 12,000 pages, in the two working languages of French and English, sorting, indexing, checking, and binding in sets of approximately eight volumes.

The United Nations Information Office is an official international information service and operates on a strictly limited budget. The Rockefeller Foundation, therefore, underwrote part of the printing costs with a

grant of \$15,000, which was to be returned as far as was possible following the publication of the volumes. The prepublication sale of the volumes was so great, however, that it was not necessary to call for any portion of the Foundation grant.

ECONOMIC RESEARCH

THE BROOKINGS INSTITUTION

The Brookings Institution in its research and research training programs concentrates upon the application of available scientific knowledge to current questions of public policy. It was established for the purpose of studying with scientific objectivity the expanding structure of government and the working of economic forces on the part of the electorate, as well as to provide a realistic and practical type of research training. The program for the five years beginning in 1945 will emphasize research in domestic problems and research in international affairs. Under the first heading studies are contemplated of the complex relations between government and private enterprise in such fields as transportation, public utilities, power resources, manufacturing and agriculture. In international affairs besides engaging in studies of specific problems of international significance the Institute will undertake the publication of a yearbook which will present an annual survey reviewing important developments and trends. Conferences on the seminar level, which will be participated in by selected representatives from various countries, are also planned.

The Institution has a wide sale of publications and each member of Congress, if he requests it, is furnished a copy of each publication. The publications are ordered regularly by over one thousand business firms, and they are also extensively used for teaching purposes.

The Rockefeller Foundation appropriated the sum of \$75,000 toward the expenses of the research program of the Institution for the year beginning July 1, 1945.

COLUMBIA UNIVERSITY

HISTORY OF ECONOMIC THOUGHT

The economic ideas which accompanied the development of the United States have had less study than the factors of its material growth. Histories of economic ideas tend to stress the evolution of concepts, without regard to the economic setting or the experiences of the men who influenced thought. For several years Professor Joseph Dorfman of Columbia University has been studying the evolution of ideas in the setting of the economic structure of the period in which they were developed. He has attempted to show how economic concepts, borrowed at first from Europe, were modified or new concepts enunciated under the impact of American conditions. The subject is being approached through the writings of particular men and their influence upon thought and development.

Professor Dorfman plans to publish his study in two volumes, the first to cover the period from the beginning of the American nation to the end of the Civil War. The second carries the work to the beginning of World War II. In order to permit Professor Dorfman to complete his research and prepare it for publication within two years, The Rockefeller Foundation provided \$8,600 to Columbia University.

NORTHWESTERN UNIVERSITY

STUDY OF EUROPEAN FINANCIAL EXPERIMENTS

As the world pays more and more attention to the problem of managing currencies, a thorough analysis of

the problems that accompanied and followed the Napoleonic Wars may be particularly illuminating. Northwestern University has received the sum of \$10,000 to enable Professor Earl Hamilton to spend approximately 12 months in the archives of France, the Netherlands, Belgium and Spain collecting material for historical studies of experiments in European finance at that time.

Professor Hamilton plans to carry forward several old and new research projects. His first task will be the completion of a book to be entitled, *John Law's System: The First Experiment with a Managed Currency*, much of the data for which has already been obtained. While in Europe Professor Hamilton will also collect material for a book on prices, wages and finance in Spain, which will cover the period of the Napoleonic Wars when disastrous monetary inflation and deflation accompanied the military and political disturbances. Concurrently with this study he wishes to write a history of the first 50 years of the Bank of Spain, which is intended as a companion volume to Sir John Clapham's history of the Bank of England. As a by-product of the two, material will be collected also for a biography of François Cabarrus, the founder of the Bank of Spain and finance minister under Joseph Bonaparte.

STUDIES OF GROUP ORGANIZATION AND BEHAVIOR

COLUMBIA UNIVERSITY

STUDY OF GROUP TENSIONS

Evidences of the accentuation of group conflicts and of economic discrimination of group against group in the United States have recently inspired numerous investigations, fostered by a sense of the dangers they portend not only to particular groups but also to our

democracy and our traditions. There are evidences also of an increasing restiveness and resentment among the groups subject to the severer forms of discrimination, the most obvious of which are race riots and other outbreaks. Hence there has been a considerable activity of research in this field. For the most part, however, these investigations are concerned with the nature and extent of these social cleavages. Data have been collected on the phenomena of discrimination and prejudice. The investigation which is being undertaken by Professor Robert MacIver of Columbia University is devoted to a major issue of policy. How can social cleavage revealed by research already completed be mitigated or controlled? Professor MacIver plans to utilize the data provided by other investigations and use it as the starting point of his own work. The procedures to be followed involve the intensive study of those situations that appear to offer particular leads from the standpoint of policy. For example, situations in which tensions and conflicts between groups have shown a marked accentuation over a short period, situations in which there has been a marked reduction of tensions and conflicts and situations in which there is a fluctuation of forces making for and against cleavage.

Through Columbia University Professor MacIver has received \$10,900 for a period of 15 months during which he will prepare a preliminary survey in which he will define the character of group tensions and examine what is being done both in study and action for dealing with them.

COLLEGE OF WILLIAM AND MARY

A series of studies of the impact of the war upon the Hampton Roads-Peninsula area has recently been ini-

tiated by the Division of Social Sciences of the College of William and Mary. The program is an outgrowth of independent studies by several faculty members of war boom conditions in Newport News and Williamsburg. The three-year grant of funds totaling \$31,500 from The Rockefeller Foundation makes it possible for the research to cover the entire area and to be conducted on a continuous basis. The studies, to be carried on as individual research projects by faculty members at Williamsburg will deal with some of the economic, political and social effects of the war upon this important strategic region.

The College of William and Mary is located in Williamsburg on the periphery of the Hampton Roads-Peninsula war area and is close to the center of that part of the entire area which has experienced the most rapid growth since 1942. The region provides a unique laboratory for the study of the effects of war activities because of the relative unimportance of neutralizing factors of a non-war nature and because of the major role to which it has been assigned both in World War I and World War II. Comparison of the findings of this study with available materials on the impact of the first World War on this area should provide a basis for measuring changes in social attitudes, processes and institutions, and may shed some light on basic differences between the two wars, especially with respect to the effectiveness of policies and procedures used by the Federal Government in mobilizing a strategic region for war.

It is hoped that these studies may help not only to establish a record of the impact of the war upon the Hampton Roads area but also to assist the communities in meeting their present problems and in making the

necessary postwar adjustments with the least social loss. In addition the teaching of social sciences at the College will be invigorated by the opportunity afforded teachers and students to supplement textbooks and library materials with first-hand knowledge of the processes of social change. The program is in line with the policy of the College of becoming closely identified with the life of the region in which it is located and of putting at the service of the community and the State the research ability afforded by its faculty.

SOCIAL SCIENCE RESEARCH COUNCIL
COMMITTEE ON MEASUREMENT OF OPINION, ATTITUDES
AND CONSUMER WANTS

Rapidly developing scientific methods of measuring public attitudes and opinion are becoming of increasing significance. The methods used in these polls are already important items in the tool kits of commercial, governmental and academic research workers. However, the practical urgencies in the use of these tools have overshadowed research on, and development of, procedures. If polls are to serve instead of injure the formation and understanding of public opinion, it is important that a thorough scientific examination be made of the methods used.

The more strictly statistical aspects of this program require the active participation of experts in theoretical (mathematical) statistics. Since this latter field is of special interest to the Foundation's Division of Natural Sciences, an appropriation of \$43,800 was made jointly by the Social Sciences and the Natural Sciences Divisions to the Joint Social Science Research Council-National Research Council Committee on the Measurement of Opinion, Attitudes and Consumer Wants.

Eighteen leaders in the field, headed by Professor Samuel A. Stouffer, now of Harvard University, make up the Committee.

Because it is basic to the effective application of all other techniques and is readily susceptible of organized quantitative study, sampling has been chosen as the field in which to begin research. Activities under the project will be preparation of detailed descriptions of the various methods of sampling, comparison on the basis of existing data, certain sample characteristics with population characteristics for each of the several methods of sampling, and arrangement for the collection and analysis of further data.

TUFTS COLLEGE
SOCIOLOGY

An appropriation of \$30,000 was made to Tufts College to establish a special department which will attempt to work out a new pattern of instruction and research in sociology. The work will be designed especially for preprofessional students and will emphasize the psychiatric aspects of sociology.

Tufts College has a high average of undergraduate students who go on to medical schools. Almost half of each entering class look forward to careers in medicine, dentistry, social work or other professional fields. Tufts offers, therefore, an appropriate setting for experimentation in the teaching of sociology to students who will later play important roles in community life.

The program will be under the direction of Dr. A. Warren Stearns, who has served as Dean of the Medical School of the College and also as Commissioner of Correction of Massachusetts, during which time he organized a series of internships in criminology. Besides

the chairman the new department will have two full-time junior members, one research assistant and one graduate student half-time assistant. Illustrative of the research planned are studies in the composition of society, the basis of stratification, social pathology in the care of the physically handicapped and the role of personality in various social achievements. A book or syllabus is planned for the course which will not only deal with its content but will also discuss the techniques for effective and professionally supervised "social laboratory work" on the part of the undergraduate.

UNIVERSITY OF CALIFORNIA

STUDY OF JAPANESE MIGRATION AND RESETTLEMENT

More than 30,000,000 Europeans are believed to be homeless victims of social upheaval. In Asia also the number of those uprooted as the result of the war runs into many millions. And even in the United States movements of population have been great, with concentration in centers of war production and military training. The resettlement and permanent rehabilitation of all these people throughout the world will be a tremendous task.

Compared with the total picture, the problem of resettling the Japanese evacuees from the United States West Coast seems small, but its solution presented an opportunity to gain practical experience which will be of great value in the general management of evacuation and resettlement programs.

Since the summer of 1942 a group of sociologists, anthropologists and psychologists sponsored by the University of California has been supervising, under the direction of Professor Dorothy Thomas, an on-the-ground study of this forced mass uprooting of a minority

group. The uprooted persons have been studied from the outbreak of the war, through the period of evacuation en masse into government-controlled camps, the continuing confinement of a majority, and the dispersal of the rest on an individual basis into all parts of the country.

The study has four foci of interest. As a population study, it includes analyses of the social demography of enforced mass migration and voluntary resettlement, with special reference to the dislocation of habits and changes of attitude produced. As a study in social anthropology, it emphasizes the nature and extent of the modification and changes in the two cultures represented in the group. As a problem in political science, interest centers on the forces determining national policy. As a problem in social psychology, the primary focus is the nature of the collective adjustments made by these population groups. American-born Japanese, native-born Japanese and Caucasians have circulated among the Japanese in the assembly centers and relocation centers, and on the farms and in the towns and cities where they have resettled, recording the story of their reception by the local citizenry, the attitudes for and against, the resulting adjustments and maladjustments. They have amassed and organized a body of data on group incidents, individual experiences, ideological adjustments — a contemporary record unique in the annals of social science.

UNIVERSITY OF DENVER

BUREAU OF BUSINESS AND SOCIAL RESEARCH

In 1943 a Foundation grant in aid of \$6,000 enabled the Bureau of Business and Social Research of the University of Denver, which is under the direction of



Photograph Excised Here

Students in the Russian Institute at Columbia University consulting with Professor Geroid T. Robinson, head of the Institute.



Photograph Excised Here

Tule Lake Segregation Center, California, used during the resettlement of Japanese evacuees from the West Coast of the United States.

Dr. F. L. Carmichael, to assume leadership in exploratory investigations for the Denver Metropolitan Planning Project, set up to make studies of a war and post-war plan for the Denver area. With the aid of the directors of the sponsoring agencies and of the Advisory Committee of the Denver Regional Association, materials on various phases of the project were synthesized.

During 1944 four reports were issued and an outline of the nature of the work to be done has been prepared. The published reports bear the following titles:

Facing the Challenge of War and Postwar Problems in the Denver Area.

Employment Trends in Relation to the Postwar Economy of Denver.

Safeguarding Desirable for Postwar Construction Volume.

Power in Relation to the Postwar Economy of the Colorado-Wyoming Area.

Manuscripts have been prepared in preliminary form on water resources of Colorado and public improvement programming in Denver. At the request of the Public Roads Administration and the Planning Division of the State Highway Department, the Bureau is engaged in an origin and destination study of traffic in Denver which is intended to serve as a guide in the development of streets and highways. The cooperating committees have prepared first drafts of studies of low-value business areas, housing transportation and community services in education, health, recreation and welfare. Studies of agricultural and mineral resources and industrial development possibilities are needed as well as a thorough appraisal of local government.

The demand for reports so far issued has been gratifying and has come from all parts of the country. The documents have provided basis for group discussion of postwar employment problems and extensive use is be-



Photograph Excised Here

Hampton Roads, Virginia, at the close of the war. The College of William and Mary is conducting a series of studies of the impact of the war upon this port of embarkation and the rest of the Peninsula area.

ing made of the University's contribution to an understanding of these problems.

The Rockefeller Foundation has contributed \$15,000 toward the budget of the Bureau of Business and Social Research during a three-year period.

GENERAL RESEARCH AND TRAINING IN THE SOCIAL SCIENCES

OXFORD UNIVERSITY SOCIAL STUDIES RESEARCH COMMITTEE

The Foundation's interest in Oxford University as a center for the development of research in the social sciences in Great Britain began in 1934. In 1937 Lord Nuffield gave Oxford £1,000,000 and a building site for a college for research and training in the social sciences. By 1940 much of the research and graduate training had been incorporated as a permanent program of the University.

Since 1940 Foundation grants have gone chiefly for support of wartime research programs under the auspices of the Institute of Statistics, which was established in 1935 to promote social science research, particularly on the empirical and quantitative side. At first it had no research program of its own but assisted and co-ordinated research done by other bodies and by individuals. After a time a special research grant permitted the Institute to have a paid staff, and a program of studies in labor mobility, the capital market and monetary circulation was undertaken.

Since the outbreak of the war the Institute staff has become an active research group with its work directed mainly to an analysis of war economic problems. The major research program concerned with war economics has resulted in analyses of national income figures for

estimates of wages, investments, trend of small savings and the distribution of the burden of the war between wage-earners and non-wage-earners. The Institute has continued during the war its analyses of monthly figures on working-class budgets, cost of minimum diet, grocery sales, rent and clothing expenditures, etc.

Support for two years in the amount of \$41,720 was voted to the Social Studies Research Committee by the Foundation at the end of which time the University will have responsibility for the future of the Institute of Statistics.

SOCIAL SCIENCE RESEARCH COUNCIL RECONVERSION OF PERSONNEL

No amount of financial support for research will produce significant progress in the scientific understanding of society unless the research is carried on by thoroughly trained persons of ability. In the hope of preventing losses to social science which will occur if some of the most promising research workers fail to resume their interrupted careers after the war, and in an effort to offset the deficit of trained social scientists which has been accruing during the war years, the Social Science Research Council has been offering demobilization awards to promising research men and women who are or have been in military or other war service. These awards were made possible by an appropriation of \$100,000 from The Rockefeller Foundation in the spring of 1944, followed by two more grants totaling \$300,000 in 1945.

Those eligible for awards include students whose terms of military or other wartime service have delayed their completion of formal training, young Ph.D.'s who entered war service without becoming established in research careers, and more advanced scholars who have

lost touch with their fields or whose research skills have suffered from disuse. Awards have been made for formal or informal study, the essential purpose being to discover and assist those individuals who give the greatest promise of contributing to the advancement of scientific knowledge, whatever their present stage of professional advancement.

The customary procedures in awarding fellowships and grants-in-aid, involving formal applications on candidates' own initiative, selection once a year and relatively fixed stipends and terms of appointment, are not adapted to conditions created by war. Although the Council has continued its established fellowship programs on a scale reduced to the small continuing demand during the war, quite different provisions are needed for those in war service. It has been necessary to search out the most promising students and practitioners of social science research and to offer them the aid best suited to their individual needs for use promptly when they are in positions to avail themselves of it.

In 1944 much time was spent in laying a solid groundwork for selection. Academic institutions and government services were canvassed by correspondence and interview. Although about 300 individuals are receiving serious consideration, at the end of 1945 awards had been made to 51. Stipends granted have ranged from \$1,000 to \$5,600 for periods of from three months to two years.

UNIVERSITY OF CHICAGO
SOCIAL SCIENCE RESEARCH COMMITTEE

During 1945 The Rockefeller Foundation made a grant of \$150,000 to the University of Chicago for the continuation of its program of social science research administered by the Social Science Research Com-

mittee. This program touches on many fields. For the past three years concentration has been on studies of industrial metropolitan society (with Chicago as the laboratory), the prediction of human behavior and the analysis of human abilities by the multiple factor methods. In addition support was given to numerous independent research projects in the fields of anthropology, economics, education, history, political science, psychology and sociology.

The program of research to be supported by the new grant consists of a series of interrelated problems focused on mass democracy. The proposal is to isolate and analyze major factors underlying the problems which arise out of the operation of mass democracy in the Western world, particularly in the United States. It is hoped that the studies will produce new insights into methods and procedures of social science investigation, new generalizations concerning the nature and functioning of democratic society and suggestions which may be helpful in making mass democracy work more effectively. The five main projects in this program are: an investigation of the workings of representative government in the United States, a study of certain currently critical problems of industrial relations, a project in agricultural economics, quantitative studies in economic behavior in the American economy and a study of the effectiveness of social groups in representative midwest communities in bringing about the sharing of common values among its members.

UNIVERSITY OF GLASGOW
RESEARCH AND TRAINING IN THE SOCIAL SCIENCES

The University of Glasgow is one of the major centers of advanced training in Scotland. A strong faculty has

been built up there which continues in full vigor the humanist tradition in social studies. The Vice-Chancellor wishes to develop and strengthen the research and training at the University on the empirical side. The city of Glasgow provides an unusual laboratory for studies of economics, government, sociology, social behavior and industrial relations. For the next few years three major studies are contemplated. The first is a study of the economics and sociology of the Clyde Basin, which embraces many problems of which industrial and labor relations are illustrative. The second is concerned with the impact of the Russian precept and practice on the militant socialist movement in Great Britain, and through that on trade unionism and socialism in general. The third is a study of the problems of the relations between the progressive local government and central government in Great Britain. To make possible a beginning of this program The Rockefeller Foundation has appropriated the sum of £12,600 for the next three years.

FELLOWSHIPS AND GRANTS IN AID

In 1945 the Foundation appropriated \$75,000 for fellowships in the social sciences in 1946. One new appointment was made from funds allocated the previous year to Dr. Alexander Baykov, senior lecturer of the Faculty of Commerce and Social Science of the University of Birmingham, for his studies of international trade in the United States. This is a special fellowship. The regular fellowship program for European students was not resumed during 1945, but plans are underway for its gradual resumption in 1946 as conditions permit.

The fellowship program of the Social Science Re-

search Council for American students was included in the program for reconversion of social science personnel described elsewhere in this Report. Fourteen fellowships were active at some time during 1945, of which three were for postdoctoral research training and 11 were for predoctoral field work. All but one of the fellowships were new awards.

A fund of \$125,000 was set aside in 1944 for allocation by the officers in 1945 as research aid grants. A similar grant was voted in 1945 to be allocated during 1946.

During 1945 a total of \$124,024 was allocated from the grant-in-aid fund for 27 awards. These ranged in amount from \$700 to \$7,500 and averaged approximately \$4,600.

Under this program aid was given to Massachusetts Institute of Technology for completion of studies of the economics of technological change, to the University of Pennsylvania for African studies, to Columbia University to permit the Press to prepare a bibliography of League of Nations documents and to the Canadian Social Science Research Council for a survey of graduate training in Canada. Exchange of scholars between this country and Great Britain was facilitated by the trips of Professor Edwin B. Wilson of Harvard University to the University of Glasgow, Professor Jacob Viner of the University of Chicago to the London School of Economics, Dr. Per Jacobsson of the Bank of International Settlements, Basle, Switzerland, to the United States and Professor Noel Hall of London to the Institute for Advanced Study, Princeton.

A special grant-in-aid fund of \$25,000 was set up to provide for conferences, travel, and visits in connection with studies of the social implications of atomic energy.

THE HUMANITIES

THE HUMANITIES STAFF

During 1945

Director

DAVID H. STEVENS

Associate Director

JOHN MARSHALL

THE HUMANITIES

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THE HUMANITIES

DURING 1945, appropriations of The Rockefeller Foundation for work in the humanities totaled \$1,162,900. Of this sum, \$200,000 was designated for fellowships, most of which have been awarded to men and women returning from war duty. Several other grants had the same end in view as those for fellowships. These grants were made to institutions where new courses to meet wartime needs are developing into well-established programs of study and research dealing with important areas of the world. During 1945 the students in these wartime courses began their return to civil life. They have additional qualifications for study or teaching by reason of field experience in the Far East, the Near East and the southwestern Pacific. Fellowships and other aid by colleges and universities will help many of them to play their part in enlarging the horizons of the humanities, geographically and culturally.

Studies of the humanities made during 1945 by several consultants for the Foundation added substantially to the understanding of officers of conditions in this and other countries. These consultants travelled extensively in the course of their investigations in the United States, Mexico, New Zealand, Australia, and Great Britain.

Three primary interests of the humanities program in 1945 were: studies in the traditional and contemporary culture of North America; increase within the United States of knowledge and interpretation of foreign cultures; and the improved teaching of modern languages for a greater variety of uses. These three aims are

parts of a general purpose to create a closer and clearer understanding of universal human values.

During 1945 and the preceding war years the Foundation had less opportunity to aid humanistic interpretation to wide audiences through motion pictures, broadcasts, printed materials, and the arts of drama. Limited support to these activities was resumed during the year by a further grant for the work of the National Theatre Conference. Also, the resumption of the flow of printed materials across national boundaries, interrupted during the war, called for continued attention. The contribution of the Foundation toward meeting the need for reconstituting international library services is represented again in 1945 by its grants to the International Relations Board of the American Library Association.

During the war period, grants for European projects in the humanities necessarily were limited to those in Great Britain, and chiefly there for emergencies created by the war. In 1945 direct contacts with other countries of Europe were made by the officers, and provision was made for a number of European humanists to make visits abroad that will restore their relations with foreign scholars. A grant to the University of Birmingham for awards to younger British writers whose work was impaired by wartime service, is a recognition of the productivity expected in Europe in the arts and in humanistic studies generally following the years of restraint and suffering.

STUDIES IN LANGUAGE AND FOREIGN CULTURE

CORNELL UNIVERSITY

DIVISION OF MODERN LANGUAGES

War requirements brought about a rapid evolution of effective means of teaching modern languages. Demands

for linguists were met by well-planned operations in some 50 universities and colleges under guidance of the American Council of Learned Societies. The Rockefeller Foundation has supported the general program of the Council and special programs in individual languages at several universities. At Cornell University, language study has been an element in language-area programs on Slavic subjects since 1939, when intensive courses in Russian were established. Since that time intensive courses have been conducted in Chinese, German, Italian and Czech, as part of the Area and Language Study Curriculum in the Army Specialized Training Program. At present intensive language instruction is given in Russian and Chinese, and to some extent in German. French, Spanish, Portuguese and Scandinavian languages are also to be taught intensively.

It has been hoped that progress made during the war would bear fruit in structural and methodological changes in language teaching throughout the system of higher education in this country. Cornell's present plan for a consolidated department or division of modern languages is a step in this direction. The program proposes to consolidate elementary foreign language teaching under a single expert director, to continue experimentation with methods of instruction and to bring about greater and more effective use of equipment. Toward the cost of this development the Foundation has made a grant of \$125,000 over a five-year period.

STANFORD UNIVERSITY AREAS AND LANGUAGES

Stanford University is another of the institutions which is continuing for civilian students a coordinated program developed during the war for intensive training

of military personnel for special services in other countries. It is particularly strong in resources on the Pacific area that have special importance for future development of both undergraduate and graduate work.

The School of Humanities at Stanford, in addition to personnel from many departments and schools in other fields, has the full-time services of specialists in the areas and languages of the Pacific, Eastern Asia and Russia. Its courses on these areas during 1942 and 1943 carried a maximum of 300 students assigned at a given time by the various services, and simultaneously carried a good number of civilians. Intensive methods of instruction, particularly in languages, gave the basis for a developed program of work in language, geography, history of culture, politics, anthropology, literature and philosophy. Well-developed plans of study on such a basis now exist for China and Japan, with prospect of immediate attention to work on Russia and the Dutch East Indies. Under the new plan of study a student in his first or second year of college may enter the course on Far Eastern civilization, and also may begin the study of Chinese, Japanese, Russian, or Malay. Those intending to specialize will then be entered in several courses on a specific country, and will be assigned topics leading to concentrated work in senior college seminars. Under the plan as fully developed, the student will devote at least a third of his time in college to general and special studies on a given area or country. He may at the same time complete the work of a major sequence in a particular department. The organization of courses is intended to meet the needs of the general student, while opening the way to specialization from the beginning of a college program. The total resources of Stanford to maintain these plans include the usual general courses in history,

language, literature, and political science, and furthermore, special offerings in the Graduate School of Business, in sciences and in the Hoover Research Institute. The Library of the Institute is exceptional in its holdings on Russia. Both the Hoover Library and the general library of the University are now increasing their purchases on the Far East and on Russia, and the Institute proposes to add to its present staff.

The Foundation's appropriation of \$50,000 in 1945 is directed toward a steady development of teaching and research on the areas and languages of the Pacific, Eastern Asia and Russia over a period of five years.

YALE UNIVERSITY
FAR EASTERN STUDIES

Yale University is embarking on a program to develop to the fullest extent its personnel and facilities in the field of Far Eastern studies. Long before World War II Yale was active in studies in this area, and the military programs during the war provided great impetus to further expansion. There is now at Yale a nucleus of scholars and teachers about which may be gathered a group to make Yale a national center for research and studies dealing with the Far East.

Earlier grants of the Foundation in support of Far Eastern studies at Yale University have been primarily to strengthen the work in Chinese. These grants have centered on the work of Professor George A. Kennedy, who has developed advanced training in language instruction by original methods. Under his direction an enlarged staff at Yale has made important contributions of trained personnel to all military and civilian services of the government. In good part through his advisory help comparable courses were created during the war

years for intensive teaching of Russian, Japanese and languages of the South Pacific. Simultaneously the University developed courses on the geography, institutions, economics and politics of these areas, making Yale University one of the primary centers for specialized training of military and civilian administrators for the Far East.

These language and area courses were given for many hundreds of students under wartime training. They have left important new elements for the proposed University program in Far Eastern studies. In the undergraduate College there is to be a complete reorganization of language instruction, and the area courses on the Far East will be basic for advanced work in college or graduate school. The University has had since 1940 a major subject leading to the college degree, under the heading Oriental Studies, History, and Sociology. It has developed in the Graduate School well-organized departmental programs in language, history and anthropology. More general programs at the graduate level have existed in the Divinity School and in the School of Fine Arts. At advanced levels as well as in the undergraduate College all these existing resources are being drawn into relationship for work on the Far East and the areas of the Western Pacific.

One of the factors in the plan will be releases of faculty members for periods of study in the Far East. Several new appointments are looked for to give new strength in several subjects, and the library holdings are also to be increased steadily under a developed plan.

The Rockefeller Foundation's appropriation of \$100,-500 is for assistance in these phases of the development during a seven-year period.

**YALE UNIVERSITY
LANGUAGE INSTRUCTION**

Since January 1942 Professor Kennedy has handled a steady flow of officers from the Army to be trained in Chinese before going to their theater of operations. During 1945 intensive training was given to some 400 soldiers and civilians. A comparable though smaller program has been maintained in the Japanese language. This work has demonstrated the importance of giving all students constant use of sound recording and reproducing equipment. Training in speaking and in hearing a new language is made easier and more effective when the student has free use of an efficient sound laboratory with adequate equipment. Within recent months new equipment, cheaper and more durable, has become available, and the Foundation has provided \$7,500 for the purchase of elements needed for the work in Far Eastern languages, particularly in Chinese.

**COLORADO SCHOOL OF MINES
LANGUAGE INSTRUCTION**

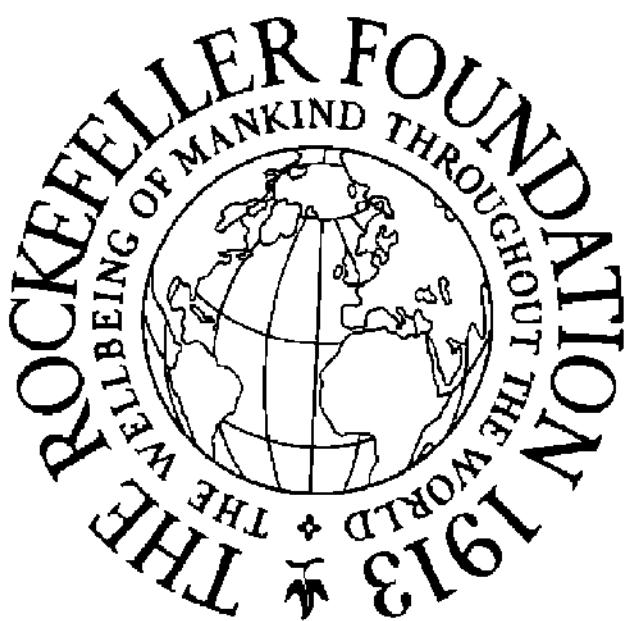
The Colorado School of Mines has advantages for experimental work in language instruction by reason of the constant flow of students in engineering from Latin American countries and from the Far East. Not less than 10 per cent of each entering class is of foreign origin, and this proportion will increase as more students come on subsidy from their own governments or on recommendation of federal agencies in Washington. Most of these foreign students are seriously deficient in their knowledge of the English language. Although they have good fundamental training in their mother tongues, a lack of facility in the use of English hinders all their

work. By reason of slowness in comprehension, particularly of spoken English, they have the greatest difficulty in the first year. Thereafter, they have less hindrance from unfamiliar sounds in spoken English, but may be quite unable to use the language readily in writing or in speaking.

The School has established a plan of teaching English to the foreign student intensively for three months before he begins his courses in engineering, and then in slow stages of development during the first two years of the college program. The objective is to give him facility in the use of texts, as well as ability to follow all the usual processes of classroom learning easily and to conduct his daily affairs on the language basis of any North American student. This requires that his vocabulary shall be brought to the level of the American-born student, in scientific terms as well as in terms of everyday usage.

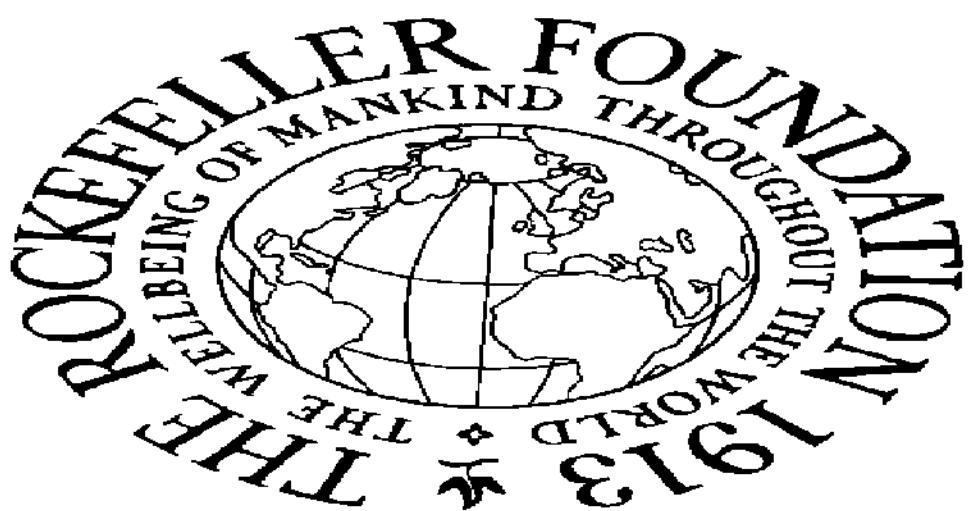
Under the direction of Professor H. M. Crain, the School has assembled a full record of methods and equipment used in language work under the Army and Navy programs. Observers have visited all the centers recognized as significant for method and for accomplishment. All staff members in the departments of modern languages are now active in preparation of teaching materials for instruction in other modern languages. Consequently the experiments in method and the resulting records of work will be useful for purposes other than instruction in the English language.

The Foundation's grant of \$7,500 will be used to purchase recording and reproducing equipment needed for aural training. Support at this center will be effective in many countries through students who return to become teachers and directors of engineering projects.



Photograph Excised Here

Brazilian student
at Colorado School
of Mines learning
English in the lan-
guage study lab-
oratory.



Photograph Excised Here

View of the language study laboratory. Seated in one of these soundproof booths the student hears English spoken correctly through a loud speaker, and he repeats what he hears into the microphone of a wire-recorder. When he plays the record he hears his own faults and learns to correct them.

UNIVERSITY OF WASHINGTON
FAR EASTERN MATERIALS

In 1944, grants totaling \$260,000 over a seven-year period were made to four institutions on the West Coast, namely Stanford University, the University of California, Pomona College, and the University of Washington for development of their programs in Far Eastern and Slavic studies. In 1945 a further grant of \$50,000 was made to the University of Washington for purchase of materials on Eastern Asia.

The Far Eastern Department at the University of Washington offers 50 courses on the civilization and culture of Far Eastern and Slavic countries for undergraduate and graduate students. In 1944 there were some 1,600 students enrolled. These courses supplement plans of other departments for their own major sequences, while in themselves giving a rounded program of regional studies.

Students undertaking to continue through a four-year program of Far Eastern studies start at once on basic training. One requirement is an immediate beginning on the intensive study of one of four languages — Chinese, Japanese, Russian, or Korean. The program also demands continuous attention to contemporary materials, and consequently calls for large increases in older collections, as in law and history, to sustain research programs. The undergraduate work in social sciences and humanities relies on current books and journals on Far Eastern subjects published in all modern languages. From both Europe and Asia these additions to the library have been interrupted during the war, and in some cases they will be difficult to secure. Each department has a "want list" of original and secondary



Photograph Excised Here

A scene from *Carriage Trade*, by Lewis Powell, presented at the Cleveland Play House, an outstanding non-commercial theater.

documentation to be secured as soon as trade channels open. The largest gaps in the Far Eastern collections are on Russia and on certain phases of Japanese history.

For cooperative projects on Chinese civilization there is need for larger stocks of local histories and other primary source materials not now available in this country. The research plans require large additions to the annual purchases of current books and journals in Chinese, Russian and Japanese as well as in western languages dealing with Far Eastern subjects, and beyond that a systematic gathering of out-of-print books and original documents. For the latter a representative of the library will be sent to China, Manchuria, Japan and Russia. The Foundation grant will be used for the purchase of some of these materials.

Under the 1944 grant for training and research of staff, a secondary purpose — that of bringing scholars to the institution on temporary assignments — has resulted in the presence of three Chinese professors at the University of Washington.

AMERICAN COUNCIL OF LEARNED SOCIETIES TURKISH DICTIONARY

The number of Turks reading books and journals in the English language has never been so great and is increasing rapidly. English has been the most popular foreign language among Turkish students since about 1935, and today is the one most in use among all age groups as their second language.

Two dictionaries prepared by J. W. Redhouse, a British scholar, long have been the only lexicographical links of first importance between the English and Turkish languages. The Turkish-English volume, published in 1891, was revised in 1921; the English-Turkish

volume, published in 1861, is out of print. Revision of the latter is now nearing completion in the hands of a special staff under the American Board of Commissioners for Foreign Missions. The Foundation is contributing toward the expenses of this work, by means of a five-year appropriation to the American Council of Learned Societies in the amount of \$16,700.

The only dictionary that gives both languages in two parts is a smaller work than either of these, published in a second edition in 1880 and quite inadequate to meet present requirements. This work is based on the two large dictionaries of Redhouse. Historically, one of the most important Turkish dictionaries is Mahmud Kashgari's, written in 1073 A.D., published in three volumes in 1914 and recently translated into modern Turkish. This work is of use only to advanced scholars capable of handling Arabic in the original text or modern Turkish as well as classical Turkish in the translated work. Other general dictionaries of varying merit exist in German, French and Turkish.

The American Board initiated the revision of Redhouse's English-Turkish dictionary in 1939, under the direction of Dr. John Kingsley Birge, one of the first missionaries of the Board to learn Turkish as his chief foreign language. The new edition will be in transliteration of the old Turkish-Arabic characters to new Turkish-Latin characters. It will be a complete revision of Redhouse's work and will also include terms in current usage on the basis of words in Webster's Collegiate and the Oxford Concise dictionaries. With these additions the new volume will contain about 75,000 words. An important feature will be the phonetic representation of every word in both English and Turkish.

INSTITUTE OF PACIFIC RELATIONS

SOURCE MATERIALS ON CHINESE HISTORY

Following two previous grants to the American Council of the Institute of Pacific Relations for its Chinese history project, an additional grant of \$25,000 will carry to completion the first stage of translating and editing voluminous selections from the Chinese dynastic histories. The first work on the materials was done in China. Since 1939 Dr. K. A. Wittfogel has continued the work in this country, with the help of Chinese and American scholars. Columbia University has given quarters for the staff of specialists; members of the Department of Chinese have collaborated on general questions in editing; and the University has supplied the necessary stock of reference works.

The manuscript on the Liao Dynasty (907-1125 A.D.) is now in press. Materials on two other dynasties are partially completed, and nearly all the work on a third, the important Han Dynasty, will be finished during 1945. These volumes will give the essentials of social and cultural history of these periods with adequate notes and original texts. How far the work can go in its second stage will depend on support from institutions in China and the United States.

During 1944 The Rockefeller Foundation made special provision for two Chinese scholars who came to join the staff on this project. They are to return to China to direct similar work on other sections of the plan as soon as conditions are favorable.

AMERICAN STUDIES

PRINCETON UNIVERSITY

AMERICAN CIVILIZATION

Teaching and research on the various aspects of American life ordinarily illustrate the strong influence

of departmental direction, but the turn toward co-operative treatment of American themes is marked in many parts of the country. A program begun at Princeton in 1942 for studies in American civilization exemplifies a method for developing new personnel to advance the general understanding of the American tradition and of contemporary American life. As in other centers where studies of American life are taking on new form, the beginnings at Princeton are on the undergraduate level with respect to teaching but include research plans of faculty members that will directly affect graduate instruction. The work is under the supervision of a committee from the Departments of Art and Archeology, Economics, Politics, English, History and Philosophy. The Rockefeller Foundation supported the program in 1944 with an appropriation of \$12,000 and in 1945 gave a further grant of \$35,000 to be used in a three-year period.

During 1944-45, the six members of the active committee gave a series of seminar lectures to undergraduate students organized in a conference that dealt with foreign influences in American culture. They enlisted assistance from outside the University for specific lectures in the series, and had a full-time bibliographer to assemble source materials on all phases of the program. An unexpected University service of the group was a series of week-end courses for visiting British servicemen, in which characteristic elements of American life were discussed.

At the end of the year 1944-45 the committee had brought to print various individual studies and had produced a volume, *Foreign Influences in American Life*. One review notes of this work, now in its second printing, that it presents results of a kind "to offer the

hope that the long day of provincialism in authentic American historical scholarship may, at last, be waning." The work has demonstrated the merit of collaboration among the disciplines in social sciences and humanities in training advanced students and in organizing American studies around a single theme.

Plans for the next three years include group study of the influence of the doctrines of evolution and socialism on the history, institutions and culture of America. These two historically and logically interrelated systems of ideas have penetrated and profoundly affected all levels of the national life. In spite of the widespread public and scholarly interest in them, no definitive, inclusive treatment of either problem has ever been undertaken. Two separate but related volumes will be produced through the united work of specialists from the appropriate fields in natural sciences, social sciences and humanities.

UNIVERSITY OF UTAH HISTORICAL MATERIALS

The University of Utah has many advantages for studies in American history, in part because until now the history of the state has been so largely a history of the Mormon Church. Utah's interest in its own history has been chiefly with religious purpose, but now is a favorable time to give general meaning to the materials known to exist and ready for the use of scholars and writers. Members of the faculty of the University are developing a program of American studies that depends upon regional materials in private hands and in the possession of the State Historical Society. A first step toward realization of the program is to assemble large stocks of family papers, diaries and local records for

study and applied use in the work of the University. Several prominent citizens have accumulated valuable collections of documents and are counted on to aid the University in this new program. Foundation support is in the amount of \$15,000.

Professor H. H. Lee of the Department of English is directing the program in local history, both in the field and in the University. The State Historical Society is cooperating to bring about prompt classification and use of the collected records and documents. Professor Lee's plans for instruction will be put into operation first in the summer sessions, when many teachers from the schools of the state are enrolled; his field work throughout the year will bring to the university library the materials gathered by teachers of the state and by his own graduate students. Others in the Departments of English and History have formed a university committee that will be responsible for planning and for special instruction in literary and historical writing of creative kind, particularly in drama.

STATE UNIVERSITY OF IOWA
STUDIES IN LITERARY CRITICISM

There is widespread dissatisfaction today with the academic treatment of literature — with the aims and methods of classroom instruction, with the type of graduate training offered prospective teachers and with the kind of professional activity, in research and publication, which is accepted as the basis for promotion of professors. The existing treatment tends to represent historical rather than literary interests. Most younger teachers and students are in search of some coherent and systematic statement of the function of literature, its claims in competition with the claims of the other

fine arts, of the physical and social sciences, of philosophy and religion; they seek, too, some rationale for studying literature as a form of creative expression.

Professors Austin Warren and René Wellek of the State University of Iowa have received support in amount of \$8,000 for the preparation of a book on methods of literary criticism. Their purpose is to meet some of these needs by a description of the place of literary studies in university teaching and research, and by relating literary studies to the world of today.

**WASHINGTON UNIVERSITY
HISTORY OF WESTERN MIGRATIONS**

On the basis of his studies in southwestern history over a period of 25 years and his plans for a history of western migrations in the United States, a four-year appropriation of \$9,500 was made to Washington University for the work of Professor Ralph P. Bieber. Professor Bieber's research has centered about the migrations from eastern and middle-western states to the Southwest and to California.

Since 1931 his "Southwest Historical Series" has given other scholars direct use of important biographies and original sketches by pioneers. He is now particularly concerned with the westward movement to California in 1849. During the period of gathering materials his inquiry will take him into some 26 states. In each state, Professor Bieber will make use of references secured through the survey of American archives. The plan for field work is so drawn that the collected documents can be organized steadily for proper use in the finished work. The expectation is that all field investigation will be completed in time for the production of a book to be published in 1949.

DRAMA AND RADIO

NATIONAL THEATRE CONFERENCE

General support from The Rockefeller Foundation to the National Theatre Conference began in April 1938, when the Conference was reorganized, with limited membership, to improve educational and creative values in American universities and colleges and in communities through drama. Since that time a total of \$111,825 has been provided by the Foundation, with an additional appropriation in 1945 of \$155,000 for support of activities and projects during a five-year period. During these years, interchange between professional and non-profit theaters has been increasing steadily. New plays have been released simultaneously in both types of theater. Mutual help has been derived from the interchange of personnel for special projects, while the educational standing of drama has improved in colleges and in universities.

Certain services of the Conference are made available without charge to libraries, dramatic critics, professional theater leaders, college and community directors, and to those members of the community at large who are especially interested in the American theater. Its royalty project for several years brought reductions to over a thousand theaters on plays that otherwise could not have been produced. The placement service locates qualified personnel without charge, and member organizations in all parts of the country maintain loan libraries for their regions. Through its new play project the Conference has assisted younger playwrights and has arranged the production of new plays by two nationally known writers. Probably the most fundamental service has been given through fellowship awards

to aid young writers and to improve the quality of advanced training in graduate schools.

During the war, Conference members directed soldier entertainment in foreign countries, operated a theater project of the Treasury to support the war bond drives, gave continuous aid as advisers and as authors of service manuals for the armed forces, and conducted playwriting contests for men in the service. The first contest brought in over 500 manuscripts and resulted in substantial scholarship awards for postwar study. The successful plays are to have broadcast and stage production. Less widely known but important is the constant production of plays by member organizations in hospitals and camps of the United States.

Postwar demands for rehabilitation of personnel and reorganization of training centers in community and university theaters are increasing the value of the Conference's program. Substantial progress has already been made in this field, particularly in the development of centers for instruction at the graduate level.

THE PLAY HOUSE FOUNDATION, CLEVELAND

Thirty years of operation give the Cleveland Play House the position of leading non-commercial theater in the United States. Working under the same director, Frederic McConnell, for 24 years, its staff of 50 persons offers its productions for subscription audiences made up of as many types of theatergoers as there are types of people in Cleveland. The Play House has given varied training to over 500 potential actors, directors, designers and technicians recruited from all parts of the United States, and in the past five years has had apprentices from 45 colleges and universities, who learn by doing the work of the theater in all of its branches.

The audience of the Play House during these years has averaged annually 120,000 persons. In its latest fiscal year attendance was nearly 127,000 and income \$88,000, which exactly met expenses.

The Play House Foundation plans to renovate the Drury Theatre, the larger of the two theaters now housed in the Play House, and to build another theater comparable to it in size and equipment. This development, toward which the Foundation is contributing \$25,000, will mean continuous operation of the Play House throughout the year with doubled capacity for audiences. The present number of apprentices will be increased, and the Play House will be able to do more in the important field of discovering and producing new manuscripts by giving more productions at the best level. The new theater will also make it possible to increase the number of productions in the Children's Theatre, which annually gives training to some 600 school children, and to continue the annual Shakespeare festival for school children, without interrupting the regular sustaining program. The old theater will be released for activities of an educational, experimental and non-revenue character for groups in Cleveland and for those now in its own corps of full-time workers.

ROCKY MOUNTAIN RADIO COUNCIL

In general the organization of broadcasting service in the United States has been national. The Rocky Mountain Radio Council provides a service keyed to the needs and interests of one organic region, and as such represents an important innovation in broadcasting. The overall purpose of the Radio Council is to help the region understand itself and to understand its own role in the nation and in the world. Twenty-nine organiza-

tions — the leading colleges, universities, civic, educational and professional societies, and the State Departments of Education of Colorado and Wyoming — make up its membership. In cooperation with these organizations, a small but highly qualified staff prepares radio programs of educational and cultural value particularly suited to the needs and interests of the listeners of the region. During its latest year of operation, 419 such programs were produced, directly or by transcription, in one or more broadcasts over the 18 stations of the region, accounting for over 2,100 separate broadcasts during the year. These programs dealt with national and international affairs interpreted from the point of view of the region, the region's part in the war effort, its agricultural and industrial resources, and the problems and interests of its people. Illustrative of the programs arranged are a series of broadcasts reporting on the history and probable future development of the mining and steel industries in the region, a group of broadcasts on art forms of the Southwest, a series of American folk songs, and consecutive discussions of literary works.

Over the past five years the Council has grown from an experimental enterprise to a firmly established agency of recognized significance in the life of the region. The achievement of full local support, however, has been retarded by the fact that these educational institutions on which the major burden of responsibility for the Council rests, have been operating with low enrollments and reduced budgets. Though the financial outlook of the Council in the coming years is excellent, some further assistance during the next few years is needed. An outright grant of \$25,000 has been made by

the Foundation toward current expenses and purchases of new equipment.

LIBRARIES

NATIONAL CENTRAL LIBRARY, LONDON

The National Central Library is the distributing center for Great Britain of all unusual items required by the county library systems, the municipalities and the universities. It maintains a large stock, part of which must be replaced because of damage to its London headquarters, and it operates an elaborate system for the exchange of books held by other depositories in Great Britain. It likewise serves as a British center for international exchange.

The earliest assistance was to establish the Bureau of American Bibliography, a full record of titles from the copyright office in Washington in the standard form of registry of the Library of Congress. The most recent grant, made this year, in the amount of \$19,200, is in support of general operations for two years.

AMERICAN LIBRARY ASSOCIATION

INTERNATIONAL RELATIONS BOARD

The International Relations Board, aided by The Rockefeller Foundation since 1942, conducts investigations and supplies direction for projects of the American Library Association outside the United States. The director, Mr. H. M. Lydenberg, recently submitted detailed recommendations for work in Latin American countries following a visit to all the major centers of library work during the summer of 1944. His recommendations and those of the secretary of the Association, Mr. Carl H. Milam, describe the needs of each country and certain ways for immediate improvement

of the international services of libraries to all fields of knowledge.

The Board anticipates opportunities for visits here of librarians from national Latin-American libraries and of specialists from the United States to Latin-American countries. An important opportunity appeared in Brazil when the director of the project in São Paulo for training librarians, to which the Foundation has contributed funds, made recommendations at the request of the Ministry of Education for complete reorganization and proper classification of materials in the National Library in Rio de Janeiro. As a result of these recommendations the Minister asked for specialists from the United States on temporary appointments ranging from three months to a year. In response to this request, the Association selected three specialists for short-term appointments and one for a term of 12 to 15 months in the National Library of Brazil. One adviser will be sent by the Library of Congress, and an officer of the National Library in Brazil is to come to the Library of Congress on exchange to develop the Brazilian collections. After the reorganization in Rio, further cooperation can be maintained by such exchanges of personnel and through correspondence.

The International Relations Board has similar opportunities in the other Latin-American countries. Library reorganization in Colombia, Chile and Peru will be furthered materially by allocation of small amounts to selected individuals for periods of advanced study. It is anticipated that the use of the Foundation grant of \$25,000 during three years will establish relationships with the libraries of the larger countries of South and Central America on a satisfactory basis for future exchanges of materials.

AMERICAN LIBRARY ASSOCIATION
REFERENCE BOOKS FOR WAR AREAS

A Foundation grant in aid to the New York Public Library in 1944 provided for the preparation by Mr. Charles F. McCombs, chief bibliographer of the New York Public Library, of a list of books of lasting value published in the United States from 1939 through 1943. In the same year a grant of \$100,000 to the American Library Association enabled its Committee on Aid to Libraries in War Areas to purchase a minimum stock of such books for distribution to libraries in war areas. An additional sum of \$90,000 has now been made available for selection and purchase of reference books of the years 1944, 1945 and possibly 1946.

The Association has purchased 35 sets of books, in all fields of knowledge, at a total cost of \$75,000. Under the present plan of allocation several sets will go to the national library authority in such countries as Great Britain, China, the Soviet Union, France and Italy, and single sets to other countries whose libraries have been prevented from purchasing by wartime conditions. In addition, 11 copies each of some of the more specialized or expensive items were purchased, and a fund was set aside to meet special requests. In all, 761 titles were acquired, 228 of which were bought in sets of 11 only. The Library of Congress is providing for the storage of books purchased until such time as they can be delivered. At the end of 1945, eight shipments had been made. The purchase of these books, inadequate as it is in comparison with the needs of libraries in war areas, assures a minimum supply in each country of American books that may be out of print in trade channels before foreign libraries resume normal operations in foreign purchasing.

OTHER GRANTS

UNIVERSITY OF BIRMINGHAM
LITERARY AWARDS

As assistance to literary and critical writers, the Foundation has made available the sum of \$56,000, to be administered by the University of Birmingham, for awards in literature during the years 1946, 1947 and 1948.

As defined by the University of Birmingham, the purpose of the awards is "to aid young British subjects whose work in creative writing or criticism has shown particular promise but has been interrupted by the war." They aim "at furthering the best interests of English literature by providing means by which men and women of talent might devote themselves, unhampered by financial considerations, for at least a year to their own writing. While the awards will not involve any specific obligations on the recipients, it will, of course, be expected that those aided by such grants will not undertake any regular salaried duties during the period in which they receive assistance from the fund; and no awards will be made to such writers as are under contract to individual publishing firms."

The University proposes to appoint a committee, of which Professor Allardyce Nicoll will be the chairman, to make the awards. It will include in its membership such well-known representatives of British literature as Mr. James Bridie, Mr. Ivor Brown, Professor Bonamy Dobree, Professor B. Ifor Evans, Mr. F. L. MacNeice and Mr. A. E. Morgan. Applications will ordinarily not be accepted from individual candidates, but awards will be made upon the recommendations of a panel of advisers, some 40 or 50 persons widely recognized in

various fields of literary work. The Committee will have the assistance of an executive secretary to be appointed by the University.

UNIVERSITY RESEARCH FUND

SÃO PAULO, BRAZIL

Grants in the field of the humanities in 1945 included \$43,000 to the University Research Fund, São Paulo, Brazil, toward the operation of a bibliographical information service during a five-year period. Similar projects under Foundation assistance are in operation in the University of Buenos Aires and in the Federal District of Mexico, where they are having an immediate and stimulating effect. The plan in São Paulo is to create an index to resources in all forms of special knowledge, primarily in the sciences, within the State of São Paulo and to a great extent throughout Brazil. A period of five years is considered sufficient to prepare and to print a union catalogue of periodical holdings of important libraries, and to establish the best routines for exchanges of information among the libraries and for services to individual scholars.

The University Research Fund, under the direction of Professor Jorge Americano, rector of the University of São Paulo, was established on independent status two years ago to receive gifts from public and private sources for the support of research. The project now receiving Foundation support is to develop further the work of Professor Jayme Cavalcanti, who had listed for publication the periodical resources of five scientific institutions in the cities of São Paulo and Rio de Janeiro. His basic list, printed in 1938, proved the need for an inclusive listing of all types of journals available in Brazil. The work of Dr. Borba de Moraes of the National Library,

Rio de Janeiro, in that city and São Paulo, has developed the personnel and reference resources for advanced library operation. The plan embodies ways of gathering, classifying and publishing data in the most useful form, reproduction by microfilm and by photostat, and the use of all bibliographical information in the purchasing plans of all the large libraries of Brazil.

The staff is being organized with the intention later on to accept requests for abstracting and translating. It is now serving particular needs by the preparation of special bibliographies. As the project progresses, more complete data on Brazilian resources in periodicals will steadily improve these two services. Immediately, the effect of the project will benefit 38 libraries in the State of São Paulo, and will soon be of benefit to scholars and scientists in all parts of Brazil.

FELLOWSHIPS, SPECIAL FELLOWSHIPS AND GRANTS IN AID

The interruption which the war caused in the work and advanced training of American humanists led the Foundation, first in 1944, and again in 1945, to make two appropriations, each in the amount of \$100,000, for postwar fellowships to be awarded to humanists in the United States whose contributions in future years would be made in teaching and writing as members of college or university faculties. Since many deserving candidates were absent from the country on war service, applications were first requested from sponsors having knowledge of promising candidates in all sections of the United States and in all fields of humanistic study.

The first requirement for consideration was the fact of serious interruption of the candidate's natural development due to his service in the armed forces or in

government departments, or, in a few cases, by reason of the pre-empting demands of wartime teaching in training programs for the armed forces. Apart from these requirements, the principal criterion of selection was the individual promise of the man or woman in question.

By the end of 1945, 62 such fellowships had been awarded in the fields of English, Far Eastern studies, history, philosophy, Slavic studies, classics, archeology, drama, Middle Eastern studies, romance languages, Latin American studies, and the fine arts. A small number of further appointments remained to be made during the first months of 1946. These fellowships carry a stipend of \$2,500 and the provision that they may be entered on at any time before December 31, 1948, as may best suit the needs of the appointee.

The regular programs of fellowships and grants in aid were continued, with distribution as follows in five general fields:

	<i>Grants in Aid</i>	<i>Fellowships</i>
American studies	12	3
Studies in language and foreign cultures	11	4
Drama, film and radio	5	3
Libraries	9	4
Other grants	17	4
	—	—
	54	18

Six of the grants in aid were to enable notable Chinese scholars to join American university faculties for twelve-month periods.

OTHER APPROPRIATIONS

OTHER APPROPRIATIONS

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OTHER APPROPRIATIONS

WORK IN CHINA

IN 1945, grants of \$8,000 each were made to the College of Public Affairs at Yenching University, and the Department of Agricultural Economics in the University of Nanking. In spite of the great difficulties which both institutions face, useful work continues.

The College of Public Affairs at Yenching is training students for rural reconstruction, postwar relief and rehabilitation, frontier sociology and anthropology, mental hygiene work in schools and welfare work with various groups. The Foundation's grant is used for the rural reconstruction program, which from now on will be concentrated on a study of the effects of the war on the life of the farmers.

Now that most of the counties in China have organized agricultural extension bureaus, with definite appropriations for the increase of agricultural production, the University of Nanking, instead of running extension centers itself, is helping the government in the provision of extension materials and technical supervision and in the training of extension workers, with special emphasis on two model counties in the Province of Szechwan.

AMERICAN LIBRARY ASSOCIATION PURCHASE OF JOURNALS

Since June 1941 the Foundation has made five appropriations totaling \$320,000 to the American Library Association to provide American scholarly journals to

libraries in war areas. An additional grant of \$50,000 was made in 1945 for use in 1946.

The Association's Committee on Aid to Libraries in War Areas purchases and arranges for storage of periodicals and journals for libraries cut off from normal subscriptions during the war. From 10 to 70 sets of about 360 periodicals in various fields are being built up in this way.

During the past year much effort was directed to arranging for an equitable distribution of the collection. Letters to representative libraries in all countries that were involved in the war except Germany and Japan brought information concerning journals received in the past and the state of future library planning. Guarantees were requested that subscriptions to periodicals donated under the program will be continued locally in the future. Information obtained from spontaneous requests and from personal conferences and inquiries is also being used in selecting the most appropriate recipients for the limited material available. One complete set of all the journals has already arrived at the Centre National de la Recherche Scientifique, Paris, and others are in process of collection and shipment.

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, 1945:

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THE ROCKEFELLER FOUNDATION

BALANCE SHEET — DECEMBER 31, 1945

ASSETS

SECURITIES (Ledger value)..... \$167,798,939.52
(Market value \$236,678,996.08)

CURRENT Assets

Cash on deposit

In New York.....	\$1,327,056.42
In London — £14,725-4-0 @ \$3.665.....	53,970.83
In Canada — C \$101,860.30 @ .90244.....	91,922.79
Advances and deferred charges.....	867,522.15
Sundry accounts receivable.....	28,892.99
	<hr/>

EQUIPMENT

In New York.....	49,478.50
	<hr/>
	\$170,217,783.20
	<hr/>

TREASURER'S REPORT

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BALANCE SHEET — DECEMBER 31, 1945

FUNDS AND OBLIGATIONS

PRINCIPAL FUND.....	\$146,473,524.94
---------------------	------------------

COMMITMENTS

Unpaid appropriations.....	\$21,774,359.16
Unappropriated authorizations	1,252,754.00
	<hr/>

FUNDS AVAILABLE FOR COMMITMENT.....	590,697.22
-------------------------------------	------------

DEFERRED CREDIT.....	40,000.00
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CURRENT LIABILITIES

Accounts payable.....	36,969.38
-----------------------	-----------

EQUIPMENT FUND.....	49,478.50
---------------------	-----------

<hr/>	\$170,217,783.20
<hr/>	<hr/>

PRINCIPAL FUND

Balance, December 31, 1944.....	\$144,833,346.88
Add	
Amount by which the proceeds of securities sold, redeemed, etc., during the year exceeded the ledger value.....	1,640,178.06
Balance, December 31, 1945.....	<u>\$146,473,524.94</u>

APPROPRIATIONS AND PAYMENTS

Unpaid appropriations, December 31, 1944.....	\$19,033,113.63
Appropriations during the year 1945 (For detail see pages 268 to 297):	
Public health.....	\$3,500,000.00
Medical sciences.....	1,751,850.00
Natural sciences.....	1,988,570.00
Social sciences.....	1,942,400.00
Humanities.....	1,162,900.00
Program in China.....	16,000.00
Miscellaneous.....	50,000.00
Administration	
Scientific services.....	652,674.00
General.....	266,295.00
Unused balances of appropriations allowed to lapse.....	<u>\$11,330,689.00</u>
	<u>864,621.71</u>
	<u>10,466,067.29</u>
	<u>\$29,499,180.92</u>

Payments on 1945 and prior years' appropriations (For detail see pages 268 to 297)

Public health	\$1,890,459 42
Medical sciences	1,141,369 76
Natural sciences	1,189,407 00
Social sciences	1,417,862 61
Humanities	1,154,643 39
Program in China	52,558.86
Miscellaneous	77,105.47
Administration:	
Scientific services	568,592 98
General	232,822 27
	<hr/>
Unpaid appropriations, December 31, 1945	\$21,774,359 16
	<hr/>

UNAPPROPRIATED AUTHORIZATIONS

Unappropriated authorizations, December 31, 1944	\$1,189,233 00
Add	
Authorizations during 1945 for later appropriation by the Executive Committee.	63,521.00
	<hr/>
Unappropriated authorizations, December 31, 1945	\$1,252,754 00
	<hr/>

FUNDS AVAILABLE FOR COMMITMENT

Funds available for commitment, December 31, 1944		\$3,348,003 48
Add		
Income and refunds received during 1945		
Income	\$7,700,529 97	
Refunds	71,747 06	
Unused balances of appropriations allowed to lapse	864,621 71	
Gift for general purposes received from Mrs. Alden J. Plumley	5 00	8,636,903 74
		\$11,984,907 22
Deduct		
Appropriations during 1945	\$11,330,689 00	
Authorizations during 1945	63,521 00	11,394,210 00
Funds available for commitment, December 31, 1945		\$590,697 22

EQUIPMENT FUND

	BALANCE DEC. 31, 1944	CHANGES DURING 1945	BALANCE DEC. 31, 1945
	EXPENDITURES	DEPRECIATION	
Library	\$12,395 00	\$297 62	\$12,553 00
Equipment	36,497 92	550 53	36,925 50
	<u>\$48,892 92</u>	<u>\$848 15</u>	<u>\$49,478 50</u>

APPROPRIATIONS AND UNAPPROPRIATED AUTHORIZATIONS

Unpaid appropriations and unappropriated authorizations, December 31, 1944		
Unpaid appropriations	\$19,033,113.63	
Unappropriated authorizations.....	1,189,233.00	\$20,222,346.63
<hr/>		
Add		
Amount appropriated and authorized during 1945.....	\$11,394,210.00	
Less appropriations lapsed during 1945.....	864,621.71	10,529,588.29
		\$30,751,934.92
Deduct		
Payments on 1945 and prior years' appropriations.....		7,724,821.76
<hr/>		
Unpaid appropriations and unappropriated authorizations, December 31, 1945		
Unpaid appropriations.....	\$21,774,359.16	
Unappropriated authorizations.....	1,252,754.00	\$23,027,113.16
<hr/>		

APPROPRIATIONS DURING 1945, UNPAID BALANCES OF PRIOR YEAR APPROPRIATIONS,
AND PAYMENTS THEREON IN 1945

268

THE ROCKEFELLER FOUNDATION

PUBLIC HEALTH

International Health Division of The Rockefeller Foundation *

	APPROPRIATIONS PRIOR YEARS	1945	1945 PAYMENTS
Prior Years (RF 40125, 41104, 42105, 43092).....	\$2,118,055.22	\$.....	\$1,733,443.35
1945 (RF 44106).....	2,200,000.00	2,200,000.00
1946 (RF 45108).....
Revolving fund to provide working capital (RF 29093).....	200,000.00
The Rockefeller Foundation Health Commission (RF 42106, 43093, 44107).....	1,422,517.91	157,016.07
Schools and Institutes of Hygiene and Public Health			
Harvard University, Cambridge, Massachusetts. General budget (RF 45109).....	1,000,000.00
Schools of Nursing			
University of Toronto, Canada			
Construction of new building (RF 45037).....	300,000.00
TOTAL — PUBLIC HEALTH	\$5,940,573.13	\$3,500,000.00	\$1,890,459.42

MEDICAL SCIENCES

Psychiatry, Neurology, and Allied Subjects

American Psychiatric Association, New York City

Work of Committee on Psychiatric Nursing (RF 43013, 45005).....	\$5,000.00	\$32,000.00	\$9,351.02
Catholic University of America, Washington, D. C.			
Teaching and research in psychiatry and child guidance (RF 39026, 44059).....	38,277.52	10,000.00
Child Research Council of Denver, Colorado			
Psychological studies and studies in child growth and development (RF 39028, 42068, 44060).....	20,770.00	11,830.00

* A complete financial statement of the work of the International Health Division for 1945 will be found on pages 299 to 313.

Columbia University, New York City				
Research on constitutional aspects of disease (RF 42064, 45057).	\$10,051.29	\$8,100.00	\$7,367.48	
Investigation of genetic factors in the incidence of nervous and mental diseases peculiar to old age (RF 45002).		24,000.00	8,000.00	
Dalhousie University, Halifax, Nova Scotia				
Development of teaching in psychiatry (RF 41072, 44058).	18,449.52	5,533.99	
Dikemark Mental Hospital, Asker, Norway				
Research on mental disease (RF 39044)	12,492.16		3,690.00	
Duke University, Durham, North Carolina				
Teaching and research in psychiatry and mental hygiene (RF 40005)	63,664.55	.	25,000.00	
Harvard Medical School, Boston, Massachusetts				
Teaching and research in psychiatry (RF 43015, 45033)	24,000.00	112,000.00	48,354.78	
Harvard University, Cambridge, Massachusetts				
Research in epilepsy at Harvard Medical School and Boston City Hospital (RF 42109)	86,166.27	..	13,408.45	
Studies at the Psychological Clinic (RF 40102)	36,000.00	
Institute of the Pennsylvania Hospital, Philadelphia				
Research and teaching in psychiatry (RF 40129)	249.03	
Johns Hopkins University, Baltimore, Maryland				
Research and training in psychiatry (RF 43053)	134,140.87	37,587.01	
Judge Baker Guidance Center, Boston, Massachusetts				
Children's psychiatric consultation center (RF 44137)	17,000.00	17,000.00	
Karolinska Institute, Stockholm, Sweden				
Research in neurophysiology (RF 45003)	45,000.00		9,565.25	
London County Council, England				
Research in psychiatry at Maudsley Hospital (RF 38061)	37,207.83	
McGill University, Montreal, Canada				
Maintenance of Department of Psychiatry (RF 43046)	109,411.83	3,922.92	

MEDICAL SCIENCES — *Continued***Psychiatry, Neurology, and Allied Subjects — *Continued***

Medical Research Council, London, England

Research in endocrinology, psychiatry, neurology, and allied subjects (RF 39002)

**APPROPRIATIONS
PRIOR YEARS****1945****1945
PAYMENTS**

New York University, New York City

Teaching and research in Department of Psychiatry (RF 43078)

\$12,545.98 \$..... \$.....

45,000.00 5,000.00

Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine

Studies of genetic factors of intelligence and emotional variation in mammals
(RF 45008)

..... 282,000.00 71,400.00

Tufts College Medical School, Boston, Massachusetts

Research in brain chemistry (RF 40027, 44098)

43,507.25 8,499.76

Research in neurology (RF 40009)

1,262.84 1,243.32

University College, London, England

Research in physiology (RF 45085)

..... 72,900.00

University of Chicago, Illinois

Teaching and research in psychiatry (RF 41026, 44024)

108,634.30 37,134.67

University of Cincinnati, Ohio

Research in neurophysiology (RF 43004)

3,320.11 3,219.96

University of Edinburgh, Scotland

Research in psychiatry, neurology, and neurosurgery (RF 44097, 45113)

15,571.86 20,750.00 15,534.40

University of Illinois, Urbana

Research in the biochemical aspects of schizophrenia (RF 45001)

..... 115,000.00 30,000.00

University of Lund, Sweden

Enlargement of research facilities in neurology (RF 39063)

14,977.70

University of Tennessee, Memphis

Teaching and research in psychiatry (RF 42004)

12,000.00 6,500.00

Neurophysiological research in the Department of Psychiatry (RF 45055)

..... 15,000.00 3,750.00

University of Toronto, Canada						
Research in psychiatry (RF 39001)	\$22,375	57	\$..		\$6,457 96
Vanderbilt University School of Medicine, Nashville, Tennessee						
Support of a liaison service between psychiatry and surgery (RF 45004)	15,000	00	6,000 00
Washington University, St. Louis, Missouri						
Support of Department of Neuropsychiatry (RF 41027, 44025)	112,281	67	..		34,796 21
Research in neurophysiology (RF 38017, 45041)	15,195	48	40,000	00	46,000 00
Yale University, New Haven, Connecticut, School of Medicine						
Development of psychiatry (RF 42108)		194,235	50	70,309 91
Endocrinology						
Columbia University, New York City						
Research in endocrinology (RF 43012)	30,210	45	9,650 00
McGill University, Montreal, Canada						
Research in endocrinology (RF 41074)	9,409.05		5,640 25
Massachusetts General Hospital, Boston						
Research on the parathyroid hormone and calcium and phosphorus metabolism (RF 43003)		6,000 00		4,000 00
National Research Council, Washington, D. C.						
Committee for Research in Problems of Sex (RF 44002)		110,100 00		.		45,029 00
University of California, Berkeley						
Research on hormones and vitamins (RF 44064)	43,750.00		13,750 00
Medical Education						
American Film Center, Inc., New York City						
Developing the use of films in teaching medicine and public health (RF 44065)		6,450 00		4,300.00
American Library Association, Chicago, Illinois						
Expenses of survey of Army Medical Library (RF 43047)		5,000.00			Cr. 3,434.90
Association of Honorary Consultants of the Army Medical Library, Washington, D. C.						
General expenses (RF 45006)		12,000.00				5,035.58

MEDICAL SCIENCES — *Continued***Medical Education — *Continued***

	PRIOR YEARS	APPROPRIATIONS 1945	1945 PAYMENTS
Bingham Associates Fund of Maine, Boston, Massachusetts Developing a program of postgraduate medical education in certain rural areas and towns in Massachusetts (RF 45073).....	\$.....	\$250,000.00	\$.....
Dalhousie University, Halifax, Nova Scotia Teaching facilities for medical students at new Victoria General Hospital (RF 42038).....	150,000.00	50,000.00
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 44057, 45040)	14,977.63	25,000.00	11,131.26
Harvard University, Cambridge, Massachusetts Development of legal medicine (RF 43017, 44001).....	74,219.93	3,343.34
Johns Hopkins University, Baltimore, Maryland Institute of History of Medicine (RF 38022).....	52,500.00	15,000.00
Massachusetts General Hospital, Boston, Massachusetts Preparation and distribution of case material for clinical-pathological conferences in various Army hospitals (RF 43030).....	9,500.00	7,125.00
Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York City Research, teaching, and professional care (RF 43018).....	12,500.00	12,500.00
Postwar appointments for medical graduates from armed services (RF 43103, 44135).....	508,000.00	35,983.33
Royal Society of Medicine, London, England Expenses of a Central Medical Library Bureau (RF 45115).....	250,000.00
University of Brussels, Belgium Teaching and research in social medicine (RF 45090).....	15,000.00

University of Iceland, Reykjavik				
Scientific equipment for School of Medicine (RF 42039).....	\$2,238.19	\$.....	\$1,248.86	
University of Manitoba, Winnipeg, Canada				
Development of teaching of preventive medicine (RF 40061).....	5,124.13	4,061.00	
University of Rochester, New York				
Fluid research fund in medicine (RF 41053).....	7,068.97	Cr. 2,971.65	
University of Utah, Salt Lake City. School of Medicine				
Fluid research fund (RF 43102).....	10,000.00	5,000.00	
Washington University, St. Louis, Missouri. School of Medicine				
Maintenance (RF 38059).....	148,325.80	38,304.22	
Teaching of preventive medicine (RF 44062).....	20,000.00	8,000.00	
Group Medicine and Medical Economics				
Group Health Cooperative, Inc., New York City				
Operation and development of medical insurance program (RF 44026, 45039)..	6,629.00	45,600.00	52,229.00	
Medical Administration Service, Inc., New York City				
General budget (RF 45025).....	29,000.00	29,000.00	
National Health Council, Inc., New York City				
Study of voluntary agencies in the field of public health (RF 41089).....	22.78	
Completion and publication of study named above (RF 45007).....	15,000.00	15,000.00	
University of Chicago, Illinois				
Research in industrial diseases (RF 43016).....	95,068.61	18,000.00	
University of Michigan School of Public Health, Ann Arbor				
Teaching of medical economics (RF 44061).....	25,575.00	9,318.07	
General				
Institute of Biology and Experimental Medicine, Buenos Aires, Argentina				
Support of research (RF 44136).....	12,500.00	6,888.67	

	PRIOR YEARS	1945	1945 PAYMENTS
MEDICAL SCIENCES — <i>Continued</i>			
General — <i>Continued</i>			
Research Council of the Department of Hospitals, New York City			
Research on chronic diseases (RF 44063, 45056)	\$11,000.00	\$44,000.00	\$21,810.56
University of Buenos Aires, Argentina Institute of Physiology			
Research (RF 40128, 43054)	27,141.44
Fellowships and Grants in Aid			
Fellowships			
Administered by The Rockefeller Foundation (RF 41113, 43118, 44084, 44139, 45119)	134,342.60	75,000.00	34,944.80
Medical Research Council of Great Britain, London, England (RF 45042)	20,000.00
National Health and Medical Research Council, Department of Health, Canberra, Australia (RF 45074)	15,000.00
National Research Council, Washington, D. C.			
Medical sciences (RF 40056, 42040)	52,269.89	9,480.00
Welch fellowships in internal medicine (RF 41028)	149,572.00	14,500.00
Scholarships for British medical students (RF 40127, 42110, 43101)	86,820.64	46,857.33
Grants in Aid (RF 41117, 42137, 44143, 45123)	202,453.07	125,000.00	54,188.98
Special Emergency Grant in Aid Fund			
For scientific equipment to medical science laboratories of universities and technical schools in the Netherlands (RF 45089)	40,000.00
TOTAL — MEDICAL SCIENCES	\$3,233,058.31	\$1,751,850.00	\$1,141,369.76
NATURAL SCIENCES			
Experimental Biology			
Amherst College, Massachusetts			
Research in genetics, experimental embryology, and growth problems (RF 39104)	\$3,301.16	\$.....	\$3,300.00

California Institute of Technology, Pasadena				
Research on the structure of antibodies and the nature of immunological reactions (RF 44066, 45049)	\$9,500 00	\$19,000 00	\$19,000 00	
Catholic University of America, Washington, D. C.				
Research on decomposition and synthesis (RF 40059)	15,062 73	
Columbia University, New York City				
Research on electrical properties of cells and tissues (RF 41093)	11,411 13			
Research in enzyme chemistry (RF 42044, 45058)	2,500 00	10,000 00	2,264 73	
Research on problems of metabolism with the aid of chemical isotopes (RF 43026)	21,750 00	14,500 00	
Research on vitamins and related substances in relation to plant growth (RF 40107, 45086)	5,108 46	25,000 00	4,864 65	
Research on variation in genetic constitution in relation to growth and development (RF 44115)	75,000 00		22,500 00	
Connecticut Agricultural Experiment Station, New Haven				
Research in genetics of growth in plants (RF 40106)	9,421 87		3,400 00	
Cornell University, Ithaca, New York				
Research in the field of enzyme chemistry (RF 42050)	15,250.00	3,840.00	
Research in protein chemistry (RF 45094)	50,000.00	
Duke University, Durham, North Carolina				
Research on physical chemistry of proteins (RF 43051)	6,200 00	3,200.00	
Eidgenössische Technische Hochschule, Zurich, Switzerland				
Institute of Plant Physiology. Physiological research (RF 44067)	864.12	760 38	
Laboratory of Organic Chemistry. Research on constitution and synthesis of physiologically active compounds (RF 43110, 44123, 45097)	18,128.50	15,000.00	16,470.25	
Harvard University, Cambridge, Massachusetts				
Research on the chemical and electrical behavior of proteins (RF 38038)	19,291.27	15,597.31	
Basic studies in chemotherapy (RF 45014)	54,900 00	4,575.00	

NATURAL SCIENCES — *Continued***Experimental Biology — *Continued*****Harvard University — *Continued***

Research in the Department of Physical Chemistry of Harvard Medical School (RF 45051).....	\$.....	\$350,000.00	\$350,000.00	THE ROCKEFELLER FOUNDATION
Indiana University, Bloomington	2,611.37	95,500.00	1,251.79	
Research in cytogenetics (RF 40001, 45036).....				
Institute of Andean Biology, Lima, Peru	1,000.00	500.00	
Studies on animal fertility in Sierra regions (RF 43045).....				
Iowa State College, Ames	11,375.00	5,968.80	
Research in genetics (RF 43040).....				
Johns Hopkins University, Baltimore, Maryland				
Research in infrared spectroscopy (RF 45071).....		45,000.00	12,500.00	
School of Medicine. Research in nutrition (RF 44055).....	18,750.00	116.59	
Karolinska Institute, Stockholm, Sweden				
Medical Nobel Institute. Equipment for Departments of Biochemistry and Cell Research (RF 45068).....		75,000.00	14,325.00	
Research in biochemistry (RF 43108, 44121).....	8,755.90	8,136.00	
Research in biophysics (RF 44087).....	4,497.00	4,128.00	
McGill University, Montreal, Canada				
Research in cytology and genetics (RF 40072).....	2,488.75	1,127.52	
Massachusetts Institute of Technology, Cambridge				
Development of biological engineering (RF 40039).....	81,025.61	19,571.53	
Research in the physical chemistry of protein solutions (RF 45107).....		85,000.00	
Ministry of Public Health, Montevideo, Uruguay				
Construction and equipment of laboratory for the Research Institute of Biological Sciences (RF 43049).....	11,671.60	11,300.20	

New York University, New York City			
Research in nutrition (RF 44127).....	\$18,750.00	\$.....	\$7,500.00
Northwestern University, Evanston, Illinois			
Research in steroid chemistry (RF 42047).....	3,266.41	Cr. 2,100.00
Princeton University, New Jersey			
Research in organic chemistry (RF 40058).....	26,466.72
Research Institute for Physics, Academy of Sciences, Stockholm, Sweden			
Toward cost of construction of a cyclotron (RF 45062).....	125,000.00	47,742.25
Research with artificially (cyclotron) produced radioactive substances (RF 43107, 44010, 44120).....	6,475.16	5,741.55
Roscoe B. Jackson Memorial Laboratory, Inc., Bar Harbor, Maine			
Establishing and maintaining Mammalian Stock Center (RF 43024).....	24,072.00	5,250.00
Special research (RF 43025).....	2,250.00	2,250.00
Stanford University, Palo Alto, California			
Research in biochemical genetics (RF 43114, 44116).....	8,875.00	8,760.61
Research in biochemistry (RF 45023, 45084).....	35,500.00	9,708.00
State University of Iowa, Iowa City			
Research in general physiology (RF 40022).....	1,000.00	1,000.00
University College, London, England			
Department of Biometry. Research in genetics (RF 44068, 45063).....	3,347.46	5,065.00	8,388.16
University of Birmingham, England			
Research in genetics and physiology of reproduction (RF 43113).....	1,012.60	1,011.90
University of California, Berkeley			
Construction and installation of cyclotron (RF 42001).....	355,308.42
University of Cambridge, England. Institute of Biology and Parasitology			
Research in cellular physiology (RF 44124).....	6,075.00	6,061.05
X-ray analysis of biologically important molecules (RF 44091).....	3,342.10	2,837.37

NATURAL SCIENCES — *Continued*Experimental Biology — *Continued*

University of Chicago, Illinois

Research in molecular spectra (RF 41101).....\$19,970.45

Research in application of spectroscopic methods to biological problems
(RF 40021).....20,470.25

University of Copenhagen, Denmark

Research in biophysics (RF 45098).....38,400.00

University of Illinois, Urbana

Research in biochemistry of amino acids (RF 44054, 45059).....5,000.00

University of Leeds, England

Equipment and research on analysis of biological tissues by physical techniques
(RF 45070).....15,175.00

Research on X-ray analyses of biological tissues (RF 44029).....4,667.10

University of London, England

Research on vitamins, sterols, and related compounds (RF 38070).....29,397.31

University of Minnesota, Minneapolis

Application of spectroscopy to investigation of lipid metabolism (RF 42003)....1,153.11

Research in lipid metabolism (RF 39031).....807.93

Research in biophysics (RF 41062).....10,500.00

Research on mechanism of osmosis (RF 42051).....2,650.00

University of Missouri, Columbia

Research in genetics (RF 39041).....156.53

University of Oxford, England

Dyson Perrins Laboratory of Organic Chemistry

Research on hormone synthesis (RF 44090).....2,431.00

X-ray analysis of biologically important large molecules (RF 44088).....2,127.10

Sir William Dunn School of Pathology					
Biochemical investigation of penicillin (RF 43112, 44125)	\$4,862.70	\$.	\$4,728.25	
University of Pennsylvania, Philadelphia					
Research in experimental biology (RF 43038)	18,233.71		8,500.00	
Research on permeability of the red blood cell (RF 44056)	12,150.00		2,700.00	
University of Rochester, New York					
Research in biophysics (RF 44028)	8,000.00		8,000.00	
Research in genetics (RF 44031)	5,500.00		1,980.00	
University of São Paulo, Brazil. Faculty of Philosophy. Department of Physics					
Equipment for research in physics (RF 45061)	75,000.00		26.59	
University of Sheffield, England					
Research in biochemistry (RF 44089)	1,213.85		1,213.85	
University of Stockholm, Sweden					
Research in chemical physiology and embryology (RF 44119)	6,300.00			6,032.80	
University of Texas, Austin					
Research in genetics of <i>Drosophila</i> (RF 41052)	2,719.33		Cr. 25.75	
University of Toronto, Canada					
Research in nutrition (RF 42045, 44117)	14,461.12		6,202.91	
University of Upsala, Sweden					
Research on physical-chemical properties of proteins and other substances of biological and medical importance (RF 44118, 45096)	11,250.00	11,250.00		16,142.50	
Research in biochemistry of fatty acids, lipoids, and proteins (RF 44086)	1,168.50		1,081.50	
Research on surface chemistry of the red blood cell and mechanism of gastric acid formation (RF 44122)	4,000.00		3,829.25	
University of Wisconsin, Madison					
Research in biochemistry of symbiotic nitrogen fixation (RF 40071)	3,194.34		552.95	
Research in nutrition (RF 42046)	2,525.75		Cr. 141.54	

NATURAL SCIENCES — Continued**Experimental Biology — Continued****University of Wisconsin — Continued**

Research in immunogenetics (RF 43041).....	\$1,875.00	\$.....	\$1,718.70
Research in physical chemistry (RF 42048, 45015).....	3,270.87	18,000.00	4,449.08
Washington University, St. Louis, Missouri			
Research in carbohydrate metabolism (RF 41020, 44030, 45060).....	5,508.58	7,000.00	4,151.55
Expenses of increased use of its cyclotron (RF 42079).....	10,440.00
Research in general physiology and experimental embryology (RF 43039).....	9,500.00	6,201.24
Yale University, New Haven, Connecticut			
Research in enzyme chemistry (RF 45095).....	10,700.00

Fellowships

Administered by The Rockefeller Foundation (RF 38114, 41114, 44140, 45080, 45120).....	104,503.04	95,000.00	42,670.97
Brown University, Providence, Rhode Island			
Fellowships in applied mathematics (RF 44027, 45031).....	15,000.00	20,000.00	25,000.00
National Research Council, Washington, D. C. (RF 39103, 41112, 44112).....	540,250.83	37,220.00

General

Agricultural Program in Mexico			
General expenses (RF 44069, 44113, 45105).....	136,044.60	160,380.00	91,016.19
Construction and equipment of experimental laboratory (RF 44070, 44114).....	45,000.00
Support of special program of improvement of the Mexican substations for agricultural research and demonstration (RF 45106).....	50,000.00
American Institute of Physics, New York City			
Expenses of its War Policy Committee (RF 42089, 45072).....	2,541.11	29,300.00	8,691.11

American Mathematical Society, New York City					
Expenses of International Congress of Mathematics (RF 37108)	\$5,000.00	\$		\$. . .	
China Medical Board, Inc., New York City					
Peiping Union Medical College, China					
Human paleontological research in Asia (RF 36137, 41102, 45024) . . .	21,358 88	26,500 00	7,864 77		
Grants in Aid (RF 41087, 41118, 42138, 44144, 45081, 45124) . . .	203,397.49	160,000 00	98,893 68		
Massachusetts Institute of Technology, Cambridge					
Design and construction of a new high-voltage electrostatic generator (RF 45050)		50,000 00	50,000 00		
National Research Council, Washington, D. C.					
Administration budget, conferences, special studies, committees, and international scientific projects (RF 41111)	20,000 00	20,000 00			
American Geophysical Union. General expenses (RF 44053)	17,000 00		6,500 00		
Royal Society, London, England					
Emergency grant for English scientific journals (RF 44126) ..	15,050 00		15,010 50		
Social Science Research Council, New York City					
Joint Social Science Research Council-National Research Council Committee on the Measurement of Opinion, Attitudes, and Consumer Wants					
Study of the reliability of various methods of sampling (RF 45117) . . .		21,900 00			
Special Emergency Grant in Aid Fund. For scientific equipment to natural science laboratories of universities and technical schools in the Netherlands (RF 45089)		40,000 00			
University of Iceland, Reykjavik					
Toward the cost of building and equipping an Institute of Experimental Pathology (RF 45048)		150,000.00	1,764 78		
University of São Paulo, Brazil. Research in physics (RF 42090).	1,528.36		66 27		

NATURAL SCIENCES — *Continued***Former Program**

University of Leiden, Netherlands

Purchase and endowment of a photographic telescope for the Union Observatory,
Johannesburg, Union of South Africa (RF 34100).....**APPROPRIATIONS
PRIOR YEARS****1945****1945
PAYMENTS**

Yale University, New Haven, Connecticut

Laboratories of Primate Biology. Maintenance (RF 42037).....

\$6,575.61 \$..... \$.....

76,785.04 30,000.00

TOTAL — NATURAL SCIENCES..... **\$2,250,744.83** **\$1,988,570.00** **\$1,189,407.00****SOCIAL SCIENCES**

Association of Land-Grant Colleges and Universities

Committee on Postwar Agricultural Policy and Planning

General expenses (RF 44052)..... \$7,300.00 \$..... \$6,200.00

Brookings Institution, Inc., Washington, D. C.

General program (RF 45043)..... 75,000.00 37,500.00

Canadian Institute of International Affairs, Toronto, Canada

General budget (RF 44047)..... 13,229.21 9,024.40

Canadian Social Science Research Council, Montreal, Canada

Stimulation of social science research in Canada (RF 42076, 44078)..... 18,094.01 6,768.30

Research on the problems of Arctic Canada (RF 43117)..... 1,010.31

Expenses of a study of the Alberta Social Credit Experiment (RF 44079)..... 18,333.23 2,222.26

Canton of Geneva, Switzerland. Department of Public Instruction

Graduate Institute of International Studies (RF 38045, 44099)..... 67,467.28 40,000.00

College of William and Mary, Williamsburg, Virginia

Study of the impact of war on the Hampton Roads area (RF 45013)..... 31,500.00 10,500.00

Columbia University, New York City				
Exploratory study in the field of group relations and group tensions (RF 45087)	\$.....	\$10,900.00	\$.....	
School of International Affairs				
Development of the Russian Institute (RF 45034)	250,000.00	
Study of Russian foreign policy with special reference to the Far East (RF 45088)	14,500.00	
Study of economic aspects of public finance (RF 42031)	5,137 30	
Study of the theory of public utility rates (RF 43034)	20,650.00	
History of American economic thought (RF 45047)	8,600.00	4,300.00	
Cornell University, Ithaca, New York				
Study of civil liberties in wartime (RF 44049)	13,500.00	6,000.00	
Council on Foreign Relations, New York City				
War and peace studies and general research program (RF 42122, 45016)	891.10	60,000.00	60,000.00	
Escola Livre de Sociologia e Política de São Paulo, Brazil				
Research and training in the social sciences (RF 43081)	10,000.00	5,000.00	
Fellowships				
Administered by The Rockefeller Foundation (RF 38115, 39114, 43120, 44141, 45121)	69,892.62	75,000.00	2,674.73	
Social Science Research Council, New York City (RF 42078, 44021, 45065, 45118)	128,250.00	300,000.00	45,649.13	
Foreign Policy Association, New York City				
Research program (RF 43068, 45116)	50,000.00	200,000.00	50,000.00	
Grants in Aid				
Regular program (RF 42093, 43059, 43124, 44145, 45125)	204,293.63	125,000.00	103,373.29	
Special fund for exploration and report on conditions in China (RF 44045)	22,539.73	Cr. 1,269.76	
Special fund for travel, studies, and conferences, relating to problems arising from the release of atomic energy (RF 45093)	25,000.00	
Harvard University, Cambridge, Massachusetts				
Graduate School of Public Administration. General budget (RF 39109)	5,000.00	4,995.19	
Research in social sciences (RF 35086)	37,098.05	7,948.39	

SOCIAL SCIENCES — *Continued*

	PRIOR YEARS	APPROPRIATIONS 1945	1945 PAYMENTS
Harvard University and Radcliffe College, Cambridge, Massachusetts			
Research in field of international relations (LS 993).....	\$18.45	\$.....	\$.....
Institute for Advanced Study, Princeton, New Jersey			
Study of the Law of International Civil Aviation (RF 45046).....	40,000.00	8,000.00
Institute of International Affairs, Stockholm, Sweden. General budget (RF 45012)	11,250.00	10,770.25
Institute of Pacific Relations			
American Council, New York City			
General expenses (RF 43066).....	15,000.00	15,000.00
Pacific Council, Honolulu, Hawaii			
General expenses, research program, and emergency fund (RF 43067).....	41,000.00	41,000.00
Johns Hopkins University, Baltimore, Maryland			
Study of the government of American trade unions (RF 44048).....	69,975.00	28,860.37
League of Nations, Princeton, New Jersey			
Economic, Financial, and Transit Department			
Research programs (RF 44023, 45078).....	60,000.00	60,000.00	60,000.00
London School of Economics and Political Science, University of London, England			
Emergency fund (RF 39095).....	5,747.65	Cr. 237.30
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			
Development of the teaching of international relations for engineers (RF 45082)	15,000.00	2,500.00
Industrial Relations Section			
Research in the economics of technological change (RF 41042).....	2,500.00	2,500.00
Miami University, Oxford, Ohio			
Study by the Scripps Foundation for Research in Population Problems of the influence of population factors upon labor market problems (RF 44110).....	17,380.00	13,904.00

National Bureau of Economic Research, New York City			
Support of general programs and special programs of research in finance and fiscal policy (RF 44020).....	\$550,000.00	\$.....	\$110,000.00
National Institute of Economic and Social Research of Great Britain, London			
General budget (RF 43082, 44108).....	145,856.20	24,222.10
National Institute of Public Affairs, Washington, D. C.			
Training of personnel for the federal services (RF 43055).....	96,250.00	35,000.00
Northwestern University, Evanston, Illinois			
Historical studies of experiments in European finance (RF 45079).....	10,000.00
Princeton University, New Jersey			
Industrial Relations Section, Research (RF 44046).....	18,750.00	7,500.00
Office of Population Research of the School of Public and International Affairs (RF 44109).....	200,000.00	10,000.00
Royal Institute of International Affairs, London, England			
Research program (RF 43057, 45044).....	16,306.46	144,000.00	40,379.00
History of the war and of the peace settlement (RF 45045).....	152,000.00	22,702.07
Social Science Research Council, New York City			
Administrative budget (RF 43058).....	105,000.00	30,000.00
Conferences and planning (RF 42059, 44077).....	247,856.76	36,723.83
General research projects (RF 31126).....	83,652.44	5,179.60
Grants in aid of research (RF 41077).....	38,500.00	13,350.00
Research in economic history of the United States, the islands, and nearby territory (RF 40116).....	206,875.00	8,125.00
Joint Social Science Research Council - National Research Council Committee on the Measurement of Opinion, Attitudes, and Consumer Wants. Study of the reliability of various methods of sampling (RF 45117).....	21,900.00

	PRIOR YEARS	APPROPRIATIONS 1945	1945 PAYMENTS
SOCIAL SCIENCES—Continued			
Spelman Fund of New York, New York City			
Work in public administration (RF 38049).....	\$450,000.00	\$.....	\$300,000.00
Stanford University, Palo Alto, California. Food Research Institute			
Research program (RF 43056).....	22,500.00	7,500.00
State Historical Society of Colorado, Denver			
Study of the western range cattle industry (1865-95) (RF 44003).....	52,400.00	12,200.00
Tufts College, Medford, Massachusetts			
Experimental program in the psychiatric approach to training and research in sociology (RF 45019).....	30,000.00	5,000.00
United Nations Information Office, New York City			
Part underwriting of the printing costs of the documentation of the San Francisco Conference (RF 45077).....	15,000.00
University of California, Berkeley. Bureau of Public Administration			
Study of effects of Japanese migration and resettlement in California (RF 42092, 45018).....	15,000.00	10,000.00	20,000.00
University of Chicago, Illinois			
Research in the Division of the Social Sciences (RF 45064).....	150,000.00	25,000.00
University of Delaware, Newark, Delaware			
Study of individual income distribution (RF 40117).....	6,762.50
University of Denver, Colorado. Bureau of Business and Social Research			
General budget (RF 45027).....	15,000.00	7,500.00
University of Glasgow, Scotland			
Development of research and training in the social sciences (RF 45026).....	51,030.00	4,243.85
University of Minnesota, Minneapolis			
Program of training for public service (RF 40035).....	8,965.00	2,883.00

University of Oxford, England			
Social Studies Research Committee (RF 44018, 45017).....	\$11,364.10	\$41,720.00	\$26,907.25
University of Pennsylvania, Philadelphia			
Wharton School of Finance and Commerce			
Industrial Research Department, General budget (RF 40047, 44111).....	178,085.39	35,000.00
Exploratory program of research in distribution (RF 44050).....	37,500.00	15,000.00
Study of comparative economic development (RF 44051).....	7,500.00	3,000.00
University of Southern California, Los Angeles, School of Government			
Development of program (RF 40124).....	10,000.00	4,000.00
University of Virginia, Charlottesville, Bureau of Public Administration			
Program of service and research (RF 39108).....	2,160.14	Cr. 1,736.34
Yale University, New Haven, Connecticut, Institute of International Studies			
Research program (RF 44022).....	112,500.00	25,000.00
TOTAL — SOCIAL SCIENCES	\$3,545,993.21	\$1,942,400.00	\$1,417,862.61

HUMANITIES**Studies in Language and Foreign Culture**

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

Activities of the Joint Committee on Latin American Studies and Handbook of Latin American Studies (RF 44072).....

\$15,000.00 \$..... \$10,000.00

Cataloguing American collections of Chinese and Japanese books (RF 37120) ..

9,464.61

Committee on Far Eastern Studies (RF 41029).....

9,374.70 3,966.55

Developing personnel and resources in teaching modern languages (RF 41082, 43008).....

56,437.63 46,599.36

Preparing materials for Slavic studies in the United States (RF 43099).....

40,000.00 25,394.75

Toward completing a revised and enlarged edition of Redhouse's English and Turkish Lexicon (RF 45075).....

..... 16,700.00

HUMANITIES — *Continued***Studies in Language and Foreign Culture — *Continued*****Brown University, Providence, Rhode Island**

Increasing collections of material on early American history and Hispanic culture
(RF 40069).....

APPROPRIATIONS	1945	1945
PRIOR YEARS	PAYMENTS	

\$12,501.61	\$.....	Cr. \$149.43
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Colegio de Mexico, Mexico City

Expenses of Center for Historical Research (RF 44134).....

56,520.00	17,662.50
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College of Chinese Studies, Peiping, China. General expenses (RF 41007)

7,216.10	
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Colorado School of Mines, Golden. Recording and reproducing equipment for language instruction (RF 45021)

.....	7,500.00	5,000.00
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Columbia University, New York City

Visiting lecturer on Japanese cultural history (RF 39093).....

4,560.10	
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Connecticut College, New London

Program of instruction in the German language and culture (RF 44014).....

5,000.00	4,700.00
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Cornell University, Ithaca, New York

Russian studies (RF 40052).....

750.00	
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Slavic studies (RF 43097).....

18,000.00	
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Development of a Division of Modern Languages (RF 45091).....

.....	125,000.00	
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Duke University, Durham, North Carolina

Purchase of books and other documentation in field of Latin American studies
(RF 40049).....

5,500.00	
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Grants in Aid

Special fund for temporary addition of representative Chinese scholars to teaching
staffs, and projects in United States (RF 44044).....

46,500.00	1,500.00
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Harvard University, Cambridge, Massachusetts

Development of Slavic studies (RF 43098).....

17,956.67	7,000.00
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School of Education. Training of teachers in English (RF 44075).....	\$17,500.00	\$.....	\$5,000.00
Institute of Pacific Relations, American Council, New York			
English translations of source materials on Chinese history (RF 42070, 45054)..	10,156.41	25,000.00	24,123.86
Library of Congress, Washington, D. C.			
Cataloguing and organization of Slavic materials in the Library (RF 44096)....	23,900.00	23,900.00
National Institute of Anthropology and History, Mexico City			
Development of its program (RF 40130).....	2,205.36
Development of teaching and research program and reorganization of library resources (RF 43083).....	39,600.00	10,022.50
National University of Mexico, Mexico City			
Aid to individual research projects in Center of Philosophical Studies and support of library (RF 44073).....	15,000.00	9,125.00
Oberlin College, Ohio			
Development of Far Eastern studies (RF 43036).....	2,000.00
Orthological Institute of China, Yunnan			
General budget (RF 40028).....	26.92
Pan American Union, Washington, D. C.			
Expenses of preparing for use its resources of Latin American newspapers and art material (RF 43084).....	7,829.39	2,125.68
Pomona College, Claremont, California			
Development of Far Eastern and Slavic studies (RF 44131).....	35,000.00	2,700.00
Stanford University, Palo Alto, California			
Development of Far Eastern and Slavic studies (RF 44130).....	75,000.00	7,500.00
Development of teaching and research in the areas and languages of the Pacific, Eastern Asia, and Russia (RF 45009).....	50,000.00	5,000.00
Tsing Hua University, Kunming, China			
Development of its program of teaching in humanities (RF 44076).....	15,000.00	4,728.95

	PRIOR YEARS	APPROPRIATIONS 1945	1945 PAYMENTS
HUMANITIES — <i>Continued</i>			
Studies in Language and Foreign Culture — <i>Continued</i>			
Tulane University, New Orleans, Louisiana			
Purchase of books and other documentation in field of Latin American studies (RF 40051).....	\$3,600.00	\$.....	\$.....
University of California, Berkeley			
Development of Slavic and Far Eastern studies (RF 44129).....	75,000.00
University of Chicago, Illinois			
Development of Chinese studies (RF 41098).....	5,547.04	2,100.00
Analysis and evaluation of methods of teaching modern languages (RF 44100) ..	90,000.00	46,300.00
University of Colorado, Denver			
Development of Far Eastern studies (RF 44042).....	18,000.00	4,000.00
University of New Mexico, Albuquerque			
Materials for Latin American studies (RF 42073).....	10,000.00	5,000.00
University of North Carolina, Chapel Hill			
Purchase of books and other documentation in field of Latin American studies (RF 40050).....	500.00	500.00
University of Washington, Seattle			
Development of Far Eastern and Slavic studies (RF 44128).....	75,000.00	5,475.00
Purchase of materials for Far Eastern and Slavic studies (RF 45111).....	50,000.00
Yale University, New Haven, Connecticut			
Recording and reproducing equipment for language instruction (RF 45020)	7,500.00	7,500.00
Support of Far Eastern studies (RF 45110).....	100,500.00
North American Studies			
American Council of Learned Societies, Washington, D. C.			
Preparation of a critical history of the Federal Arts Projects (RF 42029, 44007)	12,428.47	12,428.47

Carolina Art Association, Charleston, South Carolina			
Work of Charleston Civic Services Committee (RF 42056).....	\$3,750.00	\$.....	\$3,750.00
Colonial Williamsburg, Inc., Williamsburg, Virginia			
Compiling an index to the <i>Virginia Gazette</i> for the years 1736 to 1780 (RF 42028)	4,481.17	3,400.00
Cornell University, Ithaca, New York			
Studies of the York State region (RF 42074).....	7,250.00	6,367.92
Duke University, Durham, North Carolina			
Expenses of preparing for publication materials in the Brown folklore collection (RF 44101).....	7,800.00	2,500.00
Henry E. Huntington Library and Art Gallery, San Marino, California			
Regional studies of the Southwest (RF 43096).....	40,000.00	10,000.00
Library of Congress, Washington, D. C.			
American studies (RF 43095).....	97,000.00	40,000.00
Michigan State College, East Lansing			
Studies of American and Canadian culture (RF 44041).....	11,000.00	7,300.00
Newberry Library, Chicago, Illinois			
Studies in Midwestern culture (RF 44034).....	17,000.00	8,000.90
Princeton University, New Jersey			
Study of program in American civilization (RF 44080, 45092).....	6,000.00	35,000.00	5,877.80
State University of Iowa, Iowa City			
Studies in literary criticism (RF 45076).....	8,000.00	4,000.00
Texas State Historical Association, Austin			
Southwestern history study (RF 42130).....	7,500.00	5,000.00
University of Alberta, Edmonton, Canada			
Expenses of organizing and utilizing a collection of materials on the life and traditions of the Province of Alberta (RF 44015).....	10,854.84	6,881.85

		APPROPRIATIONS PRIOR YEARS	1945	1945 PAYMENTS	292
HUMANITIES — <i>Continued</i>					
North American Studies — <i>Continued</i>					
University of Chicago, Illinois					
Development of a central archive of source materials relating to the early history of the upper Mississippi Valley and Canada (RF 43069).....	\$9,680.00	\$.....	\$6,415.00		
University of Kentucky, Lexington					
Studies in Southern history (RF 43031).....	2,500.00	2,500.00		
University of Minnesota, Minneapolis					
Studies in Northwestern history (RF 43030).....	20,000.00	10,000.00		
University of Missouri, Columbia					
Program of American history research and teaching (RF 42129).....	5,000.00	5,000.00		
University of Montana, Missoula					
Studies of the life and traditions of Montana (RF 44016).....	19,250.00	10,250.00		
University of New Brunswick, Fredericton, Canada					
Studies of the history of New Brunswick (RF 44040).....	6,195.12	4,630.46		
University of Oklahoma, Norman					
Preparation of materials on the history and life of the Southwest (RF 44093)...	20,000.00	5,000.00		
University of Saskatchewan, Saskatoon, Canada					
Studies in Western history (RF 43037).....	9,435.79	1,865.89		
University of Toronto, Canada					
Preparation of a biography of Sir John A. Macdonald (RF 44039).....	3,565.46	1,926.18		
University of Utah, Salt Lake City					
Collection and use of historical source materials (RF 45022).....	15,000.00	7,000.00		
University of Virginia, Charlottesville					
Preparation of a biography of Thomas Jefferson (RF 44033).....	15,750.00	1,750.00		
Washington University, St. Louis, Missouri					
Studies in the history of Western migrations in the United States (RF 45011)...	9,500.00	5,983.00		

Western Reserve University, Cleveland, Ohio				
Studies in American culture in the Midwest (RF 44009).....	\$10,000.00	\$.....	\$10,000.00	
Libraries				
American Library Association, Chicago, Illinois				
Canadian Library Council				
Establishing microphotographic and general advisory services for Canadian libraries (RF 42025).....	17,500.00	11,500.00	
Book catalogue of Library of Congress card indexes for foreign distribution (RF 42069).....	12,500.00	12,500.00	
Development of a library school in São Paulo, Brazil (RF 43006).....	17,000.00	5,000.00	
Development of a union catalogue of library holdings in Mexico, D. F. (RF 44074)	4,250.00	4,250.00	
Exchanges of library personnel within North and South America effected by its International Relations Board (RF 45029).....	25,000.00	10,000.00	
For work of its Board on International Relations (RF 44133).....	72,750.00	24,750.00	
Selection and purchase for libraries in war areas of reference books published during the years 1939-46 (RF 44032, 45038).....	90,000.00	90,000.00	120,000.00	
American Library in Paris, Inc., France				
General budget (RF 40042).....	20,000.00	6,458.34	
Association of Special Libraries and Information Bureaux, London, England				
Preparation of a catalogue of periodicals in British libraries (RF 44004).....	50,635.87	7,869.95	
Boone Library School, Chungking, China				
General support (RF 44035).....	12,500.00	2,500.00	
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).....	79,151.42	840.06	
National Central Library, London, England				
General operations (RF 45010).....	19,200.00	19,123.98	

TREASURER'S REPORT

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		APPROPRIATIONS PRIOR YEARS	1945	1945 PAYMENTS
HUMANITIES — <i>Continued</i>				
Libraries — <i>Continued</i>				
Princeton University, New Jersey				
Index of Christian Art (RF 38100).....	\$11,000.00	\$.....	\$7,000.00	
University Research Fund, São Paulo, Brazil				
Bibliographical information service (RF 45035).....	43,000.00	12,749.24	
University of Buenos Aires, Argentina				
Expenses of establishing a bibliographical center and an institute of library practice (RF 42128).....	15,718.75	7,838.96	
University of Oxford, England				
Development of the Bodleian and other University libraries (RF 31121).....	482,434.81	3,131.15	
Drama, Film, and Radio				
American Film Center, Inc., New York City				
General budget (RF 44092).....	75,000.00	25,000.00	
Columbia University, New York City				
Office of Radio Research (RF 41045).....	5,000.00	5,000.00	
Cornell University, Ithaca, New York				
State-wide program in music and drama (RF 40015).....	2,565.84	Cr. 960.00	
Library of Congress, Washington, D. C.				
Development of methods of cataloguing, analyzing, and making available for use the motion pictures deposited with the Library of Congress under the National Copyright Act (RF 43010).....	7,500.00	7,500.00	
National Film Society of Canada, Ottawa				
General budget (RF 41030, 43063).....	8,165.53	3,422.13	
National Theatre Conference, Cleveland, Ohio				
Support of activities and projects (RF 40131, 45028).....	4,316.58	155,000.00	4,316.58	

Play House Foundation, Cleveland, Ohio				
Construction and rehabilitation of the Play House (RF 45083).....	\$.....	\$25,000.00	\$.....	
Rocky Mountain Radio Council, Denver, Colorado				
General support including equipment (RF 42072, 45053).....	2,500.00	25,000.00	27,500.00	
Smith College, Northampton, Massachusetts. Program in drama (RF 42055)....	1,750.00	185.07	
University of Nanking, Chengtu, China				
Department of Educational Cinematography. General support (RF 44043)....	10,000.00	2,874.34	
University of Saskatchewan, Saskatoon, Canada. Work in drama (RF 44017)....	9,016.77	3,666.16	

Other Subjects

American Council of Learned Societies, Washington, D. C.				
Committee on the Protection of Cultural Treasures in War Areas (RF 44081)	12,000.00	7,200.00	
General support (RF 41029, 42024, 43100, 44071).....	149,339.35	106,720.56	
Microfilming projects (RF 41083).....	71,875.08	37,361.02	
Study of the influence of art museums in American life (RF 44094).....	8,500.00	4,500.00	
American School of Classical Studies, Athens, Greece				
Museum to house objects excavated in the Agora (RF 37089).....	138,354.94	
Humanities Research Council of Canada, Hamilton, Ontario				
Survey of the humanities in Canada and general support of Council (RF 44095)	7,097.56	3,609.76	
National Buildings Record, London, England				
Documentation of architectural records (RF 43033).....	26.80	
Special microfilming projects in England in connection with the program of the American Council of Learned Societies (RF 43064).....	5,277.35	304.00	
Stanford University, Palo Alto, California. School of Humanities				
Development of program (RF 42058).....	18,283.34	12,283.34	
University of Birmingham, England				
Awards in literature and for administration expenses (RF 45112).....	56,000.00	
Wesleyan University, Middletown, Connecticut				
Support of program in the humanities (RF 43070).....	2,500.00	829.37	

HUMANITIES — Continued**Fellowships and Grants in Aid****Fellowships**

	PRIOR YEARS	1945	1945 PAYMENTS
Administered by The Rockefeller Foundation (RF 41116, 42136, 44083, 44142, 45122).....	107,273.49	50,000.00	\$7,328.52
Special fellowship fund for postwar development of personnel in the United States (RF 44132, 45052).....	100,000.00	100,000.00	6,090.23
Grants in Aid (RF 40100, 41095, 43032, 43125, 44146, 45126).....	215,914.61	125,000.00	109,798.44
TOTAL — HUMANITIES.....	\$3,019,785.48	\$1,162,900.00	\$1,154,643.39

PROGRAM IN CHINA

Fellowships, Foreign and Local (RF 40044, 41037, 42041, 43021, 44038).....	\$54,824.48	\$.....	\$10,354.89
Grants in Aid (RF 42041, 43021, 44038).....	36,403.96	4,368.75
Nankai University, Institute of Economics, Shapingpa, Chungking General budget (RF 44037).....	14,835.22	14,835.22
University of Nanking, Chengtu, Szechwan Department of Agricultural Economics (RF 44037, 45067).....	7,500.00	8,000.00	11,500.00
Yenching University, Chengtu, Szechwan, College of Public Affairs General budget (RF 44037, 45066).....	7,500.00	8,000.00	11,500.00
TOTAL — PROGRAM IN CHINA.....	\$121,063.66	\$16,000.00	\$52,558.86

MISCELLANEOUS

American Library Association, Chicago, Illinois Committee on Aid to Libraries in War Areas Purchase or microfilming of American scholarly journals for institutions, chiefly in Europe and Asia (RF 44138, 45114).....	\$70,000.00	\$50,000.00	\$70,000.00
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New School for Social Research, New York City			
Administration of grants to European refugee scholars (RF 43065, 44082).....	\$7,105.78	\$.....	\$7,105.47
Royal Society, London, England			
Microfilm apparatus to aid the circulation of foreign periodicals (RF 41096).....	1,860.39
TOTAL — MISCELLANEOUS.....	\$78,966.17	\$50,000.00	\$77,105.47
ADMINISTRATION AND SCIENTIFIC SERVICES			
Scientific Services			
Prior Years.....	\$32,996.87	\$.....	\$19,914.90
1945.....	559,662.42	14,830.00	548,678.08
1946.....	637,844.00
General Administration			
Prior Years.....	18,615.97	6,405.83
1945.....	231,653.58	5,170.00	226,416.44
1946.....	261,125.00
TOTAL — ADMINISTRATION.....	\$842,928.84	\$918,969.00	\$801,415.25
LESS			
Unused balances of appropriations allowed to lapse			
The Rockefeller Foundation.....	\$557,237.53		
International Health Division.....	307,384.18		
	\$864,621.71	\$838,319.71	\$26,302.00
GRAND TOTAL.....	\$18,194,793.92	\$11,304,387.00	\$7,724,821.76

REFUNDS ON PRIOR YEAR CLOSED APPROPRIATIONS

American Council of Learned Societies, Washington, D. C.	(RF 44006)	\$1,000.00
American Council of Learned Societies, Washington, D. C.	(RF 43007)	495.62
American Library Association, Chicago, Illinois	(RF 44005)	7,795.12
American Library Association, Chicago, Illinois	(RF 43094)	1,514.48
American Philosophical Association, Middletown, Connecticut	(RF 43029)	421.61
Brown University, Providence, Rhode Island	(RF 43023)	5,562.63
Colombia Yellow Fever	(IH 42036)	110.61
Cornell University, Ithaca, New York	(RF 40077)	1,539.16
Council on Foreign Relations, New York City	(RF 43115)	6,517.06
Encyclopedia of the Social Sciences, New York City	(RF 32114)	1,199.31
Grants in Aid. Medical Sciences	(RF 37125)	369.80
Grants in Aid. Natural Sciences, 1935	(RF 36079)	188.75
Grants in Aid. Natural Sciences, 1941	(RF 41087)	648.96
Iowa State College, Ames	(RF 42091)	2,536.56
Johns Hopkins University, School of Medicine, Baltimore, Maryland	(RF 39004)	25,419.87
League of Nations, Princeton, New Jersey	(RF 42034)	1,206.59
Library of Congress, Washington, D. C.	(RF 43062)	103.07
National Research Council, Washington, D. C.	(RF 41011)	1,413.39
Princeton University, Princeton, New Jersey	(RF 43011)	1,835.22
Research Council, Department of Hospitals, New York City, N. Y.	(RF 40104)	3.20
Social Science Research Council, New York	(RF 42035)	3.26
University of Cambridge, England	(RF 43111)	29.21
University of Chicago, Illinois	(RF 41041)	3,129.47
University of Leeds, England	(RF 38041)	916.34

University of Michigan, Ann Arbor	(IH 40070)	\$1,137.13
University of Minnesota, Minneapolis	(RF 41086)	1,135.52
University of Oxford, England	(RF 34154)	3,752.57
University of Oxford, England	(RF 40040)	710.70
University of Oxford, England	(RF 41031)	100.44
University of Upsala, Sweden	(RF 43109)	.41
Vanderbilt University, Nashville, Tennessee	(RF 43071)	951.00
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				\$71,747.06

INTERNATIONAL HEALTH DIVISION

DESIGNATIONS DURING 1945, UNPAID BALANCES AS AT DECEMBER 31, 1944
OF PRIOR YEAR DESIGNATIONS, AND PAYMENTS THEREON IN 1945

		PRIOR DESIGNATIONS	1945 DESIGNATIONS	1945 PAYMENTS
CONTROL AND INVESTIGATION OF SPECIFIC DISEASES AND DEFICIENCIES				
Diphtheria				
United States				
Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health				
1944-46 (IH 43010)	\$3,518.51	\$..	\$1,898.98
Infective Hepatitis				
Near East				
Hebrew University, Jerusalem, Palestine				
1943-45 (IH 42016, 43025)	15,984.20	4,057.95
United States				
California				
1943-44 (IH 42016)	2,930.31	1,994.58

	PRIOR DESIGNATIONS	1945 DESIGNATIONS	1945 PAYMENTS
CONTROL AND INVESTIGATION OF SPECIFIC DISEASES AND DEFICIENCIES -- <i>Continued</i>			
Intestinal Parasites, including Hookworm			
United States			
Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health			
1944 (IH 43026).....	\$2,480.01	\$.....	\$228.97
Malaria			
Caribbean area			
Trinidad and Tobago			
1943-46 (IH 43004, 44011, 44019).....	25,566.01	22,500.00	29,139.03
Europe, Africa, and Near East			
Egypt			
1944-45 (IH 44013).....	4,979.67	3,681.70
Far East			
China			
1944-45 (IH 43058, 44020).....	12,148.79	20,000.00	5,514.74
Mexico			
1943-45 (IH 42058, 45050).....	14,403.51	3,080.00	6,515.95
South America			
Brazil (including West Africa <i>Anopheles Gambiae</i> survey)			
1943-44 (IH 43021, 44012).....	5,232.67
British Guiana			
1944-45 (IH 43029, 44018).....	2,492.04	4,500.00	3,550.67
Peru			
1943-45 (IH 42027, 44059).....	15,532.59	15,840.00	19,490.82

United States				
Florida				
1942-45 (IH 41061, 42024, 43027, 43048, 44017).....	\$34,043.68	\$18,980.00	\$22,983.91	
Harvard University, Cambridge, Massachusetts. School of Public Health				
1944-45 (IH 43028)	4,304.47	4,050.37	
University of Chicago, Illinois				
1944-46 (IH 43051).....	4,836.40	939.47	
Mental Hygiene				
United States				
Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health				
1943-46 (IH 42028, 45006).....	4,994.46	3,900.00	2,177.52	
Nutrition				
Canada				
University of Toronto, Ontario				
1941-47 (IH 41016, 43019).....	13,829.70	4,038.02	
Far East				
India				
1945 (IH 44024).....	4,455.00	
Mexico				
1944-46 (IH 43020, 44057).....	19,772.73	2,200.00	12,573.69	
United States				
Duke University, Durham, North Carolina				
1944-45 (IH 44009).....	10,000.00	10,000.00	
North Carolina				
1943-46 (IH 43012-13, 44001, 44021, 44023).....	34,085.20	15,277.00	11,632.26	
Tennessee (In cooperation with Vanderbilt University, Nashville)				
1942-46 (IH 40075, 41075, 42009, 43002).....	40,881.04	11,355.04	

	PRIOR DESIGNATIONS	1945 DESIGNATIONS	1945 PAYMENTS
CONTROL AND INVESTIGATION OF SPECIFIC DISEASES AND DEFICIENCIES --- <i>Continued</i>			
Rabies			
United States			
Alabama			
1944-45 (IH 43008, 44025).....	\$13,422.33	\$23,800.00	\$17,668.79
Respiratory Diseases			
Influenza			
United States			
California			
1943-46 (IH 42031, 43024, 43030, 44008, 44054).....	49,308.97	10,000.00	38,675.38
Minnesota			
1944-45 (IH 43031).....	9,039.86	4,874.67
University of Michigan, Ann Arbor			
1943-46 (IH 40070, 43016).....	10,500.00	7,000.00
Respiratory virus research			
South America			
Argentina			
1940-46 (IH 39024, 40017, 45007).....	2,329.68	5,400.00	3,011.13
Syphilis			
United States			
Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health			
1941-49 (IH 40067-68, 45048).....	26,211.81	70,143.00	1,680.41
North Carolina			
1944-46 (IH 43015, 44027).....	5,283.22	7,000.00	5,172.05

Tuberculosis				
United States				
Tennessee				
1943-46 (IH 42034, 43032, 44028).....	\$5,923.50	\$23,520.00	\$5,587.70	
Typhus Fever				
Far East				
China				
1944-45 (IH 43022, 44029).....	6,000.00	10,000.00	4,043.49	
Mexico. Louse control studies				
1945 (IH 44056).....	5,500.00	2,376.08	
Yellow Fever				
Africa				
Central and East Africa				
1944-45 (IH 43037, 44034).....	26,135.64	49,200.00	46,292.80	
West Africa				
1943-45 (IH 42021, 44035).....	8,775.28	40,800.00	29,024.54	
Caribbean area				
Central America				
1943-44 (IH 42060).....	9,000.00	
Panama				
1944-45 (IH 43035).....	1,887.80	233.38	
South America				
Brazil				
Investigations				
1944-45 (IH 43036, 44032).....	24,950.39	75,000.00	78,155.24	
Studies in jungle yellow fever				
1941-44 (IH 41031, 43054).....	3,581.49	

CONTROL AND INVESTIGATION OF SPECIFIC DISEASES AND DEFICIENCIES -- *Continued*Yellow Fever -- *Continued*South America -- *Continued*

	PRIOR DESIGNATIONS	1945 DESIGNATIONS	1945 PAYMENTS
British Guiana 1944-45 (IH 43033, 44030).....	\$2,382.72	\$4,050.00	\$3,363.29
Colombia 1944-45 (IH 43034, 44031, 44058).....	21,580.14	61,500.00	62,324.21
1945, Laboratory construction and equipment (IH 44058).....	12,000.00	1,022.85
Ecuador 1945-46 (IH 44033).....	19,200.00
Peru 1943-47 (IH 42038).....	47,525.70	14,474.44
Other Studies			
Collection and testing of wild animals for use in the study of diseases of public health interest 1942-44 (IH 42050).....	36,545.22
Rodent ecology and control			
United States Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health 1945-48 (IH 45005).....	61,500.00	1,782.04
Sanitation research			
Far East			
India 1945-46 (IH 44036).....	6,080.00

Statistical analyses of records of certain specific diseases 1940-45 (IH 39047).....	\$434.00	\$.....	\$.....
LABORATORIES OF THE INTERNATIONAL HEALTH DIVISION			
Maintenance 1944-45 (IH 43038, 44037, 45017).....	29,980.08	170,000.00	136,433.72
Moving and Installation Expenses 1945-46 (IH 45018).....	125,000.00
STATE AND LOCAL HEALTH SERVICES			
State Health Services			
Canada			
Manitoba			
Division of Industrial Hygiene 1943-46 (IH 42042, 43017, 44038).....	5,614.28	3,250.00	1,642.22
Division of Local Health Services 1942-46 (IH 42002).....	4,677.84	2,135.47
New Brunswick			
Division of Nutrition 1944-47 (IH 43003).....	11,250.00
Ontario			
Emergency recruitment of public health personnel 1941-44 (IH 41015).....	4,855.02
Prince Edward Island			
Provincial laboratory 1944-48 (IH 38035).....	15,300.00
Quebec			
Division of Health Education 1943-45 (IH 42056).....	5,484.36	3,153.96

STATE AND LOCAL HEALTH SERVICES — *Continued***State Health Services — *Continued*****Caribbean area****Leeward and Windward Islands****Engineering survey**

1944 (IH 44010).....

PRIOR DESIGNATIONS	1945 DESIGNATIONS	1945 PAYMENTS
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\$1,000.00	\$.....	\$983.39
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Public health engineering unit

1945 (IH 44040).....

.....	7,660.00	4,138.15
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Far East**China****Szechwan Provincial Health Administration**

1945 (IH 44041).....

.....	5,000.00	3,093.03
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Mexico**Public health administration**

1942-45 (IH 41064, 44039).....

1,675.58	2,645.00	2,548.66
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South America**Bolivia****Division of Endemic Diseases**

1942-47 (IH 41085, 42043).....

118,335.91	21,976.38
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Chile**Tuberculosis survey**

1945-48 (IH 45009).....

.....	54,875.00	3,151.68
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Ecuador**Division of Epidemiology and Control of Endemic Diseases**

1943-44 (IH 42064).....

8,478.45
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National Institute of Hygiene				
Department of Epidemiology and Control of Endemic Diseases				
1944-45 (IH 43040).....	\$14,209.40	\$.....	\$6,882.52	
General support				
1941-46 (IH 41025, 43006).....	11,659.98	3,655.95	
Peru				
National Institute of Hygiene. General support				
1945-49 (IH 44015).....	171,600.00	12,980.89	
National Ministry of Health. Division of Diagnostic Laboratories				
1944 (IH 43056).....	2,573.67	1,341.35	
Survey and study of state and local health services				
1944-45 (IH 44005, 44060).....	2,199.44	660.00	2,479.54	
United States				
California				
Virus Laboratory. Research and diagnosis				
1944-46 (IH 43039, 44053, 44055).....	7,000.00	35,500.00	
Coordinated School Health-Nutrition Service				
1942-46 (IH 42007, 43011).....	30,068.85	10,953.71	
New York City				
Department of Health. Statistical Service				
1945-49 (IH 44014).....	28,800.00	
North Carolina				
Public health education and school health service				
1939-47 (IH 38034, 43014).....	26,874.77	3,815.60	
South Carolina				
Public health education and school health service				
1944-45 (IH 44002).....	3,590.00	

PRIOR DESIGNATIONS	1945 DESIGNATIONS	1945 PAYMENTS
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STATE AND LOCAL HEALTH SERVICES — *Continued***Local Health Departments****Canada****British Columbia**

1936-47 (IH 36021, 38024)..... \$15,922.95 \$..... \$652.77

Manitoba

1944-47 (IH 44003)..... 12,300.00 2,841.11

Nova Scotia

1942-46 (IH 41077, 42055)..... 41,697.34 9,101.13

Caribbean area**El Salvador**

1943-44 (IH 42062)..... 7,733.48 5,748.18

Europe**Finland**

1940-45 (IH 40012, 40079)..... 18,748.85

Far East**India**Bengal
1944-46 (IH 43023, 44046)..... 2,173.41 6,080.00 634.51Bombay
1939-44 (IH 38097)..... 8,559.09 810.04**Mexico**

1936-47 (IH 40026, 41065, 41079, 43052-3, 44042-3)..... 66,244.25 7,445.00 17,390.44

South America**Bolivia**

1945-49 (IH 44044)..... 45,000.00

Brazil								
1945 (IH 45008)	\$...	\$3,000 00
Chile								
1942-47 (IH 42013-14)	40,692	62	11,667 22
Peru								
1945-46 (IH 44045)			64,680 00
Uruguay								
1943-44 (IH 43005)	2,200	00	10,683 63
PUBLIC HEALTH EDUCATION								
Schools and Institutes of Hygiene and Public Health								
Canada								
University of Toronto, Ontario								
1940-48 (IH 42053, 43009, 43018)	38,329	90	9,747 24
Europe								
Spain								
National Institute of Hygiene, Madrid								
1941-44 (IH 40024)	5,603	11
Turkey								
School of Hygiene, Ankara								
1940 (IH 39059)	1,680	61
Far East								
China								
National Institute of Health								
1944-45 (IH 43043, 44047)	2,245	52	20,000 00
India								
All-India Institute of Hygiene, Calcutta								
1944-45 (IH 43057)	2,485	25	26 93

	PRIOR DESIGNATIONS	1945 DESIGNATIONS	1945 PAYMENTS
PUBLIC HEALTH EDUCATION—Continued			
Schools and Institutes of Hygiene and Public Health — Continued			
Far East — <i>Continued</i>			
Philippine Islands			
Institute of Hygiene, Manila			
1941-44 (IH 41026).....	\$10,000.00	\$.....	\$.....
South America			
Brazil			
São Paulo Health Center			
1944 (IH 43042).....	2,770.02	354.52
Chile			
School of Public Health, Santiago			
1943-48 (IH 42063, 43055).....	60,597.02	9,183.09
United States			
Harvard University, Cambridge, Massachusetts. School of Public Health			
Department of Nutrition			
1942-46 (IH 41070).....	43,717.40	6,151.45
Department of Sanitary Engineering			
1949-47 (IH 40004, 43009).....	10,019.66	356.33
Johns Hopkins University, Baltimore, Maryland. School of Hygiene and Public Health			
Developmental aid			
1944-49 (IH 43049).....	132,241.77	12,216.55
Field Training and Study Area			
1944-49 (IH 43050).....	60,420.00	10,168.86

Schools of Nursing				
Canada				
University of Toronto, Ontario				
1943-45 (IH 42054).....	\$2,869.86	\$.....	\$2,247.79	
Europe				
Portugal				
Escola Técnica de Enfermeiras, Lisbon				
1944-47 (IH 43044, 44016).....	18,376.83	12,320.57	
South America				
Brazil				
University of São Paulo				
1941-44 (IH 41084).....	14,684.16	1,128.01	
Colombia				
National Superior School of Nursing, Bogotá				
1943-47 (IH 42061).....	48,932.29	4,157.73	
Ecuador				
School of Nursing, Quito				
1943-47 (IH 42065).....	15,285.30	5,775.70	
Uruguay				
University Nursing School, Montevideo				
1945-46 (IH 44061).....	5,700.00	
Venezuela				
National School of Nursing, Caracas				
1942-46 (IH 41023).....	12,546.56	10,311.22	
Fellowships, Travel of Government Health Officials and Teachers of Public Health, and				
Training of Health Workers				
1938-45 (IH 37076, 38077, 39060, 41021, 41059, 42048 43045, 44048).....	169,558.61	193,415.00	160,934.76	311

	PRIOR DESIGNATIONS	1945 DESIGNATIONS	1945 PAYMENTS
PUBLIC HEALTH EDUCATION — <i>Continued</i>			
Other Training			
Caribbean area			
British West Indies Training Station, Jamaica			
1944-48 (IH 44004, 44050).....	\$4,615.79	\$25,520.00	\$4,784.29
Mexico			
Training station			
1942-47 (IH 41067, 44049).....	1,277.72	5,625.00	2,123.54
FIELD SERVICE			
Field Staff			
1944-45 (IH 43046, 44051)			
Salaries.....	17,183.71	470,000.00	427,487.30
Commutation.....	13,411.83	50,000.00	43,963.98
Travel.....	33,134.28	165,000.00	131,946.56
Medical examinations.....	632.60	1,000.00	827.08
Field equipment and supplies.....	2,983.65	3,000.00	1,974.79
Pamphlets and charts.....	5,379.62	7,000.00	5,700.86
Express, freight and exchange.....	807.86	1,000.00	Cr. 148.00
Insurance and retirement.....	26,569.44	56,000.00	51,438.73
Bonding.....	296.00	1,000.00	993.55
Field Offices			
1944-45 (IH 43047, 44052)			
Canada.....	2,235.00	5,400.00	1,942.96
Caribbean area (central office, Havana).....	1,033.96	8,500.00	7,367.77

Far East (central office, Delhi)		\$3,436 30	\$8,320 00	\$6,546 97
Mexico	435 49	1,200 00	841 26
South America				
Argentina (Buenos Aires)	3,047 79	10,600 00	10,817 96
Bolivia (Cochabamba)	4,147 33	5,000 00	2,157 13
Brazil				
Rio de Janeiro	7,000 00	8,000.00	10,453 30
São Paulo	3 59
Chile (Santiago)	429 56	4,500 00	3,294 68
Peru (Lima)	1,925 39	8,000 00	8,272 35
Miscellaneous	500 00
1945-46 (IH 45019)				
Africa and Asia Minor (Cairo)	10,000 00	..
Director's Fund for Budget Revisions (IH 41027, 44006)	8,706 93
Director's Fund for Miscellaneous Expenses (IH 43001)	642 71	..	104 73
Exchange Fund (IH 33077)	21,521 44
TOTAL	\$2,118,055 22	\$2,200,000 00	\$1,733,443 35

TRANSACTIONS RELATING TO INVESTED FUNDS

PURCHASED

\$1,000,000	(Canadian \$) Dominion of Canada, Conversion Loan dated May 1, 1931, 4½s/48-58 @ 108.375 or Can. \$1,083,750.00 converted at a discount of 9.2876669%.....	\$983,094.91
9,000,000	USA Treasury Bonds, dated June 1, 1945, 2½s/59-62 @ par.....	9,000,000.00
2,000,000	USA Treasury Bonds, dated Nov. 15, 1945, 2½s/59-62 @ 100.625.....	2,012,500.00
3,000,000	USA Treasury Bonds, dated June 1, 1945, 2½s/67-72 @ par.....	3,000,000.00
2,000,000	USA Treasury Bonds, dated Nov. 15, 1945, 2½s/67-72 @ par.....	2,000,000.00
5,000,000	USA Treasury Certificates of Indebtedness Ser. F, dated Sept. 1, 1944, 7/8s/45 @ 100.064.....	5,003,234.55
4,000,000	USA Treasury Certificates of Indebtedness Ser. H, dated Dec. 1, 1944, 7/8s/45 @ 100.106.....	4,004,253.02
		<hr/>
		\$26,003,082.48

RECEIVED THROUGH EXCHANGE

\$2,000,000	USA Treasury Certificates of Indebtedness Ser. C, dated April 1, 1945, 7/8s/46, received in exchange for \$2,000,000 USA Treasury Certificates of Indebtedness Ser. B, dated April 1, 1944, 7/8s/45.....	\$2,000,000.00
2,250,000	USA Treasury Certificates of Indebtedness Ser. D, dated May 1, 1945, 7/8s/46, received in exchange for \$2,250,000 USA Treasury Certificates of Indebtedness Ser. D, dated May 1, 1944, 7/8s/45.....	2,250,000.00
20,709.77	Chicago, Milwaukee, St. Paul & Pacific R.R. Co., Voting Trust Certificates for Common Shares, received in exchange for \$1,785,200 Chicago, Milwaukee, St. Paul & Pacific R.R. Co. Conv. Adj. Ser. A 5s/2000. The new securities were taken into the books at the closing price on date of receipt @ \$32.125 each..	665,301.36
339,120	Shares Standard Oil Co. (Ohio) Common stock (Par \$10), received in exchange for 135,648 shares Stand- ard Oil Co. (Ohio) Common Stock (Par \$25). These shares were taken into the books at the aggregate value of the shares surrendered resulting in a per share value of \$9.933 per share for the new stock...	3,368,602.52
		<hr/>
		\$8,283,903.88

RECEIVED IN PART PAYMENT OF SECURITIES

\$45,090 }	Philadelphia & Reading Coal & Iron Co. Gen. Mtg. Income Bonds 6s/64, and
4,509 }	Shares Philadelphia & Reading Coal & Iron Co. Common Stock, received in part payment for \$167,000 Philadelphia & Reading Coal & Iron Co. Ref. S.F. 5s/73 (10% paid). These securities were taken into the books at the sale price per unit consisting of \$1,000 principal amount of bonds and 100 shares of stock, or 45.09 units @ \$2,092.44 per unit.....

\$94,348.26

RECEIVED THROUGH CONVERSION

675	Shares American Telephone & Telegraph Co. Capital Stock, received through the conversion of \$67,500 American Telephone & Telegraph Co. Conv. Deb. 3s/56, as follows: The conversion price was \$140.00 per share payable by the surrender of \$100 principal amount of bonds and payment of \$40.00 per share in cash. The bonds were carried on the books at 110% and their value, together with the cash payment of \$40.00 per share, resulted in a price of \$150.00 per share for the stock received.....
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\$101,250.00

ADDITIONS TO LEDGER VALUE

Interest increment on USA Savings Bonds, Defense Series F (12 year appreciation bonds):

\$67,500	(Maturity value) dated May 1, 1941, due May 1, 1953.....	\$1,282.50
67,500	(Maturity value) dated Jan. 1, 1942, due Jan. 1, 1954.....	877.50
67,500	(Maturity value) dated July 1, 1942, due July 1, 1954.....	742.50
135,000	(Maturity value) dated Jan. 1, 1943, due Jan. 1, 1955.....	1,215.00

\$4,117.50

\$34,486,702.12

TRANSACTIONS RELATING TO INVESTED FUNDS—*Continued*

316 THE ROCKEFELLER FOUNDATION

SOLD

			TOTAL PROCEEDS	LEDGER VALUE
\$1,000,000	(Canadian \$) Dominion of Canada, 3rd Victory Loan, dated Nov. 1, 1942, 1 3/4s/46 @ 100.73 or Can. \$1,007,300.00 converted at a discount of 9.25%.....	\$914,124.75	\$900,501 18	
3,345,000	Chicago, Rock Island & Pacific Ry. 1st & Ref. 4s/34 @ 54.619	1,827,003 23	2,301,182 55	
213,000	Cleveland Short Line Ry. 1st Mtg. 4 1/4s/61 @ 109.2.....	232,595.97	202,350.00	
234,000	Erie R.R. 1st Cons. Mtg. Ser. B 4s/95 @ 105.198	246,164 69	203,580 00	
274,000	(30.62% paid) The Kansas City, Ft. Scott & Memphis Ry. Ref. 4s/36 @ 87.37 ..	239,394 38	256,172.76	
136,000	Morris & Essex R.R. 1st Ref. 3 1/2s/2000 @ 75.733	102,997 29	112,540 00	
1,500,000	Pennsylvania R.R. Gen. Mtg. Ser. A 4 1/2s/65 @ 122.35	1,835,250 00	1,473,750 00	
45,090 } 4,509 }	Philadelphia & Reading Coal & Iron Co. Gen. Mtg. Income 6s/64, and Shares Philadelphia & Reading Coal & Iron Co. Common Stock, sold as a unit consisting of \$1,000 principal amount of bonds and 100 shares of stock, or 45.09 units @ \$2,092.44 per unit	94,348.26	94,348.26	
1,510,000	St. Louis-San Francisco Ry. Prior Lien Ser. A 4s/50 @ 54.569	823,985 32	1,098,350 00	
2,500,000	St. Louis-San Francisco Ry. Cons. Mtg. Ser. A 4 1/2s/78 @ 42.776	1,069,408 04	355,000 00	
5,000,000	USA Treasury Certificates of Indebtedness Ser. F, dated Sept. 1, 1944, 7/8s/45 @ 100.037	5,001,833 20	5,001,106 56	
4,000,000	USA Treasury Certificates of Indebtedness Ser. H, dated Dec. 1, 1944, 7/8s/45 @ 100.043	4,001,743 56	4,002,804.92	
400	Shares Bethlehem Steel Corp. (Delaware) 7% Cum. Pfd. Stock @ \$138.922 per share.	55,568 88	51,629.47	
8,482	Shares Central National Bank of Cleveland Common Stock (Par \$20) @ \$31.448 per share	266,741 90	272,397 43	
3,333	Shares Consolidated Edison Co. of New York, Inc. \$5 Cum. Pfd. (No par) @ \$107.307 per share	357,653 06	305,802 76	
9,000	Shares Consolidated Edison Co. of New York, Inc. Common Stock (No par) @ \$25.19 per share	226,709 34	407,348 31	

5,875	Consolidated Coal Co. Rights to purchase Common Stock @ \$2.093 each.....	\$12,295.35	\$.....
107	Shares The Eureka Pipe Line Co. Capital Stock (Par \$50) @ \$31.97 per share.....	3,421.13	4,815.00
13,300	Shares International Harvester Co. 7% Cum. Pfd. Stock @ \$183.50 per share.....	2,440,579.55	1,529,500.00
445	Shares Southern Pipe Line Co. Capital Stock (Par \$10) @ \$11.978 per share.....	5,330.10	2,781.25
13,400	Shares Standard Oil Co. (New Jersey) Capital Stock (Par \$25) @ \$58.112 per share..	778,702.00	406,368.64
		<hr/>	<hr/>
		\$20,535,850.00	\$18,982,329.09

REDEEMED

\$194,000	The Laclede Gas Light Co. Ref. & Ext. Mtg. 5s/45 @ par.....	\$194,000.00	\$198,616.63
69,100	Phelps Dodge Corp. Conv. Deb. 3½s/52 @ 103.....	71,173.00	75,038.59
15,000	Shares Standard Oil Co. (Ohio) 5% Cum. Pfd. Stock @ \$107.50 per share.....	1,612,500.00	1,515,000.00
		<hr/>	<hr/>
		\$1,877,673.00	\$1,788,655.22

SURRENDERED THROUGH EXCHANGE

\$1,785,000	Chicago, Milwaukee, St. Paul & Pacific R.R. Co. Conv. Adj. Ser. A 5s/2000, exchanged for 20,709.77 Chicago, Milwaukee, St. Paul & Pacific R.R. Co. Voting Trust Certificates for Common Stock.....	\$665,301.36	\$657,819.58
2,000,000	USA Treasury Certificates of Indebtedness Ser. B dated April 1, 1944, 7/8s/45, exchanged for \$2,000,000 USA Treasury Certificates of Indebtedness Ser. C, dated April 1, 1945, 7/8s/46.....	2,000,000.00	2,000,000.00
2,250,000	USA Treasury Certificates of Indebtedness Ser. D, dated May 1, 1944, 7/8s/45, exchanged for \$2,250,000 USA Treasury Certificates of Indebtedness Ser. D, dated May 1, 1945, 7/8s/46.....	2,250,000.00	2,250,000.00
135,648	Shares Standard Oil Co. (Ohio) Common Stock (Par \$25), exchanged for 339,120 shares Standard Oil Co. (Ohio) Common Stock (Par \$10).....	3,368,602.52	3,368,602.52
		<hr/>	<hr/>
		\$8,283,903.88	\$8,276,422.10

TRANSACTIONS RELATING TO INVESTED FUNDS -- *Continued*

		TOTAL PROCEEDS	LEDGER VALUE
SURRENDERED IN ACCORDANCE WITH REORGANIZATION PROCEEDINGS			
\$167,000	Philadelphia & Reading Coal & Iron Co. Ref. S.F. 5s/73 (10% paid), deposited in accordance with Plan of Reorganization dated July 1, 1941.		
In exchange for these bonds there was received the following:			
Cash payment of \$165.00 per \$1,000 bond.....		\$27,555.00	
Issue of:			
\$45,090 } Philadelphia & Reading Coal & Iron Co. Gen. Mtg. Income			
} 6s/64, and			
4,509 } Shares Philadelphia & Reading Coal & Iron Co. Common Stock which were sold in units consisting of \$1,000 principal amount of bonds and 100 shares of stock and which were taken into the books at the sale price per unit at \$2,092.44.....		94,348.26	
After consummation of the above there remained the value which attached to the stubs of the original issue represented by the right to receive from the Trustee a pro rata share of the net proceeds of certain property. These stubs were sold @ 1.025%, or.....			
		1,711.75	\$123,615.01
			<u>\$140,701.42</u>
SURRENDERED FOR CONVERSION			
\$67,500	American Telephone & Telegraph Co. Conv. Deb. 3s/56, having a book value of 110%, surrendered in part payment for conversion into 675 shares American Telephone & Telegraph Co. Capital Stock at the conversion price of \$140.00 per share, payable by the surrender of \$100 principal amount of bonds and payment of \$40.00 per share in cash	\$74,250.00	\$74,250.00
		<u>\$30,895,291.89</u>	<u>\$29,262,357.83</u>

Amount by which the proceeds of securities sold, redeemed, etc., during the year exceeded the ledger value.....	\$1,632,934.06
Liquidating dividend of \$52.00 per share on 220 shares Chehalis & Pacific Land Co. Capital Stock (Par \$10.00).....	11,440.00
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Less	
Cost of converting from registered to coupon form \$2,432,000 Chicago, Rock Island & Pacific Ry. 1st & Ref. 4s/34 @ \$1.50 per \$1,000 bond.....	\$3,648.00
Final payment of \$2.00 per \$1,000 bond (making \$10.00 paid) on \$274,000 Kansas City, Fort Scott & Memphis Ry. Co. Ref. Mtg. 4s/36.....	548.00
	4,196.00
	<hr/>
	\$1,640,178.06
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AMORTIZATION OF PREMIUM PAID ON PURCHASE OF SECURITIES	
55,000,000 USA Treasury Certificates of Indebtedness, Ser. F, 7/8s/45.....	\$2,127.99
4,000,000 USA Treasury Certificates of Indebtedness, Ser. H, 7/8s/45.....	1,448.10
6,000,000 USA Treasury Notes, Ser. A, 1½s/47.....	8,768.28
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	\$12,344.37
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TRANSACTIONS RELATING TO INVESTED FUNDS—*Concluded*

RECONCILIATION

Ledger value of securities, December 31, 1944.....	\$162,586,939.60
Purchased.....	\$26,003,082.48
Received through exchange.....	8,283,903.88
Received in part payment of securities.....	94,348.26
Received through conversion.....	101,250.00
Additions to ledger value.....	4,117.50
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	34,486,702.12
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Sold.....	18,982,329.09
Redeemed.....	1,788,655.22
Surrendered through exchange.....	8,276,422.10
Surrendered in accordance with reorganization proceedings.....	140,701.42
Surrendered for conversion.....	74,250.00
Amortization of premiums.....	12,344.37
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Ledger value of securities, December 31, 1945.....	\$167,798,939.52
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SCHEDULE OF SECURITIES ON DECEMBER 31, 1945

BONDS

NAME	PAR	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
Canada, Dominion of, 2nd Victory Loan 3s, Mar. 1, 1952-54...	C \$1,000,000		\$922,446.39		\$950,000.00
Canada, Dominion of, Conversion Loan of May 1, 1931, 4½s, Nov. 1, 1948-58.....	C 1,000,000		983,094.91		968,750.00
Chicago City & Connecting Rys. Coll. Trust 5s, Jan. 1, 1927 (C/D).....	\$1,305,000	52.	678,600.00	18.75	244,687.50
Chicago Rys. Co. 1st 5s, Feb. 1, 1927 (C/D) (25% paid — 500 bonds @ \$750 each).....	375,000	96.	360,000.00	68.75	257,812.50
Imperial Chinese Government Hu Kuang Rys. S.F. Loan of 1911 5s, June 15, 1975.....	£189,000		321,300.00		297,675.00
Morris & Essex R.R. 1st Ref. 3½s, Dec. 1, 2000.....	\$39,000	82.75	32,272.50	72.25	28,177.50
Northwestern Elevated R.R. 1st 5s, Sept. 1, 1941.....	500,000	70.	350,000.00	32.75	163,750.00
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 America Treasury Certificates of Indebtedness ½%:					
Series C, due Apr. 1, 1946.....	\$2,000,000	100.	\$2,000,000.00	100.016	\$2,000,320.00
Series D, due May 1, 1946.....	2,250,000	100.	2,250,000.00	100.018	2,250,405.00
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	103.15625	391,993.75
2% — Apr. 15, 1943 — Sept. 15, 1950-52.....	6,000,000	100.	6,000,000.00	103.5	6,210,000.00

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Bonds — *Continued*

NAME	PAR	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
United States of America Treasury Bonds—Continued					
2% — Sept. 15, 1943 — Sept. 15, 1951-53.....	5,000,000	100.	5,000,000.00	104.03125	5,201,562.50
2% — June 26, 1944 — June 15, 1952-54.....	4,500,000	100.	4,500,000.00	104.3125	4,694,062.50
2% — Dec. 1, 1944 — Dec. 15, 1952-54.....	6,600,000	100.	6,600,000.00	104.375	6,888,750.00
2½% — June 1, 1945 — June 15, 1959-62.....	9,000,000	100.	9,000,000.00	100.875	9,078,750.00
2½% — Nov. 15, 1945 — Dec. 15, 1959-62.....	2,000,000	100.625	2,012,500.00	100.875	2,017,500.00
2½% — May 5, 1942 — June 15, 1962-67.....	6,000,000	100.	6,000,000.00	103.5625	6,213,750.00
2½% — June 1, 1945 — June 15, 1967-72.....	3,000,000	100.	3,000,000.00	101.4375	3,043,125.00
2½% — Oct. 20, 1941 — Sept. 15, 1967-72.....	500,000	100.	500,000.00	108.875	544,375.00
2½% — Nov. 15, 1945 — Dec. 15, 1967-72.....	2,000,000	100.	2,000,000.00	101.4375	2,028,750.00
United States of America Savings Bonds Defense Series F (12 year appreciation bonds):					
Due May 1, 1953 — Maturity value.....	67,500	78.6	53,055.00	78.6	53,055.00
Jan. 1, 1954 — " "	67,500	76.7	51,772.50	76.7	51,772.50
July 1, 1954 — " "	67,500	76.	51,300.00	76.	51,300.00
Jan. 1, 1955 — " "	135,000	75.4	101,790.00	75.4	101,790.00
United States of America Treasury Notes:					
Series C, due Jan. 1, 1946 — .90%.....	3,000,000	100.	3,000,000.00	100.	3,000,000.00
Series A, due Sept. 15, 1947 — 1½%.....	6,350,000	100.28	6,367,536.54	100.84375	6,403,578.13
Series C, due Sept. 15, 1947 — 1¼%.....	7,000,000	100.	7,000,000.00	100.4375	7,030,625.00
TOTAL BONDS.....	\$84,215,667.84	\$85,991,316.88

PREFERRED STOCKS

NAME	SHARES	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
Chicago City & Connecting Rys. Participation Certificates (No par) (C/D)	17,530		\$1.00	\$125	\$2,191.25
Consolidated Edison Co. of New York, Inc. \$5 Cum. (No par).....	10,000	\$91.75	917,500.00	108.00	1,080,000.00
International Harvester Co. 7% Cum.	26,700	115.00	3,070,500.00	193.00	5,153,100.00
United States Steel Corp. 7% Cum.	6,600	133.86	883,462.50	153.50	1,013,100.00
TOTAL PREFERRED STOCKS.....		\$4,871,463.50	\$7,248,391.25

COMMON STOCKS

NAME	SHARES	LEDGER VALUE		MARKET VALUE	
		PRICE	TOTAL	PRICE	TOTAL
American Telephone & Telegraph Co. Cap.....	6,075	\$178.15	\$1,082,252.50	\$191.00	\$1,160,325.00
The Buckeye Pipe Line Co. Cap. (No par).....	107,763	11.79	1,270,627.60	14.375	1,549,093.13
Chehalis & Pacific Land Co. Cap. (Par \$10).....	220		1.00		1.00
Chicago City & Connecting Rys. Participation Certificates (No par).....	10,518		1.00		0.00
Chicago, Milwaukee, St. Paul & Pacific R.R. Voting Trust Certificates for Common Shares.....	20,709.77	32.125	665,301.36	31.25	647,180.31
Consolidated Natural Gas Co. Cap. (Par \$15).....	105,970	26.57	2,815,622.90	42.75	4,530,217.50
Continental Oil Co. (Delaware) Cap. (Par \$5).....	60,627	11.15	676,125.70	39.125	2,372,031.38
Eureka Pipe Line Co. Cap. (Par \$50).....	12,250	45.00	551,250.00	29.50	361,375.00
International Nickel Co. of Canada, Ltd. (No par).....	30,600	65.14	1,993,253.40	37.50	1,147,500.00
Interstate Natural Gas Co. Inc. Cap. (No par).....	33,763	14.96	505,042.25	41.00	1,384,283.00
Kennecott Copper Corp. Cap. (No par).....	33,100	59.78	1,978,731.03	48.75	1,613,625.00
Middle West Corp. Cap. (Par \$5).....	68,351.92	7.75	529,729.22	21.875	1,495,198.25
National Fuel Gas Co. Cap. (No par).....	381,018	7.75	2,952,889.50	14.625	5,572,388.25
National Transit Co. Cap. (Par \$12.50).....	126,481	12.70	1,606,308.70	15.125	1,913,025.13
Ohio Oil Co. (No par).....	94,684	35.37	3,349,446.50	21.875	2,071,212.50
Phelps Dodge Corp. Cap. (Par \$25).....	37,600	52.72	1,982,151.40	37.375	1,405,300.00
Southern Pipe Line Co. Cap. (Par \$10).....	24,400	6.25	152,500.00	11.50	280,600.00
South West Pennsylvania Pipe Lines Cap. (Par \$10).....	8,000	34.28	274,237.86	32.25	258,000.00
Standard Oil Co. of California Cap. (No par).....	60,967	17.25	1,051,680.75	47.50	2,895,932.50

THE ROCKEFELLER FOUNDATION

Standard Oil Co. of Indiana Cap. (Par \$25).....	691,140	\$28.90	\$19,973,946.00	\$40.50	\$27,991,170.00
Standard Oil Co. (New Jersey) Cap. (Par \$25).....	1,000,000	30.33	30,326,018.02	66.75	66,750,000.00
Standard Oil Co. (Ohio) (Par \$10).....	339,120	9.93	3,368,602.52	24.625	8,350,830.00
Union Tank Car Co. Cap. (No par).....	240,000	6.69	1,606,087.97	40.375	9,690,000.00
Wilson Realty Co. Cap.....	591		1.00		0.00
TOTAL COMMON STOCKS.....			\$78,711,808.18		\$143,439,287.95

SUMMARY	LEDGER VALUE	MARKET VALUE
Bonds.....	\$84,215,667.84	\$85,991,316.88
Preferred Stocks.....	4,871,463.50	7,248,391.25
Common Stocks.....	78,711,808.18	143,439,287.95
	\$167,798,939.52	\$236,678,996.08

LYBRAND, ROSS BROS. & MONTGOMERY

CERTIFIED PUBLIC ACCOUNTANTS

90 BROAD STREET, NEW YORK

ACCOUNTANTS' CERTIFICATE

**TO THE BOARD OF TRUSTEES OF
THE ROCKEFELLER FOUNDATION**

We have examined the balance sheet of The Rockefeller Foundation as of December 31, 1945 and the related statements of transactions for the year then ended, have reviewed the system of internal control and the accounting procedures of the Foundation and, without making a detailed audit of the transactions, have examined or tested accounting records of the Foundation and other supporting evidence, by methods and to the extent we deemed appropriate. Our examination was made in accordance with generally accepted auditing standards applicable in the circumstances and included all procedures which we considered necessary.

Cash on deposit at December 31, 1945, as confirmed directly to us by the respective depositaries, was reconciled with the amounts shown on the balance sheet. Securities owned at December 31, 1945 and held in the Foundation's safe deposit vaults were examined by us and those held elsewhere were confirmed by direct correspondence. We satisfied ourselves that income was properly accounted for and that appropriations and expenditures were duly authorized.

In common with the practice of many nonprofit organizations, the Foundation's accounts are maintained on the basis of cash receipts and disbursements except with respect to appropriations and to adjustments of premiums and appreciation on United States Government bonds.

In our opinion, the accompanying balance sheet and related statements set forth the position of the Foundation at December 31, 1945 and the results of its transactions for the year then ended on a basis consistent with that of the preceding year.

LYBRAND, ROSS BROS. & MONTGOMERY
NEW YORK, MARCH 26, 1946.

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